2020

Cultural Identity as a Predictor of Weight Loss in U.S. Hispanics

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Walden University
2020

Abstract

Cultural Identity as a Predictor of Weight-Loss in U.S. Hispanics

by

Leon Daniels

MS, Health Psychology, Walden University, 2011

BS, Social Psychology, Park University, 2009

Dissertation Submitted in Partial Fulfillment

of the Requirements for the Degree of

Doctor of Philosophy

Clinical Psychology

Walden University

May 2020

Abstract

Research on behavioral weight-loss programs has guided the development of health-related, behavior-change interventions that contribute to combating overweight and obesity in the United States, and illnesses that co-occur with unhealthy weight. However, research on behavioral weight-loss programs that focus on the U.S. Hispanic population and cultural identity is largely unrepresented in the current literature. The purpose of this study was to quantitatively examine body mass index (BMI) decreases of U.S. Hispanics while observing their (a) motivation toward exercise, (b) cultural identity, (c) physical activity program type, (d) exercise frequency, and (e) demographic variables as predictors of weight-loss. Guiding this study was the self-determination theory of human motivation, which maintains that when innate psychological needs are satisfied, people exhibit enhanced levels and qualities of motivation. The research questions for this study asked if exercise programs, cultural identity, and motivation toward exercise predict BMI decreases in the U.S. Hispanic population in the 76 participants. A survey-based regression design was used to analyze the variables for this study. The outcomes of this study fail to reject the null hypothesis. However, results revealed that vertical individualism, introjected regulation, external regulation and total collectivism exhibited a significant relationship with BMI decreases. The results of this may be used in the development and improvement of evidence-based practices that relate to the enhancement of culturally specific grassroots information gathering between practitioners and clients, which can be beneficial to a disproportionately unhealthy U.S. Hispanic population, which might lead to a better quality of life.

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Dedication

This dissertation is dedicated to Mr. and Mrs. Scott, as well as Mr. and Mrs. Holloway-Allen, the grandparents who shared the role of parents and provided me with the love, care, attention, and guidance that planted the seed on the importance of education and reaching for the stars. You all are the foundation and reason for my achievements and I am forever grateful that you were a part of my life.

Acknowledgments

I would like to thank Dr. Matthew Fearrington (chairperson), Dr. Kimberlee Bonura, (committee member) and Dr. Carolyn Davis (URR) for assisting me during the dissertation process.

Thank you to my aunt Pandora for encouraging me to “keep working at it, you’ll get there.” Thank you to uncle Hugh for keeping me motivated and providing comedic relief when I needed to laugh.

A special thank you to my grandmother Edith Holloway-Allen. Thank you for our talks at the kitchen table while you were here and in my dreams after your passing.

Finally, I would like to thank Prince for creating the music that energized and assisted me in maintaining a positive attitude throughout my dissertation journey. “The sun, the moon, and stars don’t seem as far as they did yesterday” (Prince, 1999).

Table of Contents

List of Tables

Chapter 1: Introduction to the Study

Introduction

The adult overweight and obesity rates in the United States, are at 70.7% (CDC, 2016a). Although weight management issues affect all ethnic groups, U.S. Hispanics (Latinos) are disproportionately affected (Center for Disease Control and Prevention, 2015a; CDC, 2016a). For example, the rate of obesity of the White population is 34.5%, while the rate of the Hispanic population is 42.5% (CDC, 2015a). Behavioral weight-loss program (BWLP) research and interventions involve weight-loss programs in which the primary focus is self-monitoring, exercise (physical activity), and nutritional regulation (Burke, Wang, & Sevick, 2011). To help combat the prevalence of overweight and obesity in the United States, BWLP strategies have become a cornerstone in health-related (e.g., weight management) behavior change research and interventions (Carels et al., 2014; CDC, 2016a; CDC, 2014; National Center for Chronic Disease Prevention and Health Promotion, 2012). However, most BWLP studies in the United States are comprised of primarily White participants or fail to incorporate the cultural identity of the participants (Aponte-Rivera et al., 2014; George, Duran, & Norris, 2014; Mak, Law, Alvidrez, & Perez-Stable, 2007; Perez et al., 2013). The Report of the Task Force on the Implementation of the Multicultural Guidelines states "When research incorporates culture as a specific contextual variable, it reduces the likelihood that behavior of diverse cultural groups will be misidentified, pathologized, or stigmatized" (American Psychological Association, 2008, p. 12). Given the American Psychological Association's position, the reality of the underrepresentation of culturally diverse United

States populations in clinical research introduces generalizability issues when study assumptions and conclusions are applied to populations other than Whites (American Psychological Association, 2002; American Psychological Association, 2008; Huey Tilley, Jones, & Smith, 2014; National Institute of Mental Health, 2001).

The scarcity of culturally centered Hispanic BWLP studies hinders the development and improvement of useful evidence-based practices (Anderson, 2006; Carels et al., 2014; Huey et al., 2014; La Roche, Davis, & D'angelo, 2015). This insufficient representation, in turn, decreases the prospect that overweight and obesity disparities in U.S. Hispanic communities can be addressed effectively. The current literature does not sufficiently inform BWLP interventions that address the unique cultural differences in the U.S. Hispanic population. Given this, it is still unknown if the expression of cultural identity affects U.S. Hispanics differently concerning weight-loss. Studies that are centered on diverse United States populations (e.g., Hispanics) and cultural identity (i.e., individualistic vs. collectivist) as influencers of weight loss, must be pursued, so that the development and improvement of approaches can help reduce the weight management disparities. The primary goal of this study was to analyze the extent to which cultural identity, exercise frequency, motivation toward exercise, and exercise programs influence Body Mass Index (BMI) decreases in U.S. Hispanics. The following sections of this chapter include the background, problem statement, the purpose of the study, research questions and hypotheses, theoretical framework, nature of the study, assumptions, scope and delimitations, limitations, as well as the significance of this study.

Background

Although a great deal of research explore motivation toward exercise, exercise programs, and their influence on BMI decreases, the conclusions are not as useful for diverse populations because the majority of BWLPs studies fail to pursue an understanding of cultural differences on treatment outcomes (Anderson, 2006). For example, Carels et al. (2014) and Carels et al. (2015) compared treatment outcomes of BWLPs in which the participants were primarily White. Miquelon, Chamberland, and Castonguay (2016), Castonguay and Miquelon (2017), Mack et al. (2012), and Sebire et al. (2011) explored participants' motivation toward exercise as a predictor of weight-loss in which 75-100% of the participants were White, cultural identity was not taken into consideration as an influencer of decreasing BMI, and researchers pointed out the importance of extending their research to include other cultures. Further, Sheldon, Cheng, and Hilpert (2011), Tay and Diener (2011), and Church et al. (2013) examined the motivation of multiple cultures outside the United States and concluded that innate satisfaction is essential for motivation and is also distinctive in its cultural expression (Deci & Ryan, 2002; Vansteenkiste et al., 2010). Finally, Cherrington et al. (2015) studied the exercise motivation of recent Hispanic immigrants living in Alabama and although the study was focused on Hispanics, the participants were primarily Mexican and recent immigrants to the United States.

BWLP studies overwhelmingly employ White participants, are conducted outside the United States, fail to identify the cultural make-up of the participants (Castonguay & Miquelon, 2017; Miquelon et al., 2016), and fail to consider culture identity as a potential

predictor of BMI decreases. Further, two reviews of BWLP research by Holub et al. (2013) and Perez et al. (2013) revealed that .0014% were focused on U.S. Hispanics, all studies failed to consider cultural identity as a predictor of BMI decreases, and Hispanics responded better to BWLP when culture was taken into consideration. Studies concerning BWLP that explore motivation toward exercise and physical activity are plentiful; however, very few use U.S. Hispanic populations and none have been found to explore cultural identity as a potential factor of weight loss.

Problem Statement

The leading causes of death in the United States are preventable diseases that include diabetes, cancer, and respiratory diseases, which are all exacerbated by weight gain (CDC, 2015a; CDC 2015b; CDC 2016c). The National Center for Chronic Disease Prevention and Health Promotion (NCCDPHP) and the Center for Disease Control and Prevention (CDC), report that issues of overweight and obesity commonly co-occur with mental health and physical ailments. These ailments include type 2 diabetes, hypertension, stroke, some cancers, heart disease, and mental illness (CDC, 2016a; CDC, 2014; NCCDPHP, 2012). Additionally, obesity-related health issues contribute nearly $150 billion to the United States annual health care expenditures (CDC, 2016a). While obesity and overweight increasingly affect all Americans, the U.S. Hispanic population is disproportionately affected (CDC, 2015a; CDC, 2016a). As mentioned previously, the U.S. Hispanic population experiences obesity rates much higher than White (CDC, 2015a). The existing literature has focused primarily on the United States White population or on Latino (Hispanic) populations outside the United States. For those

BWLP studies that have used U.S. Hispanics as their focus, culture was employed only to assist in the interpretation of the studies' conclusions. BWLP research has meagerly addressed the U.S. Hispanic population and intergroup (Mexicans, Puerto Ricans, Columbians, etc.) U.S. Hispanic population, as well as failed to consider cultural identity as a potential contributor to BMI decreases and general health-related behavior.

Instrumental to the future of health in the United States are setting a goal to better understand health-related behaviors that might contribute to improved health outcomes of an increasing U.S. Hispanic population and identifying factors that uniquely contribute to U.S. Hispanics motivation toward exercise and cultural identity. The American Psychological Association, National Institute of Mental Health (NIMH), and a multitude of researchers all stress the importance of pursuing research that reduces the likelihood that "behavior of diverse cultural groups will be misidentified, pathologized, or stigmatized" (American Psychological Association, 2002, p. 12). By increasing the number of studies that are centered on the U.S. Hispanic population, the likelihood of this occurring will be reduced. This study extended the knowledge about BWLP in the U.S. Hispanic population; as well as filled the gap in the current BWLP literature by improving understanding of what factors influence health-related behavior change in the U.S. Hispanic population. Addressing the gap in the BWLP literature also promoted understanding of predictors of BMI decreases in the general and the intergroup U.S. Hispanic population. This study was needed, given that exploring potential U.S. Hispanic cultural variations of motivation toward exercise contributed improved culturally unique BWLP intervention strategies that might ultimately help improve the development of

evidence-based practices and health-related behavior changes in the U.S. Hispanic population.

Purpose of the Study

The purpose of this study was to quantitatively examine whether the categories of motivation toward exercise, cultural identity, exercise programs, exercise frequency, and demographic independent variables (age and sex) influence BMI decreases (i.e., dependent variable) in the U.S. Hispanics population. The variables that were analyzed for this study included measuring age as an interval variable, sex using male or female, and exercise frequency as an interval variable (i.e., 0 - 7 Days Per Week). Additionally, BMI was measured using below 18.5, 18.5 to 24.9, 25 to 29.9, and above 30 to represent, underweight, normal/healthy, overweight, and obese, respectively. Weight was measured in pounds, while height was measured in inches. Physical activity program type was measured using three categories: individual based, group based, and intermittent exerciser. Motivation toward physical activity was measured using the 18-item (5-point scale) Behavioral Regulation in Exercise Questionnaire 2 (BREQ-2), which is in line with previous studies that examined exercise motivation (Castonguay & Miquelon, 2017; Miquelon et al., 2016). Four categories of collectivism and individualism (horizontal individualism, vertical individualism, horizontal collectivism, and vertical collectivism) were evaluated using the 16-item (9-point scale) Individualism-Collectivism Scale. Use of this scale aligns with past studies, where the goal was to understand the influence of cultural identity constructs on various aspects of human life, for example culturally influenced health patterns (Singelis, Triandis, Bhawuk, & Gelfand, 1995).

The rationale for the use of the BMI, age, sex, exercise frequency, motivation toward physical activity, and exercise program variables is that they were used with past studies to understand what factors influenced weight-loss in study participants (Carels et al., 2015; Castonguay & Miquelon, 2017; Miquelon et al., 2016). The rationale for the use of individualistic and collectivist cultural identity as variables was based on self-determination theory (SDT). SDT contends that culture influences the expression of motivation, which dictates the level of motivation a person or group exhibits when engaging in an activity (Deci & Ryan, 2000).

Research Questions and Hypotheses

The research questions, as well as the null and alternative hypotheses that identify the variables for this study, include:

RQ1: Does cultural identity predict BMI decrease in the U.S. Hispanic population?

*H*0: Cultural identity does not predict BMI decrease in the U.S. Hispanic population.

*H*1: Cultural identity predicts BMI decrease in the U.S. Hispanic population.

RQ2: Does program type predict BMI decrease in the U.S. Hispanic population?

*H*0: Program type does not predict BMI decrease in the U.S. Hispanic population.

*H*1: Program type predicts BMI decrease in the U.S. Hispanic population

RQ3: Does motivation toward exercise predict BMI decrease in the U.S. Hispanic population?

*H*0: Motivation toward exercise does not predict BMI decrease in the U.S. Hispanic population.

*H*1: Motivation toward exercise predicts BMI decrease in the U.S. Hispanic population.

Theoretical Framework

SDT, which informed this study, is concerned with long-term well-being, personality development, and human motivation (Deci & Ryan, 2000; Deci & Ryan, 2014). SDT was developed out of the need to go beyond previous theories of motivation. For example, Bandura's Social Cognitive Theory (SCT) says that motivation can be explained through the theory of self-efficacy, where personal beliefs about ability dictate the level of effort and perseverance in accomplishing goals (Bandura, 1989; Deci & Ryan, 2000). SCT contends that a person's environment cannot encourage motivated behavior and that motivated behavior cannot be initiated via autonomy (Bandura, 1989). SCT is useful in describing the ability to engage, complete, or abandon goals (Bandura, 1989). Consequently, the inability of SCT to consider the value in the quality of motivation inadvertently brought about the need for a theory that elaborates on the initiation of goal pursuits, as well as the long-term maintenance of health-related behavior change (Deci & Ryan, 2000; Ryan & Deci, 2006; Silva et al., 2014). Unlike SCT, SDT explains the why of initiation, persistence, action, and outcome of motivated behavior (Bandura, 1989; Ryan & Deci, 2006).

Deci and Ryan are responsible for the development and evolution of SDT. The foundation of SDT is innate psychological needs for competence, autonomy, and relatedness (Deci & Ryan, 2000; Ryan & Deci, 2000a; Ryan & Deci, 2000b). According to SDT, when innate psychological needs are satisfied, self-motivation improves, while in its absence, self-motivation is diminished (Deci & Ryan, 2000; Ryan & Deci, 2000a; Ryan & Deci, 2000b). When innate psychological needs are satisfied, people demonstrate increased motivation to conquer challenges, exhibit behavioral self-regulation, and pursue meaningful relationships (Deci & Ryan, 2000; Ryan & Deci, 2011). Competence, autonomy, and relatedness are instrumental in cultivating the behaviors and competencies necessary to maintain motivation, long-term psychological integrity, and well-being (Deci & Ryan, 2000; Ryan & Deci, 2011).

SDT incorporates elements of innate psychological needs (autonomy, competence, and relatedness) to explain why people get motivated during health-related behaviors (Deci & Ryan, 2000; Deci & Ryan, 2008; Vansteenkiste et al., 2010). When pursuing health-related behavior changes, SDT maintains that the presence of motivation and type of motivation is vital. The type of motivation exhibited (controlled and autonomous) will predict whether goals and psychological well-being are met (Deci & Ryan, 2000; Deci & Ryan, 2008; Vansteenkiste et al., 2010). However differently manifested and expressed, culture represents the universal need of autonomy, competence, and relatedness that influences motivated behaviors from individualistic and collectivist cultural perspectives (Deci & Ryan, 2000; Deci & Ryan, 2008; Vansteenkiste et al., 2010). Chapter 2 of this study will more fully explain SDT.

The publication, Task Force on the Implementation of the Multicultural Guidelines, reminds researchers that to "guarantee informed assessment of the adequacy of research generation," studies must be analyzed and interpreted from a cultural point of view (American Psychological Association, 2002, p.12). Even though SDT has primarily informed motivation studies related to personal, educational, and corporate environments, it is increasingly being used in explaining motivation related to initial and sustained health-related behavior change (e.g., physical activity and weight loss) from a cultural point of view (Deci & Ryan, 2000; Gorin, Powers, Koestner, Wing, & Raynor, 2014; Teixeira, Carraça, Markland, Silva, & Ryan, 2012). Given this, SDT relates to this study's approach and research questions because it incorporates culture into its explanation of motivated behavior.

Nature of the Study

A regression design was used in this quantitative study because the goal was to examine and identify cultural, motivational, and demographic variables that might predict BMI decreases in the U.S. Hispanic population. The key study variables were as follows: the dependent variable was BMI; the independent variables were individualistic cultural identity, collectivist cultural identity, exercise program (individual or group), exercise frequency, and categories of motivation toward exercise (amotivation, intrinsic motivation, integrated regulation, identified regulation, external regulation). The participants included those ages 18-65 and customers of the community research partner's health and fitness organization. The data were collected using the Survey Monkey online platform, the BREQ-2 instrument (Appendix A), the Individualism-

Collectivism Scale (Appendix B), and a Demographic Questionnaire (Appendix C). The data were analyzed using a multiple regression analysis, which helped explain whether and to what extent the independent variables predict BMI decreases. Detail are given in Chapter 3.

Definitions

This section defines the terms used in this study and operationalization of the variables.:

Age: Measured as an interval variable.

Autonomy: The need to feel that behavior is a matter of personal choice (Deci & Ryan, 2002; Deci & Ryan, 2014; Ng et al., 2012; Patrick & Canevello, 2011).

Behavioral weight loss programs (BWLP): Weight loss programs in which the primary focus is on self-monitoring, exercise, and nutritional regulation (Burke et al., 2011).

BMI: Measured as three levels, 0 (*below 25*), 1 (*above 25*), or 2 (*above 30*).

Competence: the innate need to be challenged, capable, and efficient in the pursuit and achievement of goals (Deci & Ryan, 2002; Ng et al., 2012; Patrick & Canevello, 2011).

Collectivist cultural identity: Measured as two levels, 0 (*vertical collectivism*) or 1 (*horizontal collectivism*).

Exercise frequency: Measured as 8 levels, *0 (0 days per week), 1 (1 day per week), 2 (2 days per week), 3 (3 days per week), 4 (4 days per week), 5 (5 days per week),* 6 *(6 days per week), or 7 (7 Days per week).*

Exercise program: Measured as three levels, 0 (*individual*), 1 (*group l*), *2 (I don't usually exercise each week)*.

Individualist cultural identity: Measured as two levels, 0 (*vertical individualism*) or 1 (*horizontal individualism*).

Innate (basic) psychological needs: Competence, relatedness, and autonomy are the three basic needs essential for people of all cultures to realize and maintain well-being (Deci & Ryan, 2000; Deci & Ryan, 2008; Ryan & Deci, 2011).

Motivation toward exercise: Measured as five levels, 0 (*amotivation*), 1 (*intrinsic motivation*), 2 (*integrated regulation*), 3 (*identified regulation*), or 4 (*external regulation*).

Relatedness: The need to feel understood, cared for, and connected to individuals and groups of a society (Deci & Ryan, 2002; Ng et al., 2012; Patrick & Canevello, 2011).

Sex: Measured as two levels, 0 (*male*) or 1 (*female*).

Assumptions

Assumption were necessary for this study because it was based on a sel-reported survey. It was assumed that

- The participants for this study did not feel pressured to participate.
- The participants answered questions about their past and present weight, cultural identity, exercise frequency, and behavior toward physical activity honestly.
- Participants' understood the questions.

- The participants recalled their past weight, present weight, and exercise frequency to the best of their ability.

Scope and Delimitations

The following aspects of the research problem are addressed in this study: (a) the U.S. Hispanic population that is disproportionately affected by overweight and obesity, (b) the lack of BWLP studies dedicated to the U.S. Hispanic and U.S. intergroup Hispanic populations, and (c) the lack of BWLP studies that use cultural identity as a predictor of BMI decreases in the U.S. Hispanic population. The focus of this study was chosen to determine what predict influence BMI decreases in the U.S. Hispanic population. Given the steady increase of the U.S. Hispanic population (U.S. Census Bureau, 2015), the current research does not reflect the changing demographics of the United States. This study centered on the southwestern U.S. Hispanic adult population. The narrow demographic focus of this study can present generalizability issues if the results are used to draw conclusions about other cultural, ethnic, and regional U.S. Hispanic populations in the Unites States.

Limitations

This regression study focused on the ability of the independent variables to predict BMI decreases in the U.S. Hispanic population. Given this, causation cannot be assumed and was not assessed during this study. This study used a homogeneous purposive sampling of the research partner's customers. The sampling process took place in the 82% Hispanic population of El Paso, Texas. Consequently, the conclusions of this study demonstrated limited generalizability for populations of different demographics.

The participants in this study were asked to recall their past weight; it is possible that they recalled it inaccurately. The questionnaires used in this study were self-reported; it is possible the participants answered untruthfully. No biases that could influence the outcomes of this study were identified.

Significance

This study was expected (a) to contribute to health psychology and behavioral health research, which are especially associated with BWLP and intervention strategies; (b) complement, specifically, the current BWLP literature with culturally unique study conclusions on understanding what factors influence BMI decreases in U.S. Hispanic communities. Further, this increased knowledge might promote the development and improvement of evidence-based practices that are beneficial to an increasingly unhealthy U.S. Hispanic population (CDC, 2015a; CDC, 2015b; CDC, 2016b; CDC, 2016c). This study has positive social change: it could diminish the overweight and obesity disparities of U.S. Hispanics and thus lead to a better quality of life.

Summary

Hispanics in the United States are disproportionately affected by being overweight and obese compared to their White counterparts. BWLP intervention strategies, which include self-monitoring and physical activity, have proved to be useful in past studies. BWLP studies have shown that Hispanics respond well to intervention approaches that consider culture. However, most BWLP-related studies primarily use White participants or are conducted outside the United States, and thus introduce generalizability concerns. This lack of BWLP studies on the steadily increasing U.S.

Hispanic population interferes with the chance that adverse health-related behavior could be addressed effectively. The purpose of this study was to quantitatively examine whether the following five categories of motivation toward exercise, cultural identity, exercise program, exercise frequency, and demographic variables, predict BMI decreases in the U.S. Hispanic population.

SDT asserts that controlled and autonomous types of motivation, in addition to the basic presence or absence of motivation, are essential in the explaining motivated behavior, predicting the achievement of goals, and maintaining psychological well-being. SDT describes the three innate psychological needs of competence, relatedness, and autonomy, which are culturally universal and essential to realizing goals and long-term well-being. This study used a regression design to determine if cultural, motivational, and demographic predictors influence BMI decreases in the U.S. Hispanic population. Data for this study were collected from the customers of the study's health and fitness community research partner, as well as from those who completed an online questionnaire using Survey Monkey. This study contributed culturally specific information on the predictors of health-related behavior change in U.S. Hispanics, information that might ultimately influence the development and improvement of culturally inspired evidence-based practices and social change implications that lead to a better quality of life for Hispanics living in the United States.

Chapter 2 will examine the existing literature related to this study. Chapter 3 will describe and rationalize the methods used in this study. Chapter 4 will provide the results

of this study. Chapter 5 will compare the current findings with the literature, draw conclusions, and offer recommendations.

Chapter 2: Literature Review

Introduction

BWLP study results have shown promise in influencing health-related behavior change (Ryan, Patrick, Deci, & Williams, 2008; Santos, Silva, & Teixeira, n.d.). Although exercise and motivation intervention strategies informed by SDT are contributing to improved initial and sustained weight management outcomes, BWLP studies centered on the U.S. Hispanic population are lacking (Carels et al., 2014; Gorin et al., 2014; Patrick & Canevello, 2011). Moreover, the current literature is deficient in studies that examine the relationships of cultural identity (collectivism and individualism) and health-related behavior change outcomes. The fourth multicultural guideline of the American Psychological Association's Guidelines on Multicultural Education, Training, Research, Practice, and Organizational Change for Psychologists (2008) states, "Culturally sensitive psychological researchers are encouraged to recognize the importance of conducting culture-centered and ethical psychological research among persons from ethnic, linguistic, and racial minority backgrounds" (p. 36). This chapter will cover the topics: the literature search strategy, the study's theoretical foundation, a review of the literature on the key variables for this study, a summary of the major themes, and gaps in the current literature.

Literature Search Strategy

An initial digital search of the literature was performed using Google Scholar linked to the Walden University database. After reviewing the abstract of numerous health psychology related articles, the Sage Journal of Health Psychology used. The

terms employed to conduct the initial search included obesity, overweight, exercise programs, diabetes management, and, weight loss programs. This combination of initial search terms resulted in 646 articles published between 2014 and 2016. Again, abstracts were reviewed to locate recent studies about diabetes and weight management. After reviewing articles related to the subject of this study, EBSCOHost and PsycARTICLES databases were used to uncover and review additional BWLP related articles.

This chapter will cover the following topics: a review of SDT, an appraisal of research that investigated the effectiveness of BWLP strategies, the usefulness of BWLP strategies in health-related behavior change and weight management, how the current study complements past research, and the methods employed in prior studies.

Synopsis of the Current Literature

The major causes of death in the United States for 2015 were mostly preventable chronic diseases such, as diabetes, cancer, heart, and respiratory diseases, (CDC, 2015a; CDC 2015b; CDC 2016c). It is estimated that obesity contributes to billions of dollars in annual medical costs, as well as to adverse health conditions, such as type 2 diabetes, hypertension, stroke, some cancers, heart disease, and mental illness (CDC, 2016a). Reports from the CDC and NCCDPHP reveal that overweight and obesity issues often co-occur with chronic disease and mental health ailments, for example, depression (CDC, 2014; NCCDPHP, 2012). The CDC defines overweight as a BMI of 25 to 29.9 and obesity as a BMI of above 30 (CDC, 2016a). The U.S. adult overweight and obese rates for 2013-2014 were 70.7% (CDC, 2016a). However, chronic disease, mental health, and weight management challenges in the United States do not discriminate.

Although overweight and obesity issues increasingly affect millions of people in the United States each year; the U.S. Hispanics population is disproportionately affected when compared to their White counterparts (CDC, 2015a; CDC, 2016a). For example, in the United States the White population rate of obesity is 34.5% while the U.S. Hispanic population experience obesity rates of 42.5% (CDC, 2015a). Past research has investigated BWLP strategies, but the problem is that the majority of the BWLP research in the United States use White participants as the primary participant pool (Carels et al., 2014; Carels et al., 2015; Perez et al., 2013). As a result, the insufficient consideration given to the U.S. Hispanic populations in the current literature has not contributed to an improvement of knowledge of culturally relevant BWLP evidence-based interventions. Given this, diverse communities (e.g., Hispanics) in the United States are disproportionately affected where health-related outcomes are concerned (Sternthal, Slopen, & Williams, 2011; Williams, 2012; Williams & Mohammed, 2013). For example, when compared to White Americans, U.S. Hispanics exhibit elevated levels of discriminatory stressors, (i.e., financial and job/life discrimination) that contribute to adverse physical and mental health issues, for example, depression and various chronic diseases (Braveman, 2009; Sternthal et al., 2011; Williams, 2012; Williams & Mohammed, 2013).

The contribution of behavioral weight loss intervention approaches and SDT guidance has become valuable in addressing overweight, obesity, and the associated chronic disease health concerns that plague a progressively unhealthy U.S. population. The central elements of SDT are the innate psychological needs of competence,

autonomy, and relatedness (Deci & Ryan, 2000; Deci & Ryan, 2014). The idea of competence, autonomy, and relatedness as it relates to self-determination represents the subconscious need of individuals and groups to experience an attachment with others while also realizing objectives in an autonomous uncontrolled manner (Deci & Ryan, 2000; Deci & Ryan, 2014). The literature concerning SDT has primarily centered on improving the performance in personal, educational, and corporate environments. However, recently weight management studies began employing SDT to guide the understanding of human motivation concerning initial and sustained health-related behavior change (Deci & Ryan, 2000; Deci & Ryan, 2014; Gorin et al., 2014; Teixeira et al., 2012).

Because the current literature is inundated with BWLP studies that primarily employ White participants, this reality introduces generalizability issues when applying the results to diverse populations in the Unites States (Anderson, 2006; American Psychological Association, 2002; American Psychological Association, 2008; Carels et al., 2015; Perez et al., 2013). Given the deficiency of BWLP research dedicated to diverse U.S. populations, and cultural identities (individualistic and collectivist) that influence the health-related behaviors of U.S. Hispanic culture, the purpose of this study was two-fold (Deci & Ryan, 2000; Vansteenkiste et al., 2010). First, this study enhanced current BWLP research by supplementing the existing literature with U.S. Hispanic health-related behavior change information that included attitudes toward physical activity and cultural identities that might influence U.S. Hispanics' motivation during physical activity and weight management. Secondly, this study examined demographic

variables, motivation toward exercise, exercise frequency, and physical activity program type (individual, group, and intermittent exercisers) as predictors of BMI decreases. Further, this study introduced cultural identity (horizontal individualism, vertical individualism, horizontal collectivism, and vertical collectivism) as a potential predictor of weight loss, in which when controlling for the other independent variables determine the overall influence cultural identity have on weight loss. This study's contribution to the current literature can inform effective BWLP related evidence-based practices that might aid U.S. Hispanics looking to maintain a healthy weight and decrease the likelihood of developing adverse health issues (Anderson, 2006; Huey Jr et al., 2014; Perez et al., 2013).

Research Diversity

In the face of generalizability concerns fueled by the longstanding practice of using primarily White during research and the changing demographics of the United States, the American Psychological Association stressed the importance of correcting the folly of excluding racial, cultural, ethnic and intergroup variables in behavioral research, for example, elevated MMPI scores of non-White populations (American Psychological Association, 2002). Taking culture into consideration in practice and research, often leads to distinctive assumptions and outcomes (American Psychological Association, 2002). The American Psychological Association developed the Report of the Task Force on the Implementation of the Multicultural Guidelines (2008) to guide researchers toward a more inclusive approach to conducting studies. The fourth guideline communicates the following:

> The APA encourage all those involved in psychological research and publication to be grounded in the empirical and conceptual literature on the ways that culture influences the variables that they investigate, as well as culture-specific variations of research design, assessment, and analysis. People should be considered in the context of their demographic, cultural, and individual preferences profiles. When research incorporates culture as a specific contextual variable, it reduces the likelihood that behavior of diverse cultural groups will be misidentified, pathologized, or stigmatized. Culture is a central explanatory concept in understanding human behavior. Adequately describing background characteristics of human participants helps to determine the extent to which samples are representative of the populations to which researchers wish to generalize their findings. Expertise in particular cultures and general multicultural sensitivity are needed to guarantee informed assessment of the adequacy of research generation and design, use of culturally appropriate assessment techniques, and analysis and interpretation of research from all cultural perspectives (American Psychological Association, 2008, p. 12).

The American Psychological Association expressed diligence aimed at immersing social research into the realm of multicultural and diversity informed research. However, 15 years later the actual implementation of these goals has been slow to develop (Aponte-Rivera et al., 2014; George et al., 2014; Mak et al., 2007; NIMH, 2001). For example, from 1970 to 2007, the percentage of Hispanic-focused research increased from less than 1% to 9% (Mak et al., 2007; NIMH, 2001). Hispanics currently constitute 17%

of the United States population and that number is expected to increase to 35% by 2060 (U.S. Census Bureau, 2015). Given the low percentage of Hispanic participation in clinical research, as well as the American Psychological Association's 2002 and 2008 multicultural guidelines, this demonstrates that the printed urgency of increased research in diverse populations has not been vigorously pursued. In consideration of the health disparities in the U.S. Hispanic population, the projected increases in the U.S. Hispanic population, and the American Psychological Association's dedication to increasing research involving diverse populations, this research was necessary to contribute to the betterment of the U.S. Hispanic population.

Evidence-Based Practices

The NIMH fifth multicultural guideline (2001) states, "Psychologists are encouraged to apply culturally appropriate skills in clinical and other applied psychological practices" (p. 43). The fifth guideline also centers on the importance of developing, improving, and effectively employing evidence-based practices in diverse populations (Anderson, 2006; NIMH, 2001; American Psychological Association, 2008). Given the changing demographics of the United States, applying traditional Eurocentric intervention strategies can be harmful to diverse populations via misleading assumptions related to diagnoses and treatments that are not culturally informed (Mak et al., 2007; NIMH, 2001). Also, given the potential for misdiagnosis and ill-informed treatment strategies, evidence-based practices should be culturally informed by the best available research to improve the likelihood that research results can be generalized and representative for diverse populations (Anderson, 2006; Huey et al., 2014). Nevertheless,

the continuing issue remains to be the availability of culturally specific studies (Anderson, 2006; Huey et al., 2014; La Roche et al., 2015). Moreover, intergroup Hispanic studies are lacking in general, as well as inquiries dedicated to comparing culturally specific study conclusions with typical Eurocentric informed studies (Anderson, 2006; Huey et al., 2014; La Roche et al., 2015).

Research dedicated to BWLP is plentiful. However, BWLP investigations committed to understanding how U.S. Hispanic populations respond to BWLP is lacking. Recent inquiries have investigated the usefulness of BWLP in Hispanic populations; however, many essential racial and cultural considerations were absent. For instance, research conducted outside the United States does not address the cultural difference between U.S. Hispanics versus Hispanics living in other countries (Cherrington et al., 2015; Perez et al., 2013). Also, much of the research that focused on the U.S. Hispanic population does not consider culturally relevant approaches to inform the research process and the development of evidence-based BWLP (Cherrington et al., 2015; Perez et al., 2013). Finally, strategies of culturally related human motivation are essential factors when considering approaches to initial and sustained weight loss in U.S. Hispanic communities, in which an overwhelming amount of BWLP research does not address (Cherrington et al., 2015; DPP Research Group, 2002; Gorin et al., 2014; Wadden et al., 2011).

Theoretical Foundation

SDT is a macro theory that is primarily concerned with long-term well-being, personality development, and human motivation (Deci & Ryan, 2000; Deci & Ryan,

2008). Deci and Ryan (2000) developed SDT and contends that "behavioral expressions are universal psychological needs that subserve development and well-being, thus representing part of the common architecture of human nature" (p. 252). The critical understanding with regards to SDT is autonomous social and cultural motivations, where it is not the amount, but the quality of motivation that influences improved performance and psychological health for long-term well-being (Deci & Ryan, 2000; Deci & Ryan, 2008; Deci & Ryan, 2012; Deci & Ryan, 2014). Controlled and autonomous forms of motivation inspire the pursuit of long-term well-being (Deci & Ryan, 2000; Deci & Ryan, 2008; Deci & Ryan, 2014; Vansteenkiste et al., 2010).

Origin of SDT

The SDT model does not conform to the reward-punishment model that operant and control theories of motivation represent (Deci & Ryan, 2000; Deci & Ryan, 2014; Vansteenkiste et al., 2010). Motivational models like Social Cognitive Theory (SCT) exhibit reinforcement control types of motivation, which are detrimental to long-term performance, development, and well-being (Deci & Ryan, 2000). Once extrinsic rewards or punishments (e.g., attractiveness and wealth) are absent, this hinders long-term goals of personal development, psychological growth, and well-being (Deci & Ryan, 2000; Deci & Ryan, 2014; Vansteenkiste et al., 2010; Silva et al., 2014). Self-efficacy explains how SDT differentiates itself from reward-punishment theories. For example, with regards to SDT, personal beliefs of ability dictate the level of effort and perseverance in accomplishing goals. Moreover, SCT contends that behavior cannot be defined through the presence or absence of autonomy, nor can environmental influences invoke

unconscious amounts of motivation (Bandura, 1989). Given this, SCT is only useful in describing the ability to engage, complete, or abandon goals. SCT does not explain the why aspect of motivation, action, and outcome (Bandura, 1989; Deci & Ryan, 2000; Ryan & Deci, 2006). Consequently, the inability of SCT to consider the value in the quality of motivation inadvertently created the need for a theory like SDT to highlight the distinction between controlled and autonomous forms of motivation (Deci 1971; Deci & Cascio, 1972).

Major Theoretical Propositions

Deci's early research contribution to the development SDT offered a supplementary understanding that people possess innate psychological needs (competence, relatedness, and autonomy) that fuel the quality of motivation initiation, long-term personal growth, and well-being (Deci, 1971; Ryan & Deci, 2000a; Vansteenkiste et al., 2010; Silva et al., 2014). SDT's explanation of competence conveys the perception of ability and proficiency that facilitate the motivation to engage in, pursue, and accomplish goals long-term (Deci & Ryan, 2000; Ryan & Deci, 2011). Relatedness communicates the importance attributed to others (i.e., family, cultures, individuals, groups) in developing a sense of connectedness and belongingness that influence the universal internalization of values and goals across cultures (Deci & Ryan, 2000; Ryan & Deci, 2000; Ryan & Deci, 2011). Autonomy describes the ownership of perceived desired choices in self-governing, self-organization, and self-regulation, resulting in improved performance, increased well-being, and positively regulated self-

determined behavior (Deci & Ryan, 2000; Ryan & Deci, 2006; Ryan & Deci, 2011; Vansteenkiste et al., 2010).

SDT Mini-Theories

SDT's innate psychological needs are structured around six mini-theories (cognitive evaluation, organismic integration, causality orientations, basic needs, goal content, and relationships motivation theories) that encompass the understanding of the competence, relatedness, and autonomy innate psychological needs of motivated behavior (Deci & Ryan, 2000; Deci & Ryan, 2014; Lavigne, Vallerand, & Crevier-Braud, 2011; Ryan, 2009; Vansteenkiste et al., 2010).

Cognitive evaluation theory (CET). The initial mini-theory, CET emphasizes the function of competence and autonomy in encouraging and sustaining intrinsic motivation (Deci & Ryan, 2002; Ryan & Deci, 2000; Ryan, 2009; Vansteenkiste et al., 2010). CET is concerned with the hindrance and facilitation of intrinsic motivation through its interaction and responses to social events, reward, natural curiosity, exploration, and challenge seeking behavior (Deci & Ryan, 2000; Deci & Ryan, 2014; Ryan, 2009; Vansteenkiste et al., 2010).

Organismic integration theory (OIT). The second mini-theory, OIT highlights the importance of extrinsic motivation (external regulation, introjected regulation, identification regulation, and integrated regulation) in influencing internalization (Ryan, 2009; Ryan & Deci, 2000; Vansteenkiste et al., 2010). Particularly, social interactions that are controlled, but exhibit options will support a feeling of autonomy, resulting in

enhanced internalization, that is, tenacity, performance, and long-term well-being Deci & Ryan, 2002; Ryan & Deci, 2000; Ryan, 2009; Vansteenkiste et al., 2010).

Causality orientations theory (COT). The third mini-theory, COT explains environmental adaption in the regulation of behavior. The autonomous, controlled, and impersonal forms of causality orientation can either motivate through genuine interest, social approval, or competence concerns (Deci & Ryan, 2002; Ryan, 2009; Vansteenkiste et al., 2010). COT also explains that personality dramatically influences the expression of causality orientations given the variations in which people define autonomy, control, and competence (Deci & Ryan, 2002; Ryan, 2009; Vansteenkiste et al., 2010). For instance, when autonomy orientation is prominent, behavior is regulated in accordance with personal interests and values with the presence of little external reward influence (Deci & Ryan, 2002; Ryan, 2009; Vansteenkiste et al., 2010).

Basic psychological needs theory (BPNT). The fourth mini-theory, BPNT explains that basic needs (competence, autonomy, and relatedness) have an explicit relationship with social wellness, psychological and physical health (Deci & Ryan, 2002; Ryan, 2009; Vansteenkiste et al., 2010). The reinforcement or obstruction of innate need fulfillment can threaten or encourage long-term well-being (Deci & Ryan, 2002; Ryan, 2009; Vansteenkiste et al., 2010). BPNT posits that overall satisfaction of innate psychological needs directly influences general well-being through fulfillment or thwarting of goals, which is demonstrated through variations in physical and psychological health, and wellness across the lifespan (Deci & Ryan, 2002; Ryan, 2009; Vansteenkiste et al., 2010).

Goal contents theory (GCT). The fifth mini-theory, GCT communicates the significance of intrinsic and extrinsic motivation in the fulfillment of autonomy, competence, and relatedness of goal-seeking behavior (Ryan, 2009; Vansteenkiste et al., 2010). Although, autonomous and controlled behaviors can be present during the pursuit of goals, accomplishing extrinsically motivated aspirations (i.e., fame, wealth, etc.), whether autonomous or controlled can negatively affect personality development and long-term well-being (Ryan, 2009; Vansteenkiste et al., 2010).

Relationships motivation theory (RMT). The final and most recent SDT mini-theory, RMT communicates the importance of quality intimate personal connections (i.e., groups, romantic, and friends) in optimizing resiliency and general well-being (Deci & Ryan, 2014; Knee & Uysal, 2011). SDT posits, regardless of culture (i.e., individualistic versus collectivist) humans instinctively seek out close relationships that fulfill their need for acceptance, reciprocal caring, belongingness, and connectedness (Deci & Ryan, 2000; Deci & Ryan, 2014; Lavigne et al., 2011; Ryan, Bernstein, & Brown, 2010). Although the three innate psychological needs are interdependent, satisfying the need for relatedness contributes to greater well-being psychologically (Deci & Ryan, 2014; Bartholomew, Ntoumanis, Ryan, Bosch, & Thogersen-Ntoumani, 2011).

The innate psychological needs along with the six mini-theories contribute to SDT by acting as the framework that explains self-regulated behavior and autonomy fueled motivation that positively or negatively influence self-determined behavior (Deci & Ryan, 2002; Ryan, 2009; Vansteenkiste et al., 2010). Indeed, the six mini-theories of SDT operationalize the cultural and social interactions that influence self-motivation and

the natural attempt for people to seek psychological growth and development (Deci & Ryan, 2002; Ryan, 2009; Vansteenkiste et al., 2010). Further, given the cultural identity overlap, Hispanics living in the United States can demonstrate variations of autonomously motivated behavior; therefore, SDT along with the mini-theories inform these potential differences (Deci & Ryan, 2000; Deci & Ryan, 2014; Gorin et al., 2014).

SDT and Culture

Through the lens of BPNT, culture is a relative term where innate psychological needs are concerned (Deci & Ryan, 2000; Vansteenkiste et al., 2010). Since its inception, SDT research, through the framework of the BPNT mini-theory, has integrated culture into the explanation of human motivation (Deci & Ryan, 2000; Ryan & Deci, 2011; Vansteenkiste et al., 2010). Basic innate psychological needs are essential psychological nutriment that is necessary for cultures to communicate, foster, integrate, and maintain the integrity of cultural groups (Deci & Ryan, 2000; Ryan & Deci, 2011; Vansteenkiste et al., 2010). SDT suggests humans are organisms who naturally seek out challenges and opportunities that promote growth and development (Deci & Ryan, 2000; Ryan & Deci, 2011; Vansteenkiste et al., 2010). SDT describes this natural propensity for humans to be growth-oriented organisms as universal (Deci & Ryan, 2000; Ryan & Deci, 2011; Vansteenkiste et al., 2010).

People engage in a multitude of self-regulated behaviors that are expressed differently from culture to culture to improve the likelihood of optimal health (Deci & Ryan, 2000; Ryan & Deci, 2011; Vansteenkiste et al., 2010). Across cultures, socially directed desires to fulfill basic innate psychological needs and to integrate into society

co-occur as humans seek to achieve autonomy, competence, and relatedness (Deci & Ryan, 2000; Ryan & Deci, 2011; Vansteenkiste et al., 2010). Moreover, individualistic cultures (e.g., European) in some instances express the desire to fulfill basic innate psychological needs in contrast to collectivist cultures, like Hispanics (Deci & Ryan, 2000; Ryan & Deci, 2011; Vansteenkiste et al., 2010). Individuals from collectivist cultures internalize group norms of their culture and what appears as control to an individualistic person is a fulfillment of the relatedness and autonomy basic needs as it relates to the social norms of that culture (Deci & Ryan, 2000; Ryan & Deci, 2011; Vansteenkiste et al., 2010). For example, an individual from a collectivist culture might see a community elder making a personal choice as intrinsically motivating while an individual from an individualistic culture might view this as control (Deci & Ryan, 2000; Ryan & Deci, 2011; Vansteenkiste et al., 2010). Given this, in such instances, intrinsic motivation increases for the individual of the collectivist culture, while intrinsic motivation diminishes in individualistic cultures (Deci & Ryan, 2000; Vansteenkiste et al., 2010).

According to SDT, regardless of culture, lack of motivation and decreased performance is a result of poor direction (Deci & Ryan, 2000; Ryan & Deci, 2011). When direction is not introduced in an autonomous and supportive manner, the perception of forced conformity and control can negatively affect the fulfillment of the need for autonomy (Deci & Ryan, 2000; Ryan & Deci, 2011; Vansteenkiste et al., 2010; Wichmann, 2011). In contrast, the perception of rules that are introduced in an autonomous and supportive manner obliges individuals of diverse cultures to adhere to

group norms resulting in increased intrinsic motivation and enhanced performance (Deci & Ryan, 2000; Deci & Ryan, 2014; Vansteenkiste et al., 2010; Wichmann, 2011). Cultural relativists question the universal importance for the need of autonomy by suggesting autonomy is insignificant in cultures that demonstrate an interdependence within their community (Deci & Ryan, 2000; Deci & Ryan, 2014; Vansteenkiste et al., 2010; Wichmann, 2011). Given this, cultural relativists mistakenly view autonomy as consisting of uniqueness, independence, and individualism (Deci & Ryan, 2000; Deci & Ryan, 2014; Vansteenkiste et al., 2010; Wichmann, 2011). SDT maintains that cross-cultural variations are exhibited when individuals of diverse cultures satisfy innate psychological needs (Deci & Ryan, 2000; Deci & Ryan, 2014; Vansteenkiste et al., 2010). Additionally, during the demonstration of cross-cultural variations, autonomy is expressed through choice and volition while being void of behavioral controls, coercion, and pressure (Deci & Ryan, 2000; Deci & Ryan, 2014; Vansteenkiste et al., 2010).

SDT Research-Based Analysis

SDT researchers have continued to strengthen its foundational principle that autonomy, competence, and relatedness represent human nature's inherent pursuit of development and well-being (Deci & Ryan, 2000). Tay and Diener (2011) surveyed 60,865 individuals across eight world regions (Latin America, Northern Europe, Southern Europe Africa, Middle East, East and South Asia, Eastern Europe, and Southeast Asia). The researchers used regression analysis to examine the relationship between need fulfillment and subjective (i.e., positive feelings, negative feelings, and life evaluation) well-being. Overall, the results of Tay and Diener's study revealed that subjective well-

being is influenced by universal needs. Specifically, autonomy, respect, social, and mastery needs were found to be predictors of subjective well-being. In addition, the results demonstrated no cultural variations between the associations of well-being and need satisfaction.

Sheldon et al. (2011) further investigated subjective well-being and the relationship between well-being and need satisfaction by surveying 3,665 participants of 21 diverse cultural groups, for example, United States, Mexico, United Kingdom, China, Portugal, Taiwan, Italy, New Zealand, Greece, Russia, Poland, Indonesia, and Lithuania (Sheldon, Cheng, & Hilpert, 2011). Across all cultures, the regression analysis conclusions revealed a relationship between well-being and need satisfaction (Sheldon et al., 2011). Competence, autonomy, and relatedness were used as predictors to understand the relationship between subjective well-being and need-satisfaction. Each innate psychological need demonstrated statistical significance by showing that competence, autonomy, and relatedness play an essential role in individualistic and collectivist cultures (Sheldon et al., 2011). Using culture as a predictor, culture showed more of an effect on innate psychological needs than individual or personality differences (Sheldon et al., 2011).

Church et al. (2013) examined eight diverse cultures (United States, Mexico, Venezuela, China, Australia, Malaysia, Japan, and the Philippines) to substantiate SDT's position that innate psychological need satisfaction is a universal necessity for well-being. Besides, employing a regression model, the researchers also assessed the cultural variations in perceived innate psychological need satisfaction, pleasure-stimulation, self-

actualization, and well-being. Their research corroborated that satisfaction of innate psychological needs was universally associated with self-fulfillment and well-being. Moreover, pleasure-stimulation and self-actualization were also shown to be of universal importance for self-fulfillment and well-being across cultures.

Most recently, Chen et al. (2015) conducted studies that demonstrated SDT's continued dedication in fortifying its theories of universal innate psychological need satisfaction by investigating culture and human motivation. The BPNT was used as the theoretical framework in two studies investigating autonomy, relatedness, and competence fulfillment and thwarting. The researchers examined whether innate psychological need satisfaction was culturally universal and if they impacted well-being outcomes. The first study used 685 participants from Belgium and China. The second study employed 1,051 participants from the United States, Peru, Belgium, and China. The first study revealed that autonomy and competence demonstrated a universal relationship with life satisfaction and well-being. The second study exposed that autonomy, competence, and relatedness exhibited a universal relationship with life satisfaction and well-being.

SDT and Health

In the United States, annual costs associated with obesity, major depressive disorders, and chronic disease are $147 billion, $210 billion, and $2.6 trillion, respectively (CDC, 2016a; CDC, 2016b; Greenberg, Fournier, Sisitsky, Pike, & Kessler, 2015). Given the health consequences of obesity (i.e., chronic disease and mental health concerns), SDT asserts that ill-health is a result of unsatisfied innate psychological needs

(Deci & Ryan, 2000; Deci & Ryan, 2008; Deci & Ryan, 2012; Ng et al., 2012; Ryan & Deci 2000b; Ryan et al., 2010). Since its foundational years of the early nineteen-seventies, SDT's primary focus was themes related to education, parenting, teaching, and work performance (Deci & Cascio, 1972; Deci & Ryan, 2000; Deci & Ryan, 2002; Ryan & Deci, 2000b). However, during the last two decades an increased amount of SDT inquiry have focused on motivation of health behaviors (Ng et al., 2012; Ryan et al., 2008), physical activity (Gourlan et al., 2016; Rhodes & Kates, 2015; Teixeira et al., 2012), and weight loss (Gorin et al., 2014; Silva et al., 2011).

A foundational tenet of SDT suggests that improving autonomy, competence and relatedness, fosters integration and internalization of self-regulating behaviors beneficial in developing and maintaining good physical and psychological health (Deci & Ryan, 2000; Deci & Ryan 2008; Ryan et al., 2008; Vansteenkiste et al., 2010). Conversely, in the absence of integration and internalization of self-regulating behaviors, previous undesired behaviors reemerge negatively affecting the ability to develop and maintain sound psychological and physical health (Deci & Ryan, 2000; Deci & Ryan, 2008; Deci & Ryan, 2012; Ryan & Deci 2000b; Vansteenkiste et al., 2010). In initiating and sustaining health-related behavior change, autonomy, competence, and relatedness are satisfied via perceived choice, goal achieving skills, and the feeling of connectedness (Deci & Ryan, 2000; Deci & Ryan, 2002; Patrick & Canevello, 2011). When innate psychological needs are satisfied, enhanced dedication, autonomous motivation, and greater efforts at initiating and sustaining improved health-related behavior change are observed (Deci & Ryan, 2000; Deci & Ryan, 2002; Patrick & Canevello, 2011).

In the pursuit of optimal long-term physical and mental health, SDT suggests that autonomous regulation and controlled regulation act as behavioral stimuli (Deci & Ryan, 2000; Patrick & Canevello, 2011; Ryan & Deci 2000; Ryan et al., 2008). Autonomous (e.g., volition and choice) and controlled (e.g., pressure and coercion) regulation can either encourage or discourage adherence toward health-related behavior improvements (Deci & Ryan, 2000; Patrick & Canevello, 2011; Patrick & Williams, 2012; Ryan & Deci 2000b). Environments that exhibit autonomous guidance are need-supportive by nature (Patrick & Canevello, 2011; Ryan et al., 2008). Need-supportive instruction demonstrates open communication, education, responsiveness, positive reinforcement, instructive recommendations, and indiscriminate direction (Deci & Ryan, 2000; Patrick & Canevello, 2011; Ryan et al., 2008). Need-supportive environments also increase intrinsic motivation, which enhances the likelihood of successfully initiating, implementing, and maintaining health-related behavior changes (Deci & Ryan, 2000; Patrick & Canevello, 2011; Ryan et al., 2008). However, autonomous regulation and need-supportive guidance are of little consequence without internalizing intrinsically motivational values that support health-related behavior changes (Deci, 1971; Patrick & Williams, 2012; Ryan & Deci 2000a; Ryan & Deci 2000b; Ryan et al., 2008). Research about physical activity and weight loss has validated the significance of autonomous and need-supportive environments in the initiation and maintenance of exercise and weight management behavior (Fortier, Duda, Guerin, & Teixeira, 2012; Su & Reeve, 2011).

As previously mentioned, health-related behavior development is a foundational concentration of SDT research. SDT informed physical activity research had increased a

great deal over the last 20 years, motivated in part by the chronic disease and obesity epidemic in the United States (Castonguay & Miquelon, 2017; Deci & Ryan, 2000; Ryan & Deci, 2008; Sebire et al., 2011). Nevertheless, given that overweight and obesity concerns are viewed as facilitators of several mental health and chronic disease ailments, SDT informed weight management (i.e., initial weight loss and weight loss maintenance) research have emerged as a significant focus in the field of psychology (CDC, 2016a; CDC, 2016b; Ryan & Deci, 2008; Williams, Grow, Freedman, Ryan & Deci, 1996). Decades of SDT and physical activity research supply SDT-framed weight management investigations with the knowledge of human motivation that is necessary for the development, improvement, and implementation of interventions that promote health-related behavior change (Ryan & Deci, 2008; Gorin et al., 2014; Silva et al., 2011; Vansteenkiste et al., 2010). The following section will examine SDT's contribution to weight loss research and interventions.

SDT and Physical Activity

The CDC reports that regular exercise can lower blood pressure, decrease risk factors of experiencing a stroke, as well as reduce the chances of developing heart disease, type 2 diabetes, some cancers (i.e., breast, lung, and colon cancer), and depression (CDC, 2015c). In the context of physical activity, satisfied innate psychological needs are associated with a better quality of life, such as improved mental health, health-related outcomes, and volitional commitment to regular exercise (Deci & Ryan, 2000 Patrick, & Canevello, 2011; Ryan et al., 2008; Sebire, et al., 2011; Vansteenkiste et al., 2010). Throughout its history and ongoing research, the SDT model

have ventured beyond theory by demonstrating its ability to explain, mobilize, and facilitate the process of achieving optimal physical health (Deci & Ryan, 2000; Ryan et al., 2008; Sylvester, Mack, Busseri, Wilson, & Beauchamp, 2012; Vansteenkiste et al., 2010). Study conclusions demonstrate that when physical activity is intrinsically motivated innate psychological needs are fulfilled (Patrick & Canevello, 2011; Ryan et al., 2008; Sebire, Standage, & Vansteenkiste, 2011; Vansteenkiste et al., 2010).

SDT informed investigations concerning physical activity and motivation revealed that exercise behaviors could be predicted through the observance of intrinsic motivation over extrinsic motivation during daily physical activity (Sebire et al., 2011). SDT researchers have also assessed the degree to which autonomy, competence, and relatedness satisfaction facilitates physical activity and its relationship with well-being (Mack et al., 2012; Sylvester et al., 2012). Gunnell et al. (2014) corroborated previous research by demonstrating that observing the fulfillment or thwarting of relatedness during daily physical activity contribute to the ability to predict success in health-related behavior change maintenance and well-being. Miquelon et al. (2016), as well as Castonguay and Miquelon (2017) corroborated SDT's stances on the importance of autonomy, need-supportive environments, and intrinsic motivation by exploring the roles of external motivation and integrated regulation. The studies' conclusions revealed health-related physical activity motivational profiles that contribute to predicting positive health-related behavior change (Miquelon et al., 2016; Castonguay, and Miquelon, 2017).

Sebire et al. (2011) employed 107 participants (99% White) to test the ability to predict short and long-term moderate-to-vigorous physical activity through the

motivation of physical activity goals. The primary focus of the investigation was to assess behavioral outcome predictions by concentrating on motivational acts of motivation regulation and goal content (i.e., a personal desire to improve health). The participants completed the goal content for exercise questionnaire, behavioral regulations in exercise questionnaire, and wore accelerometers to assess intrinsic exercise goals, motivational regulation, and energy expenditures. The results demonstrated a positive relationship with intrinsic goal content and autonomous motivation, as well as a negative relationship with controlled motivation. Additionally, autonomous motivation was shown to be predictors of intrinsic goal contents. Finally, given the positive relationship between autonomous motivation, goals, exercise motivation, and physical activity, the researchers suggest that autonomous motivation possibly acts as a mediating affect for autonomous exercise motivation.

Mack et al. (2012) employed an SDT mini-theory (BPNT) as the framework to inform a cross-sectional and longitudinal study in investigating the relationship between health-related physical activity and two models of well-being (hedonic and eudaimonic). The first study used 248 (92% White) participants and conducted a bivariate correlation analysis to explore the relationship between health-related physical activity and well-being indicators. Participants completed scales (Short Questionnaire to Assess Health-Enhancing Physical Activity, Positive Affect Negative Affect Schedule, Satisfaction with Life Scale, and the Scales of Psychological Well-Being) designed to measure and assess physical activity, as well as hedonic (pleasure-focused) and eudaimonic (competence focused) well-being. The second study extended the first study using 248 (98.50% White)

participants and employing a multiple regression analysis to investigate the function of innate psychological needs and its relationship with health-related physical activity and the two types of well-being. The results of the two studies corroborated previous SDT research in demonstrating that health-related physical activity was associated with both hedonic and eudaimonic well-being. Moreover, the study concluded that autonomy, competence, and relatedness need fulfillment are expedited through the intrinsic motivational participation of physical activities.

Gunnell et al. (2014) used three SDT mini-theories (BPNT, GCT, and OIT) to test and describe the way intrinsic goal contents led to improved health-related behavior changes (e.g., improved motivation, innate psychological needs satisfaction, well-being, and physical activity). The study assessed goal contents, motivation, well-being, and physical activity with 203 (84.70% White) participants during a six-month period. A multitude of instruments were employed during this study (Goal Contents in Exercise Questionnaire, Behavioral Regulations in Exercise Questionnaire, Psychological Need Satisfaction in Exercise Questionnaire, Subjective Vitality Scale, Subjective Vitality Scale, and Leisure Time Exercise Questionnaire). The researchers concluded that autonomy, competence, and relatedness need fulfillment during exercise is essential in facilitating greater health-related behavior change and well-being. More specifically, variations in intrinsic goal contents predicted autonomous and controlled levels of motivation.

Miquelon et al. (2016) conducted a Canadian study with 1,092 participants (racial demographics were excluded from published results) and used a multiple regression

analysis to demonstrate the advantages of integrated regulation (i.e., lifestyle and value-based behavioral regulation) over intrinsic motivation in physical activity behavior (intensity, frequency, and duration). The primary intentions of the study were to explore potential motivational profiles for physical activity, as well as to analyze how integrated regulation influences the intensity, frequency, and duration of physical activity behavior. The Behavioral Regulation in Exercise and the Godin Leisure-Time Exercise questionnaires were administered to assess exercise regulation (i.e., amotivation, intrinsic motivation, introjected regulation, external regulation, identified regulation, and integrated regulation) and physical activity behavior. Following data analysis, moderate, self-determined, high combined, and non-self-determined emerged as physical activity motivational profiles, which showed variations and commingling of intrinsic and extrinsic forms of exercise motivation. The results demonstrated the significance of observing integrated regulation in predicting the intensity, frequency, duration, and long-term intentions for physical activity.

Castonguay and Miquelon (2017) used 381 participants (racial demographics were excluded from published results) with type 2 diabetes. Specifically, they investigated the influence of motivation (i.e., intrinsic and extrinsic) on physical activity, as well as examined physical activity motivational profiles in those with type 2 diabetes. To assess motivation toward exercise, the participants completed the Behavioral Regulation in Exercise Questionnaire-version 2. The participants were asked to share a three-month history of their participation in moderate to vigorous physical activity to assess physical activity behavior. The results demonstrated that intrinsic forms of

motivation influenced the likelihood of physical activity participation, while amotivation and extrinsic motivation decreased the likelihood of physical activity. Moreover, identified and intrinsic motivation were observed in participants that adhered to physical activity guidelines while amotivation and extrinsic motivation were observed in participants not adhering to physical activity guidelines. Together, the results demonstrate the influence of extrinsic and intrinsic motivations in predicting physical activity behavior and adherence to physical activity guidance. Finally, the moderate, self-determined, controlled, and non-self-determined motivational profiles that emerged demonstrated that participants' motivation for engaging in physical activity were consistent with SDT in incorporating all types of motivation, for example, volition, guilt, and amotivation (Castonguay & Miquelon, 2017; Deci & Ryan, 2000; Ryan & Deci, 2000a; Vansteenkiste et al., 2010).

SDT Rationale

Health psychology literature greatly supports SDT and its use in matters of health, weight management, and physical activity. The primary assets to consider when using SDT in health-related research are its ability to address the fundamental processes that promote health-related behavior change and long-term maintenance (Patrick & Canevello, 2011). The use of SDT as a framework has expanded knowledge concerning the nature of motivation, in which the type (not quantity) of motivation directs initial and sustained action that influence the fulfillment of innate psychological needs (Deci & Ryan, 2000; Deci & Ryan, 2008; Deci & Ryan 2014). Motivation, in part, is predicated on the presence or absence of controlled and autonomous forms of stimuli, for example,

guidance and feedback (Deci & Ryan, 2000; Deci & Ryan 2008; Vansteenkiste et al., 2010). Just as the manifestation of autonomous (i.e., intrinsic) stimuli enhances performance, controlled forms of motivation (e.g., identified regulation) negatively impacts performance (Deci & Ryan, 2000; Deci & Ryan, 2008; Deci & Ryan, 2014). Diminished levels of performance influence the thwarting of satisfying innate psychological needs (autonomy, competence, and relatedness), which ultimately contributes to adverse mental and physical health (Deci & Ryan, 2000; Deci & Ryan, 2008; Ryan et al., 2008; Vansteenkiste et al., 2010).

The cultural element of SDT describes the universal and instinctive tendency for humans to pursue personal growth by engaging new challenges (Deci & Ryan, 2000; Ryan & Deci, 2011; Vansteenkiste et al., 2010). As SDT explains, whether collectivist or individualistic, the cultural aspect of fulfilling innate psychological needs is irrelevant given the variations of autonomy-control motivational expression across cultures (Deci & Ryan, 2000; Ryan & Deci, 2011; Vansteenkiste et al., 2010). Autonomous motivation studies conducted by Silva et al. (2011), Silva et al. (2010), Cherrington et al. (2015) and Mata et al. (2011) used Latino populations, but failed to reveal variations in the need for automatous-supportive environment for successful self-regulation. However, the internalization of automatous-control forms of motivation was expressed concerning accepted community values and beliefs as opposed to individualistic social norms (Deci & Ryan, 2000; Ryan & Deci, 2011; Vansteenkiste et al., 2010). Furthermore, the United States based Gorin et al. (2014) study used 7% Hispanics as participants, in which the researchers did not disclose differences in beneficial outcomes for the internalization of

autonomous self-regulation in autonomy-supportive environments. The American Psychological Association, NIMH, as well as SDT researchers stress the importance of investigating diverse and intergroup diverse populations, given the variations of beliefs, values, and perspectives among those of the same race, culture, and ethnic background (American Psychological Association, 2003; American Psychological Association, 2008; Cherrington et al., 2015; Mak et al., 2007; NIMH, 2001).

SDT in Relation to the Present Study

In consideration of its contributions towards the understanding of culturally informed motivated behavior, SDT relates to the present study by contributing health-related behavior change (e.g., motivation quality, physical activity, and weight management) interpretations that culturally explain the participants motivation. For instance, the overall goal of this study was to explore what independent variables (age, sex, exercise programs, exercise frequency, motivation toward exercise, collectivist cultural identity and individualistic cultural identity), predict a decrease in BMI, in the U.S. Hispanic population. U.S. Hispanics who identify as individualistic and those who identify as collectivist, SDT provided an explanation of the overall motivational dynamics (i.e., intrinsic, extrinsic, or amotivation) of the participants with regards to their feelings toward physical activity and their cultural identity. SDT also, provided the framework for explaining the type of motivation participants' exhibit when engaging in physical activity. For example, the SDT informed studies of Miquelon et al. (2016) and Castonguay and Miquelon (2017) analyzed predictors of motivation and concluded that the presence of integrated regulation (i.e., personal value of living healthy) predicted

physical activity intensities, frequencies, and durations, which resulted in changes in BMI. This study pursued a similar approach, by attempting to explain what variables or combination of variables predict and explain BMI decreases in the U.S. Hispanic population.

Research Questions and SDT

The research questions for this study relates to SDT because they inquire if the independent variables (age, sex, exercise programs, motivation toward exercise, exercise frequency, and cultural identity) predict and explain BMI decreases in the U.S. Hispanic population. The research question also refers to a predominately Hispanic population, in which SDT explicitly describes and explains the variations in the expression of motivated behaviors from a cultural perspective (Deci & Ryan, 2000; Ryan & Deci, 2011; Vansteenkiste et al., 2010). Finally, the research questions intend to also evaluate the motivation quality of the participants (Ryan & Deci, 2000a; Ryan & Deci, 2000b; Ryan & Deci, 2011). SDT provided the framework for communicating the motives (i.e., why) in participants' motivation toward physical activity, BMI decreases, and exercise frequencies (Deci & Ryan, 2000; Vansteenkiste et al., 2010).

Literature Review Related to Key Variables

Primarily, the purpose of BWLP research was to understand the motivational aspects of health-related behavior change that influence initial and long-term weight management. Literature dedicated to BWLP investigates similar constructs that include a person's body tissue mass (i.e., BMI) of fat and muscle, in which underweight, normal/healthy weight, overweight, and obese are represented as below 18.5, 18.5 to

24.9, 25 to 29.9, and above 30, respectively. Sex (male or female), exercise settings (individual or group), self-monitoring, and motivation toward exercise (amotivation, intrinsic motivation, integrated regulation, identified regulation, external regulation), and exercise frequency also demonstrate traditional constructs that accompany BWLP research. Additionally, although culture is a broad construct that is customarily used in research, most clinical research in the United States employ primarily White participants (Aponte-Rivera et al., 2014; George et al., 2014). Moreover, with the literature search of this study in mind, examining cultural identity (individualistic and collectivistic) as a predictor of BMI changes is absent from the current BWLP literature.

With varying study objectives to understand, explore, discover, and describe potentially useful behavioral weight loss strategies, BWLP studies use a multitude of research methodologies and methods. For example, Cherrington et al. (2015) used a mixed-methods approach to explore automatous motivation. Burke et al. (2011), Holub et al. (2013), Perez et al. (2013), as well as Tovar, Renzaho, Guerrero, Mena, & Ayala, (2014) conducted systematic reviews of behavioral weight loss studies, revealing that much of BWLP studies pursued a variety of quantitative methodology approaches (e.g., regression analysis, randomized controlled trials, pre–posttest, and nonrandomized trials) and methods (e.g., observation, interviews, and surveys). Carels et al. (2014), Carels et al. (2015), Miquelon et al. (2016), Castonguay and Miquelon (2017) are examples of BWLP studies that demonstrate the use of similar constructs, methodologies, and methods as this study.

Related Constructs, Methodology, and Methods

Burke et al. (2011), Holub et al. (2013), Perez et al. (2013), and Tovar et al. (2014) conducted systematic reviews on United States and Latin American populations (e.g., Chile and Mexico), to assess behavioral weight loss interventions studies. The constructs examined for these studies included weight, BMI, exercise frequency, and physical activity. The methodologies and methods included the use of surveys, as well as regression designs. Study conclusions revealed more significant weight loss and frequency of physical activity when participants self-reported (Burke et al., 2011; Holub et al., 2013; Perez et al., 2013; Tovar et al., 2014). Most of the studies reviewed were conducted outside the United States.

Cherrington et al. (2015) explore weight loss intervention strategies using a community member focus group, with the purpose of encouraging automatous motivation and health-related behavior change. The program constructs included group exercise and the measurement of weight and BMI. The methodology and methods used included SDT to inform the study, as well as surveys. The participants for this study were Mexican immigrants living in Alabama.

Carels et al. (2014) and Carels et al. (2015) investigated the difference in treatment outcomes for the Transforming Your Life BWLP, compared to the New Perspective and the Diabetes Prevention Program BWLP. The program constructs included physical activity, exercise motivation, as well as demographic constructs that included BMI and weight measurements. The methods used were self-reporting questionnaires. The study results indicated no significant difference between the groups;

however, given that most of the participants were White; the researchers highlighted the importance of understanding whether diverse populations would exhibit comparable outcomes.

Miquelon et al. (2016) and Castonguay and Miquelon (2017) used a multiple regression analysis to examine the role of motivation and the exercise predicting ability of physical activity motivational profiles. The program constructs included motivation and physical activity frequency. Demographic constructs analyzed were weight and BMI. The methodology and methods employed were an SDT informed cross-sectional design that used the BREQ-2 for measuring motivation toward exercise. The racial demographics were excluded from the published result.

Strengths and Weakness of Related Studies

The studies included in this literature review exhibited strengths and weaknesses that justify the continuation of BWLP research aimed at the underrepresentation of Hispanic populations in the United States. Most of the studies failed to incorporate diverse populations, only used immigrant participants from one country, or failed to identify the race of participants, in which the researchers acknowledged the need for similar studies to be conducted with diverse populations (Burke et al., 2011; Carels et al., 2014; Carels et al., 2015). The studies' overwhelming reliance on White as research participants, calls in to question the usefulness of study results in diverse populations (Anderson, 2006; American Psychological Association, 2003; American Psychological Association, 2008; Huey et al., 2014). Finally, BWLP studies that considered culture during their studies, only did so to explain study results from a cultural point of view.

However, after a review of BWLP literature, no study was identified that explored cultural identity as a predictor of BMI decreases. This study pursued these possibilities.

Variable Selection Rationale

Age, sex, motivation toward exercise, exercise program, exercise frequency, and BMI are common variables employed during BWLP research (Burke et al., 2011; Carels et al., 2015; Holub et al., 2013; Perez et al., 2013). The studies described in the SDT section, as well as the methodology and methods literature review section, corroborate these variables as reliable means for assisting BWLP researchers in understanding, describing, and enhancing health-related behavior research and intervention strategies. For example, like much of BWLP studies, Castonguay and Miquelon (2017), Sylvester et al. (2012), Miquelon et al. (2016), and Mack et al. (2012) used physical activity along with age, sex, and BMI to predict and describe levels of motivation, health-enhancing psychical activity engagement, as well as decreases in weight and BMI.

Culture as a Variable

Cherrington et al. (2015) focused their research on the Hispanic immigrant population of Birmingham, Alabama. Although culture was considered in this research, culture primarily represented program preferences of culturally inspired nutrition, family involvement, program setting, and social support (Cherrington et al., 2015). Similarly, health-related behavior change systematic reviews were conducted by Chen et al. (2015), Church et al. (2013), Perez et al. (2013), Holub et al. (2013), and Tovar et al. (2014), who also used Hispanic populations, employed culture as an approach toward incorporating diverse cultures in research, as well as to identify culturally specific weight management

strategies. This research measured individualistic and collectivist cultural identities to identify the variables and combination of variables that predict BMI decreases in the U.S. Hispanic population.

Government data have demonstrated the over-representation of overweight and obese issues in U.S. Hispanic communities (CDC, 2015). Similarly, poorer health outcomes (e.g., increased overweight and obesity) have been demonstrated by U.S. immigrants of Latino countries. Given the collectivist nature of Latin American host countries and the individualistic nature of the United States, the addition of cultural identity as a variable guided by of SDT might help explain the factors that influence weight loss and health-related behavior changed in U.S. Hispanic population.

Summary

The major themes throughout BWLP literature convey the lack of Hispanic participation as research participants, the inability to identify intervention strategies that contribute to consistent health-related behavior in the U.S. Hispanic population, as well as the absence of cultural identity as a predictor in BWLP studies. Most of the current research dedicated to BWLP is concentrated on the White populations; however, a few studies have centered their research on the U.S. Hispanic population. Much of the research that used Hispanic populations took place outside of the United States. Given this, the importance of pursuing research related to the U.S. Hispanic and intergroup Hispanic population was necessary. SDT's theoretical approach has consistently demonstrated its usefulness in BWLP research by contributing to the understanding,

description, and enhancements of motivation concerning culture and health-related behavior change.

Studies that failed to incorporate culturally specific strategies into the intervention process resulted in little-to-no initial or sustained weight loss. Since the emergence of the American Psychological Association and NIMH diversity and multicultural agenda, research dedicated to diverse populations in the United States has been slow to develop. Although there have been increases in studies centered on U.S. Hispanic populations, the gains are meager at best given the steady rise of the U.S. Hispanic population. Concerning BWLP research, as well as taking into consideration the overwhelming use of White participants in BWLP studies, it is still not known to what extent the current literature is useful in diverse populations. Informed by SDT, the present study filled the gap in the literature by supplementing the existing literature with quantitative BWLP research specific to the U.S. Hispanic population, as well as explore the role cultural identity has in influencing BMI decreases and physical activity. A regression design using online self-report surveys and a demographic questionnaire was exploited to achieve this. In chapter 3, the description and rationalization of methods used in this study will be addressed.

Chapter 3: Research Method

Introduction

Given the need to increase knowledge of the effectiveness of BWLP in the U.S. Hispanic population, in this chapter I will identify, describe, and justify the sampling, recruitment, participation, and data collection plan for this study. I will further identify and provide support for the instruments used in this study and describe the operationalization of variables, the data analysis strategy, and the potential threats to validity. The chapter will conclude with the ethical considerations and procedures for this study.

Research Design

Given the strategy of analyzing multiple independent variables in predicting the change in the continuous dependent variable, this study used a survey-based regression design. The objective of this study was to analyze motivation toward exercise, exercise program (individual, group, and intermittent exercisers), exercise frequency, cultural identity (individualistic and collectivist), sex, and age as independent variables in order to predict and explain decreases in the BMI-dependent variable. The general research question of this study inquired whether program type, cultural identity, and levels of motivation toward exercise decreased the BMI of people of the U.S. Hispanic population. Past research has not used cultural identity with the combinations of independent variables - demographics, exercise frequency, motivation toward exercise, and program type – as potential influencers of BMI decreases. Investigating these potential relationships are warranted, given the need to improve knowledge in areas of health

psychology and BWLP research on how U.S. Hispanics experience motivation toward exercise and cultural identity during their weight loss efforts.

Methodology

Population and Sampling

The purpose of this study was to advance knowledge in health psychology and BWLP research in the U.S. Hispanic population. The Hispanic population of El Paso, Texas, is 82%. The target population for this study were the male and female Hispanic patrons (approximately 1200) of the study's health and fitness community research partner in El Paso. Given the racial and ethnic similarities of the Hispanic patrons of the health and fitness community research partnership sites, a homogeneous purposive sampling strategy was pursued (Etikan, Musa, & Alkassim, 2016). The purposive sampling strategy commenced with identifying patrons who currently participate in group or individual physical activity at the community research partner's facilities. Because 70% of those who have gym memberships never use them and the community research partner offering services other than exercise programs (e.g., youth sports and racket ball), a non-exerciser category was used in addition to group and individual physical activity (Statistic Brain Research Institute, 2017).

Inclusion-exclusion criteria. The inclusion and exclusion criteria for this study were as follows: Hispanic (Latino) ethnic background, live in the El Paso, Texas area, have computer and internet access, speak and read English, 18-65 years of age, and have not undergone bariatric surgery. Given the intent that this study focused on those of the U.S. Hispanic population, the criterion that participants be of Hispanic ethnicity was

justified. The health & fitness community research partnership sites are in El Paso, Texas. Therefore, the justification that participants live in the El Paso, Texas area was a reasonable request. The questionnaires used in this study were administered using the online www.SurveyMonkey.com platform; therefore, the criterion of having computer and internet access was justified. The questionnaires and interactions of this study were in English, so, the condition that participants be able to speak and read English was warranted. Since it was the intent of this study to examine the exercise motivation of healthy and active adults in the U.S. Hispanic population, the criterion that participants be between the ages of 18-65 was justified. Because bariatric surgery influence weight loss in the absence of exercise, the criteria that participants have not undergone bariatric surgery was warranted. Finally, although the researcher of this study spent 14 years (2001-2015) as a personal trainer and gym owner in the El Paso, Texas area, past customers of the researcher were not excluded given the absence of a current power dynamic.

Sample size. A power analysis was conducted using G*Power computer software. F-tests, linear multiple regression: Fixed model, R^2 increase, and the A priori: Compute required sample size – given α, power, and effect size type were selected in the Test family, Statistical test, and the Type of power analysis drop-down menus. Within the Input parameters section, a .15 medium effect size, .05 alpha, 80% power, as well as 1 and 8, tested and the total number of predictors were imputed, respectively. G*Power indicated that a total sample size of 63 participants was required to detect a medium-sized predictor effect. A larger sample size of a minimum of 100 participants were pursued to

maintain statistical power after expected attrition influenced by participants not completing the online questionnaires or withdrawing from study participation. The justification for the chosen effect size, alpha, and power level reflects Cohen's statistical power analysis strategy as cited in Faul, Erdfelder, Buchner, and Lang (2009). Moreover, researchers Gorin et al. (2014), Silva et al. (2011), and Wasserkampf et al. (2014) used Cohen's statistical power analysis strategy in their BWLP regression studies.

Recruitment Procedures

The initial step in recruiting participants for this study was to reach an agreement with a health & fitness organization located in the El Paso, Texas area. A Research Partner Letter of Cooperation (Appendix D) was finalized with a health & fitness community research partner on December 18, 2017. After consulting with the community research partner, the agreed methods for recruitment included word of mouth, Participant Recruitment Posters (Appendix E), flyers, and Facebook. The recruitment posters outlined the nature of the study, participants expectations, and the website participants can visit to complete the questionnaires. The Participant Recruitment Poster communicated that the present study was an effort to understand best what motivational factors influence U.S. Hispanics during exercise and weight loss. Further, the recruitment poster stated, "Please visit the website link below to complete the online questionnaire." A letter-sized version of the recruitment poster was distributed as flyers onsite to patrons at the community research partner's facilities. The community research partner management planned to email an electronic version of the Participants Recruitment Poster to their customers. The community research partner management

planned to display an electronic version of the recruitment on their Facebook home page. Finally, so that the community research partner's customers who also use Facebook can receive information about the study, a Facebook profile was created displaying the Participant Recruitment Poster.

Data Collection

The Survey Monkey (www.surveymonkey.com) platform was used to collect all the data for this study. Upon visiting the Survey Monkey website participants first reviewed the consent form. Afterward, participants completed the Inclusion-Exclusion Questionnaire (Appendix F). The Inclusion-Exclusion Questionnaire asked the participants to answer yes or no to 5 questions (Can you speak and read English?, Do you live in the Greater El Paso, Texas area?, Do you identify as Hispanic or Latino?, Are you between the ages of 18 and 65?, Have you undergone bariatric surgery?). If the answers to questions 1-4 were yes and the answer to question 5 was no, participants met the criteria to participate in this study. For potential participants who did not meet the criteria to participate in this study, the process ended communicating a thank you for participating and the consent form was displayed. The participants who met the criteria to participate in this study, the process proceeded with completing the questionnaires. Afterward, the process ended communicating a thank you for participating and the consent form was displayed. The questionnaire process was approximately 10-15 minutes to complete.

Matching

This study used identification coding and statistical control. The Survey Monkey platform assigned a unique date and time stamp identifier for each completed survey. To preserve the anonymous (i.e., flyers received by participants) and confidential (i.e., onsite survey completion) participation of the participants, the earliest completed questionnaires were identified in numerical order beginning with the number one. Additionally, statistical control was applied, in which program type acted as the independent variable, the dependent variable was BMI decreases, and gender, age, and the four cultural identity scores were covariates.

Study Variables

The total decrease in BMI represented the dependent variable. Age, sex, exercise program (individual, group, and I don't usually exercise each week), motivation toward exercise (amotivation, intrinsic motivation, integrated regulation, identified regulation, external regulation), collectivist cultural identity, individualistic cultural identity, and exercise frequency represented the independent variables. A Demographic Questionnaire was used to obtain necessary demographic information (age, sex, weight, and height) exercise frequency, and exercise setting preference. While age and sex are common variables included in most studies, BMI, exercise program, exercise frequency, participants' motivation toward physical activity are variables relegated specifically to BWLP studies (Gorin et al., 2014; Gourlan et al., 2016; Rhodes & Kates, 2015; Ryan et al., 2008). Generally, the decrease, increase, and maintenance of the BMI allow BWLP researchers to measure improvements and setbacks during the weight loss process

(Cherrington et al., 2015; Ng et al., 2012; Mata et al., 2011; Ryan et al., 2008). The type of exercise program (group or individual) and form of motivation toward exercise participants exhibit, permit researchers to analyze, explain, and predict changes in weight and BMI (Carels et al., 2015; Castonguay & Miquelon, 2017; Gunnell et al., 2014; Miquelon et al., 2016). Exercise frequency was used to determine how many days per week the participant exercise. Castonguay and Miquelon (2017), as well as Miquelon et al. (2016) employed age, sex, exercise frequency, and motivational profiles toward physical activity as predictors to examine changes in BMI. Each of the predictors mentioned has been helpful in previous BWLP research; however, culture, as it relates to individualistic and collectivist cultural identity and how it influences health-related behavior change was not a customary predictor employed in BWLP research.

Variable Operationalization

Eight variables were analyzed during this study (age, sex, exercise motivation, program type, individualistic cultural identity, collectivist cultural identity, exercise frequency, and BMI). Age was measured as an interval variable and measured in years. Sex represented a dichotomous variable of male or female. Motivation toward physical activity represented a categorical nominal variable (5 categories) and was measured using the 18 item (e.g., “I exercise because others will not be pleased with me if I don’t”) BREQ-2 scale, in which a mean score for each set of items (amotivation, intrinsic motivation, integrated regulation, identified regulation, external regulation) was produced (Markland & Tobin, 2004a; Markland & Tobin, 2004b; Mullan, Markland, & Ingledew, 1997). The categorical variable of physical activity program type was identified as group-

based (e.g., Zumba, kickboxing, and step class), individual based (e.g., engaging in exercising or other physical activity alone), or intermittent exerciser who do not usually exercise each week. Four elements (vertical collectivism, vertical individualism, horizontal collectivism, and horizontal individualism) of collectivism and individualism cultural identity was measured using the 16 item (e.g. "what happens to me is my own doing") Individualism-Collectivism Scale, in which a total raw score was produced. Exercise frequency represented an interval variable (0 - 7 Days Per Week). The BMI of the participants was automatically calculated using a BMI calculator (i.e., in meters, weight divided by the square of height, BMI = 80kg/30.6 = 26.1), which was incorporated into the online Demographic Questionnaire. The BMI was used to determine a person's tissue mass (i.e., fat and muscle) in categories of underweight, normal weight, overweight, and obese (i.e., below 18.5, 18.5 to 24.9, 25 to 29.9, and above 30). In addition, weight was reported in pounds, converted to kilograms, and used to calculate the participants' BMI. Height was reported in inches and used to calculate the participants' BMI.

Instrumentation

To assess the participants' cultural identity and motivation toward exercise, there were two instruments used for this study (BREQ-2 and the Individualism Collectivism Scale). The BREQ-2 was used to measure the exercise motives of the participants. The Individualism-Collectivism Scale was used to measure the individualistic and collectivist cultural identity of the participants.

BREQ-2. The BREQ-2 was developed by Mullan et al. (1997) and was revised by Markland and Tobin (2004a). The appropriateness of the BREQ-2's use in the current study allowed the researcher to measure the participants' motivations toward physical activity by analyzing the various types of behavioral regulations (amotivation, intrinsic motivation, external motivation, introjected motivation, and identified motivation) the participants exhibit (Markland & Tobin, 2004a). The current study used motivation toward exercise as an independent variable in predicting BMI decreases. The BREQ-2 measures motivation toward exercise by using a 5-point scale (i.e., 0 = "not true for me" to 4 = very true for me) and 18 items, such as "I value the benefits of exercise" (Markland & Tobin, 2004b, p.193). The Bangor University School of Sport Health & Exercise Science's website (www.csep.ca) states: "If you are using the scales for research purposes you do not have to ask for permission." However, three professional courtesy emails over a 2-week period were sent notifying the author of the intention to use the BREQ-2 in this study.

The internal consistency of the BREQ-2 demonstrated Cronbach's alpha reliability ranges of .73 to .86, (amotivation .83, external motivation .79, identified motivation .73, introjected motivation .80, intrinsic motivation .86, Markland & Tobin, 2004b). The BREQ-2 internal consistency of additional studies demonstrated Cronbach's alpha reliability ranges of .70 to .96 for the various types of motivation (Castonguay & Miquelon, 2017; Miquelon et al., 2016; Moustaka, Vlachopoulos, Vazou, Kaperoni, & Markland, 2010; Sebire et al. 2011). Given the fit indexes cutoff criteria proposed by Hu and Bentler (1999), the BREQ-2 five-factor model demonstrated strong factorial and

construct validity, as well as excellent fit (CFI = .95, RMSEA = .02, NNFI = .94, and SRMR = .05 Markland & Tobin, 2004b, p. 194). Further, convergent and discriminant validity were established by Moustaka et al. (2010), as well as Rose, Markland, and Parfitt (2001) by comparing the BREQ-2 five-factor model to other models, in which constructs related greatly to one another and less with different constructs (Campbell & Fiske, 1959).

Individualism-Collectivism Scale. The Individualism-Collectivism Scale measures horizontal and vertical forms of individualism and collectivism cultural identity. The scale was developed initially by Singelis et al. (1995) and modified by Triandis and Gelfand (1998b). The appropriateness of the Individualism-Collectivism Scale's use in this study allowed the researcher to analyze the potential influence of cultural identity on BMI decreases, motivation toward physical activity, and exercise frequency. The Individualism-Collectivism Scale measures horizontal and vertical individualism, as well as horizontal and vertical collectivism by using a 9-point scale (e.g., 1 = "strongly disagree" to 9 = strongly agree) and 16 items, such as "I'd rather depend on myself than others and It is important to me that I respect the decisions made by my groups" (Triandis & Gelfand, 1998b). The permission section of this questionnaire states: "Test content may be reproduced and used for non-commercial research and educational purposes without seeking written permission" (Triandis & Gelfand, 1998b, p. 1). However, three professional courtesy emails over a 2-week period were sent notifying the author of the intention to use the Individualism-Collectivism Scale in this study.

The revised version of the Individualism-Collectivism Scale demonstrated good internal consistency with Cronbach alpha reliability ranges of .73 to .82, (horizontal individualism .81, vertical individualism .82, horizontal collectivism .80, and vertical collectivism .73 Triandis & Gelfand, 1998a). The Individualism-Collectivism internal consistency of additional studies exhibited Cronbach's alpha reliability ranges of .65 to .82 for the four types of individualism and collectivism (Hartung, Fouad, Leong, and Hardin, 2010; Soh and Leong, 2002). Hu and Bentler (1999) fit indexes cutoff criteria recommendations established good fit, as well as factorial and construct validity for the Individualism-Collectivism Scale (CFI = .83, RMSEA = .054, NNFI = .81, and SRMR = .098 Soh and Leong, 2002). Additionally, convergent and discriminant validity were established by Triandis and Gelfand (1998), as well as Soh and Leong (2002) by analyzing multiple measures of the individualism and collectivism constructs, in which the constructs related better with one another and less with other constructs (Campbell & Fiske, 1959).

Data Analysis Plan

All statistical analyses were performed using SPSS software. A simple multiple linear regression analysis was the primary analyses used in this study to examine the research questions concerning the impact of age, sex, motivation toward exercise, exercise program, exercise frequency, individualistic cultural identity, and collectivist cultural identity on decreases of BMI (Keith, 2014). Specifically concerning research question two, a one-way ANCOVA model was used to determine if there was a significant difference between the exercise programs independent variable levels (group

exercisers and individual exercisers) on the dependent variable. The research questions and hypotheses are as follows:

RQ1: Does cultural identity predict BMI decrease in the U.S. Hispanic population?

*H*0: Cultural identity does not predict BMI decrease in the U.S. Hispanic population.

*H*1: Cultural identity predicts BMI decrease in the U.S. Hispanic population.

RQ2: Does program type predict BMI decrease in the U.S. Hispanic population?

*H*0: Program type does not predict BMI decrease in the U.S. Hispanic population.

*H*1: Program type predicts BMI decrease in the U.S. Hispanic population.

RQ3: Does motivation toward exercise predict BMI decrease in the U.S. Hispanic population?

*H*0: Motivation toward exercise does not predict BMI decrease in the U.S. Hispanic population.

*H*1: Motivation toward exercise predicts BMI decrease in the U.S. Hispanic population.

A simultaneous multiple linear regression was the appropriate statistical analysis to test the hypotheses of this study since the goal was to predict and explain BMI decreases (Keith, 2014). Keith (2014) communicates “simultaneous regression is primarily useful for explanatory research to determine the extent of the influence of one

or more variables on some outcome" (p. 80). For example, while controlling for the other independent variables, simultaneous multiple regression's use helped determine the overall influence, as well as the extent to which each predictor independently influences BMI decreases (Keith, 2014). The method of a simultaneous multiple linear regression helped explain percentages of the variance and combined effects exercise program, sex, age, motivation toward exercise, exercise frequency, and cultural identity have on BMI decreases (Keith, 2014). The results were interpreted using the F-test, beta coefficient, t-test, and r-squared. The F-test was indicated to measure whether the independent variables predict BMI decreases in the participants. The beta coefficient was reported to quantify the extent to which the independent variables predict BMI decreases. The t-test was used to assist in determining the significance each independent variable might have in predicting BMI decreases. R-squared was reported to help clarify how much of the BMI decrease variances are explained by the independent variables.

To apply the multiple regression model and improve the ability to infer and generalize study results, essential assumptions must be met. The assumptions that were taken into consideration included linearity, independence of errors, homoscedasticity, normality, and multicollinearity (Keith, 2014). Following data collection and the examination of scatterplots, no curvilinear relationships were detected. Boxplots of the data were reviewed to inspect for an independent errors violation. Following the examination of boxplots, the independence of errors assumptions was violated. The initial plan was to remove outliers from the model, however, a decision was made to retain the original sample based on the notion that deleting variables in this case could inflate the

significance of the findings of this study (Keith, 2014). Additionally, given this assumption violation, Spearman correlation coefficients will be reported to corroborate the Pearson correlation coefficients. The assumption of homoscedasticity was assessed by inspecting scatterplots of the independent variables. After examining the scatterplots of the independent variables, no violation of homoscedasticity was observed. The assumption of normality was evaluated by inspecting the residuals on the histogram and p-p plots and no violation was displayed. The assumption of multicollinearity was assessed by running a collinearity diagnostic in SPSS. After viewing the tolerance and variance inflation factor (VIF) collinearity statistics, no violation of multicollinearity was detected (Keith, 2014).

Threats to Validity

Validity concerns are significant when using an observational design, in which type-1 or type-2 errors can call into question the results and interpretations of the study. Addressing internal and external validity reduces errors and increases the validity of study conclusions. To increase the likelihood that valid inferences and generalizability can be drawn from an observational design, the sampling process and group dynamics are important considerations.

Group size, group balance, representative sample, and the proper use of a control group must be considered to strengthen the internal and external validity of an observational study (Carlson & Morrison, 2009). To maintain statistical power, G*Power software concluded that 63 participants would be required to detect a medium-sized predictor effect, to maintain statistical power. However, given the expected attrition rate,

the goal of the researcher was to obtain a minimum of 100 study participants. To enhance the accuracy of study estimates, the goal was to have the non-exercisers, individual, and group physical activity groups of similar size. In addressing internal validity, controlling for age, sex, and cultural identity would allow the groups to be compared and measured (Carlson & Morrison, 2009). The sample for this study was randomly drawn from the customers of the health & fitness research community partner, which increases external validity concerns. However, given the use of an observational and multiple regression design employed in this study, cause and effect conclusions, as well as generalizability for other populations is limited. Future studies replicating this study in additional geographic locations, as well as with populations of different racial and cultural backgrounds will improve the reliability and external validity of this study.

Ethical Procedures

The consent form (Approval Number: 11-19-18-0191119) communicated to participants that all records for this study will remain private and the identification of study participants will not be identified. The consent form was reviewed by all participants. This information provided on the consent form include the study procedures, the voluntary nature of the study, risks and benefits of participation, payment, privacy, and contact information. Although there are no physical risks and benefits to participating in this study, the consent form communicates that participants may become upset when completing questionnaires relating to current weight, past weight, and exercise motivations. When completing the online questionnaires, participants had the ability to skip questions if they did not feel comfortable answering. Further, the consent form

communicates that this study was voluntary and participants could have chosen not to participate or conclude their participation at any time without affecting their relationship with the community research partner. Finally, the consent form stated, no compensation would be provided to participants for their participation in this study and all information relating to this study would be confidential. Participants who withdrew from this study, the process ended communicating a thank you for participating and the consent form was displayed accompanying the contacts and questions section of the consent form, which provides the Walden University email contact information of the researcher (leon.daniels@waldenu.edu) and the phone number for the Walden University Research Participant Advocate (612-312-1210).

There are no identified ethical concerns related to the recruitment materials and processes of this study. The researcher will not use any personal information for any purpose outside of this research project. However, since Facebook track the activities of its users, the consent form, flyers, and posters communicated that Facebook would not have access to any survey data related to this study. The initial plan for participants who met the inclusion-exclusion criteria was to ask them to create a unique code identifier. Anyone viewing data (i.e., researcher or statistician) from this study will not be able to identify the participants. The unique participant data identifier was generated in the form of a time-date stamp. Whether participants received a flyer and completed the survey on their own time and device or completed the survey onsite, no identifying information was collected (e.g., names, email addresses, internet data, or phone numbers).

The Survey Monkey online platform was used to collect all the data for this study. Survey Monkey communicates in the Privacy Policy section of its website that data retention is under the control of the creating account holder. Given this, Survey Monkey will not retain the data or any rights to the data collected for this study. The security of the Survey Monkey physical location has 24-hour monitoring that includes visitor logs, video surveillance, and entry requirements (Survey Monkey, 2017). The online security of Survey Monkey consists of password protected account authentication, as well as data encryption (Survey Monkey, 2017). Once downloaded, the study data will be retained on an encrypted data password protected external hard drive in the researcher's home safe and stored for 5 years. After the 5-year storage requirement has expired, the data will be destroyed by initiating a full format process, which will erase all the data on the external hard drive.

Summary

The key segments of this chapter described procedures and processes relating to the study variables, research design and methods, population, sampling, recruitment, instrumentation, threats to validity, and ethical procedures. This chapter was initiated by defining the research variables of motivation toward exercise, exercise frequency, and traditional demographic information as predictors. In addition, this chapter also introduced individualistic and collectivist cultural identity as independent variables in predicting and explaining BMI decreases in the U.S. Hispanic population. Subsequently, the research design and methods of conducting a regression study were introduced as the appropriate approach to conducting this predictive research. The population, sampling,

and recruitment sections described the homogenous purposive sampling strategy of pursuing an assembled population of the health and fitness community research partner's patrons. The instrumentation and threats to validity portion of this chapter described the instruments that were used in the data collection process, as well as explained the validity concerns and assumptions of an observational design. Finally, ethical procedures were addressed describing the treatment of data and study participants. The next chapter will provide the results of the applied processes and procedures of this chapter.

Chapter 4: Results

Introduction

The purpose of this study was to quantitatively examine whether the following categories (motivation toward exercise, cultural identity, exercise program, and exercise frequencies) influence BMI decreases in the U.S. Hispanic population. This chapter will describe the data collection process, report the study results, and summarize answers to the following research questions.

RQ1: Does cultural identity predict BMI decrease in the U.S. Hispanic population?

*H*0: Cultural identity does not predict BMI decrease in the U.S. Hispanic population.

*H*1: Cultural identity predicts BMI decrease in the U.S. Hispanic population.

RQ2: Does program type predict BMI decrease in the U.S. Hispanic population?

*H*0: Program type does not predict BMI decrease in the U.S. Hispanic population.

*H*1: Program type predicts BMI decrease in the U.S. Hispanic population.

RQ3: Does motivation toward exercise predict BMI decrease in the U.S. Hispanic population?

*H*0: Motivation toward exercise does not predict BMI decrease in the U.S. Hispanic population.

*H*1: Motivation toward exercise predicts BMI decrease in the U.S. Hispanic population.

Data Collection

The IRB application for the current study was approved on November 19, 2018. On December 17, 2018 a Facebook page was created to allow patrons of the community research partner to click on a SurveyMonkey.com link to participate in the study. The on-site distribution of flyers at the community research partner's locations began on January 29, 2019 and concluded on May 15, 2019. iPad survey participation at the community research partner's locations ran from April 18 to May 15 of 2019. During the 16-week data collection period, 286 flyers were distributed to patrons and 116 participants answered the on-line questionnaire, either on-site or on their own computer.

Data Collection Discrepancies

There were multiple discrepancies in the data collection plan presented in Chapter 3. First, the management of the community research partner changed multiple times during the data collection period, so an updated Research Partnership Letter of Cooperation was negotiated and signed by the current management. Secondly, the new management could not obtain corporate authorization to present electronic versions of the Participants Recruitment Poster to customers via email or via their Facebook home page. Therefore, although the Facebook page was created, no participants used Facebook as a link to complete the on-line SurveyMonkey.com questionnaire. Finally, due to the stagnant completion rate of surveys from patrons receiving flyers, a change in procedure form was submitted to the IRB requesting authorization to collect data on-site, at the

community research partner's locations, using an iPad. Following IRB approval, on-site data collection commenced. I approached potential participants as they entered and exited the facilities, asked them to participate in the study, directed them to a private area, and gave them a hard copy of the consent form once they completed the survey.

Sample Demographics

A power analysis was conducted using G*Power 3.1, in which a total sample size of 63 participants were necessary to detect a medium-sized predictor effect. Of the 116 participants, 40 participants could not fulfill the inclusion-exclusion criteria, 66 participants answered all survey questions, and 10 participants failed to answer one survey question. For missing answers, a grand mean was generated from the 75 participant responses to estimate missing answers of one question not answered by 10 participants. Tables 1 and 2 display the final sample size (*N*=76), demographic characteristics, and baseline descriptive. Most of the participants were female (n = 44, 57.9%), while male participants consisted of 42.1% (32) of the sample. The majority of the participants preferred an individual exercise setting (63.2%), whereas, 36.8% of the participates preferred a group exercise setting. Majorly, the participants preferred working out 4 days per week (28.9%), followed by five days per week (21.1%), three days per week (18.4%), and 2 days per week (15.8%).

Table 1

Descriptive Statistics: Sex, Exercise Setting, and Frequency

		Frequency	Percent	Valid percent	Cumulative percent
Sex					
	Male	32.0	42.1	42.1	42.1
	Female	44.0	57.9	57.9	100.0
	Total	76.0	100.0	100.0	
Exercise setting					
	Individual	48.0	63.2	63.2	63.2
	Group	28.0	36.8	36.8	100.0
	Total	76.0	100.0	100.0	
Exercise frequency					
	0 Days per week	2.0	2.6	2.6	2.6
	1 Days per week	1.0	1.3	1.3	3.9
	2 Days per week	12.0	15.8	15.8	19.7
	3 Days per week	14.0	18.4	18.4	38.2
	4 Days per week	22.0	28.9	28.9	67.1
	5 Days per week	16.0	21.1	21.1	88.2
	6 Days per week	6.0	7.9	7.9	96.1
	7 Days per week	3.0	3.9	3.9	100.0
	Total	76.0	100.0	100.0	

Table 2 displays the demographic, weight, and BMI variables. The participants' ages range from 19 to 66, while the median age and height of the participants were 36.86 years and 65.86 inches. The self-reported mean weight of the participants at the time of study participation was 172.33 pounds and the mean weight eight weeks prior was 176.90 pounds. Using the BMI formula discussed in chapter three (i.e., in meters, weight divided by the square of height), the participants demonstrated a .61 decrease in BMI during an 8-

week period, with a pretest BMI of $M = 28.61$ ($SD = 5.50$) and a posttest BMI of $M = 28.00$ ($SD = 5.32$).

A homogeneous purposive sampling strategy was pursued during this study. Given the foundational focus of this study being centered on the U.S. Hispanic population, 100% of the participants were Hispanic (Latino). Additionally, Table 1 and 2 assists in demonstrating how proportional the sample was to the population of interest. For example, 49.3% of the El Paso, Texas population are male, while 42.1% of the sample were male. The age 18-65 population represents 60.7% of the El Paso, Texas population, while this study focused on adults between the ages of 18 and 65 (U.S. Census Bureau, 2019).

Table 2

Descriptive Statistics: Demographic Variables

Variable	*N*	Minimum	Maximum	Mean	*SD*
Age	76	19.00	66.0	36.86	11.77
Height	76	59.00	74.0	65.86	3.44
Weight 8 weeks ago	76	101.00	280.0	176.90	37.27
Current weight	76	100.00	270.0	172.33	35.49
Pretest BMI	76	19.08	43.85	28.61	5.50
Posttest BMI	76	18.89	42.28	28.00	5.32
Decrease in BMI	76	- 1.98	3.43	0.61	1.16

Table 3 displays the psychometrics for the twelve scale scores. The Cronbach Alpha for the scales ranged from $\alpha = .57$ to $\alpha = .87$. The median alpha for the psychometric scale scores were calculated at $\alpha = .76$. The Horizontal Individualism ($\alpha =$

.57) and Amotivation (α=0.62) scales demonstrated Cronbach alpha reliability coefficients below α≤ .70, while an additional seven scale scores demonstrated Cronbach Alpha reliability coefficients below α≤ .80 (Bland & Altman, 1997; Tavakol & Dennick, 2011; Vaske, Beaman, & Sponarski, 2017). Given this, to corroborate statistical bivariate comparisons, Spearman correlation coefficients will accompany Pearson correlation coefficients (Gravetter & Wallnau, 2009).

Table 3

Psychometric Scale Scores

Scale	Items	Min	Max	Mean	*SD*	α
Total individualism and collectivism	16	4.25	8.75	6.84	0.96	0.77
Total individualism	8	3.25	9.00	6.13	1.28	0.71
Total collectivism	8	4.00	9.00	7.56	1.11	0.79
Horizontal individualism	4	2.75	9.00	7.23	1.42	0.57
Vertical individualism	4	1.00	9.00	5.02	1.84	0.80
Horizontal collectivism	4	3.75	9.00	7.61	1.21	0.74
Vertical collectivism	4	2.00	9.00	7.51	1.43	0.75
Amotivation	4	1.00	3.75	1.24	0.54	0.62
External regulation	4	1.00	4.75	1.55	0.77	0.78
Introjected regulation	3	1.00	5.00	2.77	1.18	0.75
Identified regulation	3	1.67	5.00	4.53	0.69	0.82
Intrinsic regulation	4	1.25	5.00	4.30	0.87	0.87

Study Results

Tables 4 and 5 display the Pearson and Spearman correlations concerning BMI decreases and its relationship to the 12 cultural identity and motivation toward exercise scale scores, demographic variables (sex and age), program type, and exercise frequency. Table 4 demonstrates the Pearson correlation where increased decreases in BMI were

correlated with higher scale scores relating to introjected regulation ($r = .25$, $p = .03$). Table 4 also displays the Spearman correlation showing increased decreases in BMI are correlated with higher scores of total collectivism ($r_s = .25$, $p = .03$), external regulation ($r_s = .25$, $p = .03$), and introjected regulation ($r_s = .24$, $p = .04$). Table 5 displays the Pearson and Spearman correlations, in which the age, sex, program type, and days per week exercising were not correlated with increases decreases in BMI.

Table 4

Pearson and Spearman Correlations of BMI Decreases: Scales Scores

	Decrease in BMI	
Scale Score	Pearson	Spearman
Total individualism and collectivism	0.07	0.03
Total individualism	-0.08	-0.12
Total collectivism	0.20	0.25*
Horizontal individualism	0.08	0.02
Vertical individualism	-0.17	-0.22
Horizontal collectivism	0.16	0.18
Vertical collectivism	0.18	0.16
Amotivation	-0.08	-0.01
External regulation	0.17	0.25*
Introjected regulation	0.25*	0.24*
Identified regulation	0.18	0.17
Intrinsic regulation	0.04	-0.09

Note $*p < .05$

Table 5

Pearson and Spearman Correlations of BMI Decreases: Selected Variables

	Decrease in BMI	
Variable	Pearson	Spearman
Program type	-0.09	-0.13
Sex	-0.09	-0.08
Age	-0.10	-0.11
Days per week exercising	0.16	-0.11

Note $*p < .05$

Assumptions

Linearity, homoscedasticity, normality, and multicollinearity assumptions were assessed and no violations were discovered (Keith, 2014). Scatterplots, p-p plots, and below 10 VIF (1.11 to 2.18) collinearity statistics were reviewed and these assumptions appeared not to be violated (Keith, 2014). Durbin-Watson statistic tests were employed to detect autocorrelation, in which the results were between 1.5 and 2.5, demonstrating no data autocorrelation. However, following boxplots inspections, the independence of errors assumptions was violated by revealing multiple outliers.

In reviewing the initial sample size ($N = 76$), box plots revealed multiple outliers. Following four cycles of box plots, the sample size was reduced significantly ($n = 21$). Since the results of the power analysis determined a minimum of 63 participants were necessary to detect a medium-sized predictor effect, the initial sample size was retained (Keith, 2014). The decision to retain the sample and not remove variables was based on the notion that deleting variables could inflate the significance of the findings (Keith, 2014). Finally, in an effort to corroborate the initial bivariate comparisons, Spearman correlation coefficients will accompany the Pearson correlation coefficients.

Research Question 1

Research Question 1 asked whether cultural identity predict BMI decrease in the U.S. Hispanic population. The null hypothesis states that cultural identity does not predict BMI decrease in the U.S. Hispanic population. Table 6 displays the multiple regression analysis relating to the predictive influence of cultural identity on BMI decreases. The analysis demonstrated that cultural identity accounts for 9.2% of the BMI decrease variance and no statistically significant (p = .14) correlation between BMI decreases and cultural identity were identified. Although no statistically significant correlation was discovered, the beta weight for vertical individualism (β = -.24, p = .05) demonstrated a negative relationship with BMI decreases. Generally, the overall conclusion does not warrant the rejection of the null hypothesis. However, given the negative relationship between vertical individualism and BMI decreases, rejecting the null hypothesis was partially warranted.

Table 6

Multiple Regression: Influence of Cultural Identity on BMI Decrease

Variable	*B*	*SE*	β	*p*	*VIF*
Horizontal individualism	0.06	0.10	0.08	0.53	1.11
Vertical individualism	-0.15	0.08	-0.24	0.05	1.13
Horizontal collectivism	0.07	0.12	0.08	0.55	1.25
Vertical collectivism	0.15	0.11	0.19	0.16	1.35

Note. Final model: $F(4, 71) = 1.79$, $p = .14$. $R^2 = .092$. Durbin-Watson = 1.90

Research Question 2

Research Question 2 asked whether program type predict BMI decrease in the U.S. Hispanic population. The null hypothesis states that program type (individual and group exercise settings) does not predict BMI decrease in the U.S. Hispanic population. Table 7 displays the multiple regression analysis relating to the predictive influence of program type on BMI decreases. Controlling for selected variables, the analysis demonstrated that program type accounts for 21.9% of the BMI decrease variance and no statistically significant ($p = .22$) correlation between BMI decreases and program type were identified. Additionally, the beta weight ($\beta = .07$, $p = .61$) of the program type primary variable demonstrated no statistically significant relationship with BMI decreases. Given this, the overall conclusion does not warrant the rejection of the null hypothesis.

Table 7

Multiple Regression: Influence of Selected Variables on BMI Decrease

Variable	*B*	*SE*	β	*p*	*VIF*
Horizontal individualism scale	-0.01	0.10	-0.02	0.89	1.26
Vertical individualism scale	-0.21	0.08	-0.33	0.01	1.30
Horizontal collectivism scale	0.05	0.13	0.06	0.70	1.57
Vertical collectivism scale	0.09	0.11	0.11	0.44	1.51
Amotivation scale	-0.20	0.32	-0.09	0.53	1.77
External regulation scale	0.35	0.20	0.24	0.09	1.46
Introjected regulation scale	0.15	0.14	0.16	0.27	1.53
Identified regulation scale	0.04	0.30	0.03	0.89	2.55
Intrinsic regulation scale	-0.13	0.22	-0.10	0.55	2.18
Program type	0.15	0.30	0.07	0.61	1.27
Sex	-0.32	0.29	-0.14	0.28	1.22
Age	-0.01	0.01	-0.11	0.35	1.17
Days of weekly exercise	0.17	0.11	0.21	0.15	1.72

Note. Final model: $F(13, 62) = 1.34$, $p = .22$. $R^2 = .219$. Durbin-Watson = 2.01

Research Question 3

Research Question 3 asked whether motivation toward exercise predict BMI decrease in the U.S. Hispanic population. The null hypothesis states that motivation toward exercise does not predict BMI decrease in the U.S. Hispanic population. Table 8 displays the multiple regression analysis relating to the predictive influence of motivation toward exercise on BMI decreases. The analysis demonstrated that motivation toward exercise accounts for 11% of the BMI decrease variance and no statistically significant ($p = .14$) correlation between BMI decreases and motivation toward exercise were identified. The overall conclusion does not warrant the rejection of the null hypothesis.

Table 8

Multiple Regression: Influence of Exercise Motivation on BMI Decrease

Variable	*B*	*SE*	β	*p*	*VIF*
Amotivation scale	-0.17	0.29	-0.08	0.56	1.46
External regulation scale	0.3	0.19	0.20	0.13	1.31
Introjected regulation scale	0.15	0.12	0.15	0.22	1.21
Identified regulation scale	0.32	0.27	0.19	0.25	2.07
Intrinsic regulation scale	-0.07	0.20	-0.05	0.72	1.85

Note. Final model: $F(5, 70) = 1.73$, $p = .14$. $R^2 = .110$. Durbin-Watson = 1.90.

Additional Statistical Tests

A stepwise multiple regression analysis was conducted to examine the influence of the 38 individual Likert scale responses of demographic, cultural identity, exercise frequency, and motivation toward exercise on BMI decreases. The analysis demonstrated that the selected scale item (I feel ashamed when I miss an exercise session) was statistically significant and ($p = .001$) accounts for 16.5% of the BMI decrease variance. Additionally, the beta weight ($\beta = .37$, $p = .001$) of the selected item variable demonstrated that decreases in BMI increased as the "I feel ashamed when I miss an exercise session" score increased. Finally, the beta weight ($\beta = -.30$, $p = .009$) of the selected item variable demonstrated that decreases in BMI slightly increased as the" Winning is everything" score increased. The analysis results demonstrated no other statistically significant relationships with the other 36 Likert items and BMI decreases.

Table 9

Stepwise Multiple Regression: Selected Items Influence on BMI Decrease

Variable	*B*	*SE*	β	*p*	*VIF*
I feel ashamed when I miss an exercise session	0.31	0.09	0.37	0.001	1.08
Winning is everything	-0.13	0.05	-0.3	0.01	1.08

Note. Final model: $F(2, 73) = 7.21$, $p = .001$. $R^2 = .165$. Durbin-Watson = 1.82

Summary

The primary objectives of this chapter were to describe the actual data collection process in contrast to the plan stated in chapter three, as well as to report the results of this study. The current study used 76 patrons of the community research partner to quantitatively examine demographic, cultural identity, exercise frequency, motivation toward exercise, and exercise program independent variables' influence on BMI decreases in the U.S. Hispanic population. Given the slow participation rate of the community research partner patrons receiving flyers, on-site data collection using an iPad was implemented. The results of the cultural identity influence on BMI decrease multiple regression analysis (RQ1), did not support rejecting the null hypothesis, however, rejecting the null hypothesis was partially supported given the negative relationship between vertical individualism and BMI decreases. Further, the results of the program type (RQ2) and motivation toward exercise (RQ3), influence on BMI decrease multiple regression analyses did not support rejecting the null hypotheses. Chapter 5 will compare the current findings with the literature, as well as draw conclusions and offer recommendations.

Chapter 5: Discussion, Conclusions, and Recommendations

Introduction

The purpose of this study was to investigate the potential relationship between seven independent variables' influence on the dependent variable. This quantitative study employed a regression model to examine motivation toward exercise (amotivation, intrinsic motivation, integrated regulation, identified regulation, external regulation), cultural identity (individualistic and collectivist), exercise program (individual or group), exercise frequency (exercise days per week), and demographic independent variables' (age and sex) influence on BMI decreases (dependent variable) in the El Paso, Texas Hispanic population. U.S. Hispanic communities are over-represented in categories of United States overweight and obesity rates (CDC, 2015), and yet the majority of BWLP studies use primarily White participants or are conducted outside of the United States (Aponte-Rivera et al., 2014; George et al., 2014; Mak et al., 2007; Perez et al., 2013). Further, BWLP studies have shown that Hispanics respond well to intervention approaches that consider culture (Holub et al., 2013; Perez et al., 2013). This study was conducted (a) to extend knowledge in health psychology and particularly BWLP research by addressing the underrepresentation of U.S. Hispanics in BWLP studies, and (b) to examine physical activity program type, motivation toward exercise, cultural identity, demographic variables, and exercise frequency as predictors of BMI decreases in the U.S. Hispanic population.

Summary of Findings

The results of Research Question 1 did not exhibit a statistically significant (p = .14) correlation between cultural identity and BMI decreases, however; vertical individualism did exhibit a statistically significant (β = -.24, p = .05) negative relationship with BMI decreases. This result indicates that increases in vertical individualism coincide with reduced decreases in BMI. The results of Research Question 2 did not exhibit a statistically significant (p = .22) correlation between program type and BMI decreases. Similarly, the results of Research Question 3 did not exhibit a statistically significant (p = .14) correlation between motivation toward exercise and BMI decreases. As corroborated by both the Pearson (r = .25, p = .03) and Spearman (r_s = .24, p = .04) correlation coefficients, the results of this study did reveal a statistically significant correlation between introjected regulation and BMI decreases. These results demonstrate that, as introjected regulation increase, BMI decreases also increase. Similarly, the Spearman correlation coefficient revealed that greater decreases in BMI are correlated with higher scores of external regulation (r_s = .25, p = .03). This result demonstrates that, as external regulation increase, BMI decreases also increase. The Spearman correlation coefficient also revealed that greater decreases in BMI are correlated with higher scores of total collectivism (r_s = .25, p = .03). This result indicates that increased total collectivism results in BMI decreases. Finally, in an exploratory capacity, the 38 individual scale responses were examined for potential influences on BMI decreases. The scale items “I feel ashamed when I miss an exercise session” (β = .37, p = .001) and “Winning is everything” (β = -.30, p = .009) exhibited a statistically significant correlation with BMI

decreases. These results demonstrate that feeling ashamed for not exercising and viewing winning as essential accompanied BMI decreases.

Interpretation of the Findings

Given the scarcity of BWLP research centered on U.S. Hispanics and the noticeably absent examination of cultural identity as a predictor of BMI decreases, this study sought to explore potential cultural variations of motivation toward exercise and BMI decreases in the U.S. Hispanic population. This study revealed six significant findings that extend knowledge in the existing U.S. Hispanic health psychology and BWLP research literature. While no significant relationships where demonstrated with (a) demographic variables (sex and age), (b) program type, (c) exercise frequency and (d) nine cultural identity and motivation toward exercise scale scores, six significant findings were related to cultural identity (RQ1) and motivation toward exercise (RQ3).

Nonsignificant Demographic Findings

The age and sex correlation coefficients demonstrated very low negative relationships (e.g., -.2) with BMI decreases (Gravetter & Wallnau, 2009; Keith, 2014). This conclusion communicates that BMI decreases are affected very little to none when participants' age and sex were examined as predictors of BMI decreases. Plainly, whether BMI decreases stay the same or increase, the resulting BMI will not be meaningfully influence by age or sex. Contingent on the type of study conducted, the BWLP literature exhibits mixed conclusions as to the level of influence sex and age have on BMI decreases (weight loss).

Nonsignificant Program Type and Exercise Frequency Findings

The program type Pearson (r_s = -.09) and Spearman (r = -.13) correlation coefficients exhibited a low negative relationship with BMI decreases (Gravetter & Wallnau, 2009; Keith, 2014). Exercise frequency correlation coefficients demonstrated a low negative (r_s = -.11) relationship and a low positive (r = .16) relationship with BMI decreases (Gravetter & Wallnau, 2009; Keith, 2014). These conclusions suggest that BMI decreases are affected little by individual and group exercise programs and how many days spent exercising per week. Study results by Carels et al. (2015) and Cherrington et al. (2015) are examples of the mixed conclusions in much of the current literature concerning exercise settings and its influences on BMI decreases (weight loss). The current literature is also mixed on exercise frequency contingent on the structure of the study. For example, a systematic review by Burke et al. (2011), revealed that greater exercise frequency, improved weight loss, and exercise self-monitoring were significantly correlated. Further, Fortier et al. (2012) explains that increased weight loss is significantly correlated with autonomous exercise motivation, which influences enhanced participation in physical activity (Gorin, et al., 2014; Santos et al., n.d.; Silva et al., 2011). Finally, the results of this study not demonstrating significance with program type and exercise frequency influence on BMI increases could be due to this study's reliance on participant exercise frequency recall and not using energy expenditure measurements (i.e., accelerometer) to objectively assess caloric output (Cerin et al., 2016; Dyrstad, Hansen, Holme, & Anderssen, 2014).

Nonsignificant Cultural Identity Findings

The nonsignificant cultural identity variables (total individualism and collectivism, total individualism, horizontal individualism, horizontal collectivism, and vertical collectivism) also exhibited near zero to low correlation with BMI decreases. These results convey that BMI decreases are not influenced in participants who represent cultural identities that are extremely self-reliant, interdependent, or goal sacrificing for their in-group (Singelis et al., 1995; Triandis, & Gelfand, 1998a). The stated nonsignificant cultural identity variables can be attributed to the low Cronbach's alpha scale ranges (i.e., $\alpha = .57$ to $\alpha = .80$), in which low reliability scales can contribute to statistically significant effects appearing nonsignificant (Keith, 2014).

Nonsignificant Motivation Toward Exercise Findings

The results of this study did not establish significant correlations with amotivation, identified regulation, and intrinsic regulation's influence on BMI decreases. These results suggest that BMI decreases were not influenced in participants who were void of motivation during moments of action or inaction, autonomously motivated participants who viewed exercise as important but not enjoyable, or participants who view exercise as enjoyable (Castonguay & Miquelon, 2017; Vansteenkiste et al., 2010). The nonsignificant exercise toward motivation results can be accredited to various reasons relating to SDT behavioral characteristics the participants exhibited. For example, those participants who demonstrated amotivation, lack the motivation to act to decrease their BMI and if these participants did act they would lack the motivated intention to succeed in decreasing their BMI (Castonguay & Miquelon, 2017;

Vansteenkiste et al., 2010). The identified and intrinsic regulation autonomous forms of motivated behavior nonsignificant results can be attributed to participants having the volitional motivation to exercise, but not necessarily to decrease their BMI (lose weight). Additionally, those participants who exhibited identified and intrinsic regulation types of motivated behavior may not view the community research partner's programs as autonomy-supportive environments of structure and responsiveness (Vansteenkiste et al., 2010). Finally, the nonsignificant exercise toward motivation scales can also be attributed to the low Cronbach's alpha scale ranges (i.e., $\alpha = .62$ to $\alpha = .87$), in which the weak reliability of scales can decrease statistically significant effects (Keith, 2014).

Cultural Identity Related Findings

The vertical individualism negative correlation with BMI indicates, as vertical individualism increases, the individualistic, autonomous, and competition nature of those in this category exhibit smaller decreases in BMI, and vice versa (Singelis et al., 1995). The exploratory analysis of individual scale responses revealed that the vertical individualism cultural identity response "Winning is Everything" influence BMI decreases. Specifically, the results infer that the individualistic, autonomous and competition nature of those in this category exhibit greater decreases in BMI (Singelis et al., 1995). Finally, the results of the Spearman correlation analysis where greater decreases in BMI were correlated with total collectivism, indicates that in the presence of group sociability and interdependence, increased BMI decreases are realized (Singelis et al., 1995; Triandis & Gelfand, 1998a).

Motivation Toward Exercise Related Findings

The results of this study did reveal a statistically significant correlation between introjected regulation and BMI decreases, which corroborates a meta-analysis by Ng et al. (2012), where introjected regulation was shown to have a positive relationship with a healthy diet and physical activity. Further, the results of this study also revealed a statistically significant correlation between external regulation and BMI decreases. These results corroborate a systematic review by Teixeira et al. (2012), where external regulation across stages of health-related behavior change (i.e., preparation, action, and maintenance) was shown to be more effective during stages of preparation and action, but not very effective in the maintenance stage. Similarly, the exploratory analysis of the introjected regulation individual scale response "I feel ashamed when I miss an exercise session" showed to be correlated with greater BMI decreases and a positive relationship with improved health-related behavior, such as diet and exercise (Ng et al., 2012).

Theoretical Analysis of Findings

SDT is a theory of human motivation where the innate psychological needs of autonomy, competence, and relatedness are used to explain the why of motivated behavior (Deci & Ryan, 2000; Vansteenkiste et al., 2010). Deci and Ryan (2000) contends that "behavioral expressions are universal psychological needs that subserve development and well-being, thus representing part of the common architecture of human nature" (p. 252). Given this, SDT also incorporates culture into the explanation of motivated behavior by integrating environmental setting perceptions of individualistic

and collectivist cultural expressions (Deci & Ryan, 2000; Deci & Ryan, 2008; Vansteenkiste et al., 2010).

SDT analysis of cultural identity findings. The results of research question 1 of this study revealed three key findings related to the potential influence of cultural identity on BMI decreases. The SDT mini-theory OIT, clarifies the vertical individualism and BMI decreases negative relationship, as well as the individual scale response "Winning is Everything" (i.e., vertical individualism) correlation with BMI decreases. OIT explains, that the autonomous ego-involved individualistic individual will increase internalization and performance of extrinsically motivated cultural norms (e.g., physical activity and improved diet) when the norm offers a social connection, variety, and efficacy, which coincides with the relatedness, autonomy, and competence innate needs of SDT (Gunnell, 2014; Ryan, 2009; Vansteenkiste et al., 2010). Finally, the SDT mini-theory BPNT explains that the total collectivism relationship with greater BMI decreases was centered on the innate psychological need for general health and social wellness, in that, the presence of a structured, responsive, and autonomy-supportive environment will promote adherence and acceptance of social norms, thus enhancing performance (Deci & Ryan, 2000; Ryan, 2009; Vansteenkiste et al., 2010).

SDT analysis of motivation toward exercise findings. The introjected and external regulation correlations with BMI decreases, as well as the exploratory analysis of the introjected regulation individual scale response "I feel ashamed when I miss an exercise session," demonstrates the foundational tenant of extrinsic motivation. For instance, the participation in improved health-related behavior was influenced by ego-

involved internal pressure (i.e., guilt), and external approval, i.e., social norms (Ng et al., 2012). Given the controlling nature of introjected regulation and external regulation, SDT contends that it is only useful for short periods (Ng et al., 2012; Ryan & Deci, 2000; Vansteenkiste et al., 2010).

Limitations of the Study

From its structure to issues encountered during the process, this study demonstrates numerous limitations. These limitations are related to external and internal validity, in which the effects can compromise the conclusions drawn from the results of this study. Specifically, these limitations include the research design used in this study, the sampling method employed for this study, the use of only U.S. Hispanics as participants, and the reliability of the scales used in this study.

External Validity

One of the goals of this study was to focus on the U.S. Hispanic population, therefore 100% of the sample were Hispanic (Latino). With this in mind, the results of this study have limited generalizability for populations different from the sample population. Further, the demographics represented in this study were that of U.S. Hispanics located in the southwest region of the United States, therefore, the results of this study cannot be generalized toward Hispanics living in other geographical areas of the United States. The narrow characteristics (e.g., English speaking, Hispanic, exercisers, and members of a health and fitness facility) the participants of this study shared can also impede the representativeness of the population the sample was derived

from. Additional studies must be conducted with different races, geographical areas, and settings in order to generalize beyond the population of the current study results.

Internal Validity

Although this study used a homogenous purposive sampling strategy, study participants were randomly selected as they entered and departed the community research partner's facilities. The participants of this study were asked to recall their weight at the time of survey completion and eight weeks prior to participating in this study, in which three of the participants did not answer. As a remedy, a grand mean was generated from the 75 participant responses to estimate missing answers. Additionally, it was also possible that the participants inaccurately reported their current and previous weights. Further, the participants of this study were also asked to self-report their exercise frequency, height, and weight, so, participants not answering questions truthfully or accurately were a possibility. The research literature reveals the limitations of self-reported data in an exercise setting, where self-reporting was shown to be inaccurately reported when compared to objectively acquired measurement data, such as the use of accelerometers (Cerin et al., 2016; Dyrstad et al., 2014).

Violations of linearity, homoscedasticity, normality, and multicollinearity were not identified; however, the assumptions of independence of errors was violated. Identifying univariate outliers significantly decreased the initial sample size to (n = 21). To adhere to the power analysis where a minimum of 63 participants were necessary to detect a medium-sized predictor effect, the initial sample size (N = 76) was maintained. The initial plan for an assumption violation was to remove or combine those variables,

however, a decision was made to retain the sample and not remove variables based on the notion that deleting variables could inflate the significance of the findings (Keith, 2014). However, to corroborate the results of this study, both Pearson and Spearman correlation coefficients were considered in interpreting the findings of this study.

Given the regression designed employed during this study, issues with the data (i.e., outliers), as well as the use of the Pearson and Spearman correlation coefficients to corroborate results, interpretive caution should be employed when considering the results of this study. Primarily, interpretive caution is suggested since this study used a regression model research design, in which only relationships can be established between the independent and dependent variables, not cause-and-effect. Secondly, the outliers discovered while analyzing the data presented two choices in proceeding. Since deleting or combining variables can inflate the statistical significance of the study results, the decision was made to retain the original sample size ($N = 76$). However, retaining the original sample size can also decrease the statistical significance of the study results. Finally, although the Spearman correlation coefficients corroborated the Pearson statistically significant findings, interpretive caution is recommended in consideration of the stated data issued encountered during this study.

Recommendations

This study supplemented the existing literature with U.S. Hispanic centered BWLP health-related behavior change information, while also introducing the examination of cultural identity as a potential predictor of BMI decreases. Given the reality that BWLP studies overwhelmingly use White participants and the limited nature

of this study, the broad recommendation for future research is to continue pursuing U.S. Hispanic focused BWLP studies. Specifically, additional recommendations include a continuation of focus on cultural identity in BWLP research, conducting randomly assigned true experiments, and continuing the BWLP cultural identity focus with different races, cultures, and geographical areas in the United States. Finally, sharing the results of this study with healthcare and health and fitness communities is recommended so the evidence-based practices can be developed and enhanced from a grassroots perspective.

Continued U.S. Hispanic Focused BWLP Studies

The U.S. White obesity rate is 34.5% while the U.S. Hispanics' obesity rate is 42.5% (CDC, 2015a). Holub et al. (2013) and Perez et al. (2013) demonstrated that .0014% of BWLP studies were focused on U.S. Hispanics. This study used an online survey, which expected participants to recall their preferred exercise setting, height, past weight, and current weight. It was possible the participants of this study did not answer the survey questions truthfully. It was also possible the participants of this study misremembered key information and did not answer survey questions accurately. Since the current study used an observational regression model, U.S. Hispanic focused randomized trials where exercise and non-exercise groups are monitored for a period of time, are also recommended for future studies. Carels et al. (2015) and Cherrington et al. (2015), studies spanned 8-16 weeks (6-month follow-up) and monitored caloric intake, energy expenditures, and physical activity. Future studies can incorporate caloric intake, energy expenditures, and physical activity monitoring, while also continuing to examine

the cultural identity (i.e., vertical individualism and total collectivism) and BMI decreases findings of this study. Finally, future studies should also include additional levels of BMI decrease corroboration by monitoring body fat and waist circumference simultaneously.

Sharing Study Results

Although the focus of this study is centered on U.S. Hispanics, the United States as a whole currently experience ongoing issues with an increasing overweight and obese population, as well as the chronic diseases that accompany an increasingly unhealthy population (CDC, 2015a; CDC, 2016a; NCCDPHP, 2012). However, when the research literature, health data, and the notion of evidence-based practices shifts to U.S. minority groups (i.e., Hispanics), culture in the U.S. should take on greater importance considering the increasing health disparities in minority communities (CDC, 2015b; CDC, 2016b; George et al., 2014; Good & Hannah, 2015). Nevertheless, currently, it does appear that United States healthcare (e.g., mental and physical health) workers lack the enthusiasm and motivation to meaningfully change the current course of ill-health in minority communities (Anderson, 2006; Good & Hannah, 2015). With the increasing U.S. Hispanic population in mind, it is important that healthcare professionals begin to enhance their knowledge and efforts beyond a cookie-cutter approach to reaching and maintaining well-being (Good & Hannah, 2015; U.S. Census Bureau, 2015). Given the reality and slow-moving progress, a culturally centered grassroots recommitment is necessary throughout the healthcare industry, as losing weight is only scratching the surface of what it truly means to reach and maintain well-being (Anderson, 2006; Good & Hannah, 2015). This study focused on motivation and cultural identity, two significant

subjects that define and guide us all. Sharing the results of this and other BWLP studies with related fields will be a step toward sincerely attempting to address the entire person (patient) where striving for well-being is concerned.

Implications

Currently the U.S. Hispanic population is 17% and it is expected to increase to 35% by the year 2060 (U.S. Census Bureau, 2015). With this in mind, the potential positive social change impact of this study is broad (i.e., family, organizational, and the individual), but societal in nature. This study contributed culturally specific information to the current literature. Moreover, this study dedicated emphasis to the subject of overweight and obesity disparities in the U.S. Hispanic population. The potential development and improvement of evidence-based practices this study might influence, could be beneficial to an increasing and disproportionately unhealthy U.S. Hispanic population and optimistically could contribute to a better quality of life of U.S. Hispanic communities.

Throughout the years there have been many efforts to address culture, race, ethnicity, and health disparities in U.S. minority groups (American Psychological Association, 2002; American Psychological Association, 2008; Good & Hannah, 2015; NIMH, 2001). The cookie-cutter approach to well-being is a current reality and concern, as health disparities are not improving significantly in U.S. minority communities, like U.S. Hispanics communities (American Psychological Association, 2002; American Psychological Association, 2008; CDC, 2015a; CDC, 2015b; Good & Hannah, 2015). Again, healthcare workers and related fields (e.g., mental health) appear to simply go

through the motions with only the appearance of health "care," as U.S. Hispanic communities continue to experience disproportionately greater ill-health than their White counterparts (CDC, 2015a; CDC, 2016a; Good & Hannah, 2015). The development and improvements of evidence-based practices is only the beginning where reaching and maintaining well-being is concerned (Anderson, 2006; Good & Hannah, 2015). Healthcare professionals in the United States must be expected to implement grassroots efforts to prevent ill-health by showing enthusiasm in their efforts to contribute to the improved development and implementation of culturally relevant evidence-based practices (Good & Hannah, 2015). The minimal effort as it relates to U.S. Hispanics and other U.S. minority communities, does not appear to be effective to any great extent, therefore, expecting more from healthcare professionals (also health and fitness professionals) and researchers in the future is imperative (American Psychological Association, 2002; American Psychological Association, 2008; Aponte-Rivera et al., 2014; George et al., 2014; Good & Hannah, 2015).

Conclusion

This study quantitatively examined motivation toward exercise, cultural identity, physical activity program type, exercise frequency, and demographic variables' influence on (BMI) decreases of U.S. Hispanics. Specifically, the three research questions for this study were concerned with exercise programs, cultural identity, and motivation toward exercise potential impact on BMI decreases. In whole, although the results of this study demonstrated no support for these influences on BMI decreases, findings from this study did reveal significant finding that are worth continued pursuit and understanding. For

instance, the vertical individualism and total collectivism relationship with BMI decreases was a significant finding that should be further analyzed in future studies to more fully understand cultural identity and health-related behavior. The BWLP research gap in literature where U.S. Hispanics are concerned is grossly underserved. The American Psychological Association expresses clearly "Culture is a central explanatory concept in understanding human behavior. Adequately describing background characteristics of human participants helps to determine the extent to which samples are representative of the populations to which researchers wish to generalize their findings" (American Psychological Association, 2008, p. 12). In part, continued studies of this nature are a necessity.

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Appendix A: Exercise Regulation Questionnaire-2 (BREQ-2)

EXERCISE REGULATIONS QUESTIONNAIRE (BREQ-2)

Age: _____ years **Sex: male female (please circle)**

WHY DO YOU ENGAGE IN EXERCISE?
We are interested in the reasons underlying peoples' decisions to engage, or not engage in physical exercise. Using the scale below, please indicate to what extent each of the following items is true for you. Please note that there are no right or wrong answers and no trick questions. We simply want to know how you personally feel about exercise. Your responses will be held in confidence and only used for our research purposes.

		Not true for me		Sometimes true for me		Very true for me
1	I exercise because other people say I should	0	1	2	3	4
2	I feel guilty when I don't exercise	0	1	2	3	4
3	I value the benefits of exercise	0	1	2	3	4
4	I exercise because it's fun	0	1	2	3	4
5	I don't see why I should have to exercise	0	1	2	3	4
6	I take part in exercise because my friends/family/partner say I should	0	1	2	3	4
7	I feel ashamed when I miss an exercise session	0	1	2	3	4
8	It's important to me to exercise regularly	0	1	2	3	4
9	I can't see why I should bother exercising	0	1	2	3	4
10	I enjoy my exercise sessions	0	1	2	3	4
11	I exercise because others will not be pleased with me if I don't	0	1	2	3	4
12	I don't see the point in exercising	0	1	2	3	4
13	I feel like a failure when I haven't exercised in a while	0	1	2	3	4
14	I think it is important to make the effort to exercise regularly	0	1	2	3	4
15	I find exercise a pleasurable activity	0	1	2	3	4
16	I feel under pressure from my friends/family to exercise	0	1	2	3	4
17	I think exercising is a waste of time	0	1	2	3	4
18	I get pleasure and satisfaction from participating in exercise	0	1	2	3	4

Thank you for taking part in our research

Appendix B: Individualism and Collectivism Scale

Individualism and Collectivism Scale

	Strongly disagree		Somewhat disagree		Neither agree nor disagree		Somewhat agree		Strongly agree
Horizontal Individualism									
1. I'd rather depend on myself than others.	1	2	3	4	5	6	7	8	9
2. I rely on myself most of the time; I rarely rely on others.	1	2	3	4	5	6	7	8	9
3. I often do "my own thing."	1	2	3	4	5	6	7	8	9
4. My personal identity, independent of others, is very important to me.	1	2	3	4	5	6	7	8	9
Vertical Individualism									
5. It is important that I do my job better than others.	1	2	3	4	5	6	7	8	9
6. Winning is everything.	1	2	3	4	5	6	7	8	9
7. Competition is the law of nature.	1	2	3	4	5	6	7	8	9
8. When another person does better than I do, I get tense and aroused.	1	2	3	4	5	6	7	8	9
Horizontal Collectivism									
9. If a coworker gets a prize, I would feel proud.	1	2	3	4	5	6	7	8	9
10. The well-being of my coworkers is important to me.	1	2	3	4	5	6	7	8	9
11. To me, pleasure is spending time with others.	1	2	3	4	5	6	7	8	9
12. I feel good when I cooperate with others.	1	2	3	4	5	6	7	8	9
Vertical Collectivism									
13. Parents and children must stay together as much as possible.	1	2	3	4	5	6	7	8	9
14. It is my duty to take care of my family, even when I have to sacrifice what I want.	1	2	3	4	5	6	7	8	9
15. Family members should stick together, no matter what sacrifices are required.	1	2	3	4	5	6	7	8	9
16. It is important to me that I respect the decisions made by my groups.	1	2	3	4	5	6	7	8	9

Appendix C: Demographic Questionnaire

Demographic Questionnaire

This demographic questionnaire is important for assessing the impact of factors regarding the outcomes of the current study. Your responses will be confidential and will only be used for this study. Please answer the questions to the best your ability.

1. What is your sex?
   - ☐ Male
   - ☐ Female

2. How old are you? _____

3. What is your height? _____

4. How much did you weigh 8 weeks (2 months) ago? _____

5. How much do you weigh today? _____

6. What exercise setting do you primarily participant in on a weekly basis?
   - ☐ Individual Setting (Example: Exercise alone or with a friend)
   - ☐ Group Setting (Example: Kickboxing, Zumba, Step)

7. How many days per week do you exercise?
   - ☐ 0 Days Per Week
   - ☐ 1 Day Per Week
   - ☐ 2 Days Per Week
   - ☐ 3 Days Per Week
   - ☐ 4 Days Per Week
   - ☐ 5 Days Per Week
   - ☐ 6 Days Per Week
   - ☐ 7 Days Per Week

Appendix D: Research Partner Letter of Cooperation

Research Partner Letter of Cooperation

[redacted]

Date 3 / 21 / 2019

Dear Leon Daniels,

Based on my review of your study prospectus, I give permission for you to conduct the study entitled *Cultural Identity as a Predictor of Weight Loss in US Hispanics* within the [redacted] of the [redacted]. As part of this study, I authorize you to display study posters in the [redacted] facility, distribute flyers to [redacted] patrons, and allow patrons to complete the online survey onsite at the [redacted] location. Individuals' participation will be voluntary and at their own discretion.

We understand that our organization's responsibility includes: 1. Providing an area where patrons can complete the online survey. We further understand that the study is survey-based; therefore, no special interaction with study participants will be necessary from [redacted] employees. Moreover, it is understood that the participants will self-report information utilizing an anonymous online survey platform (www.SurveyMonkey.com).

We reserve the right to withdraw from the study at any time if our circumstances change.

I understand the study is a Walden University doctoral project and the student researcher cannot name our organization in the report that is published in Proquest.

I confirm that I am authorized to approve research in this setting and that this plan complies with the organization's policies.

I understand that the data collected will remain entirely confidential and may not be provided to anyone outside of the student's supervising faculty/staff without permission from the Walden University IRB.

Sincerely,

[redacted]

Research Partner Letter of Cooperation

[redacted]

Date 3 / 21 / 2019

Dear Leon Daniels,

Based on my review of your study prospectus, I give permission for you to conduct the study entitled *Cultural Identity as a Predictor of Weight Loss in US Hispanics* within the [redacted] of the [redacted]. As part of this study, I authorize you to display study posters in the [redacted] facility, distribute flyers to [redacted] patrons, and allow patrons to complete the online survey onsite at the [redacted] location. Individuals' participation will be voluntary and at their own discretion.

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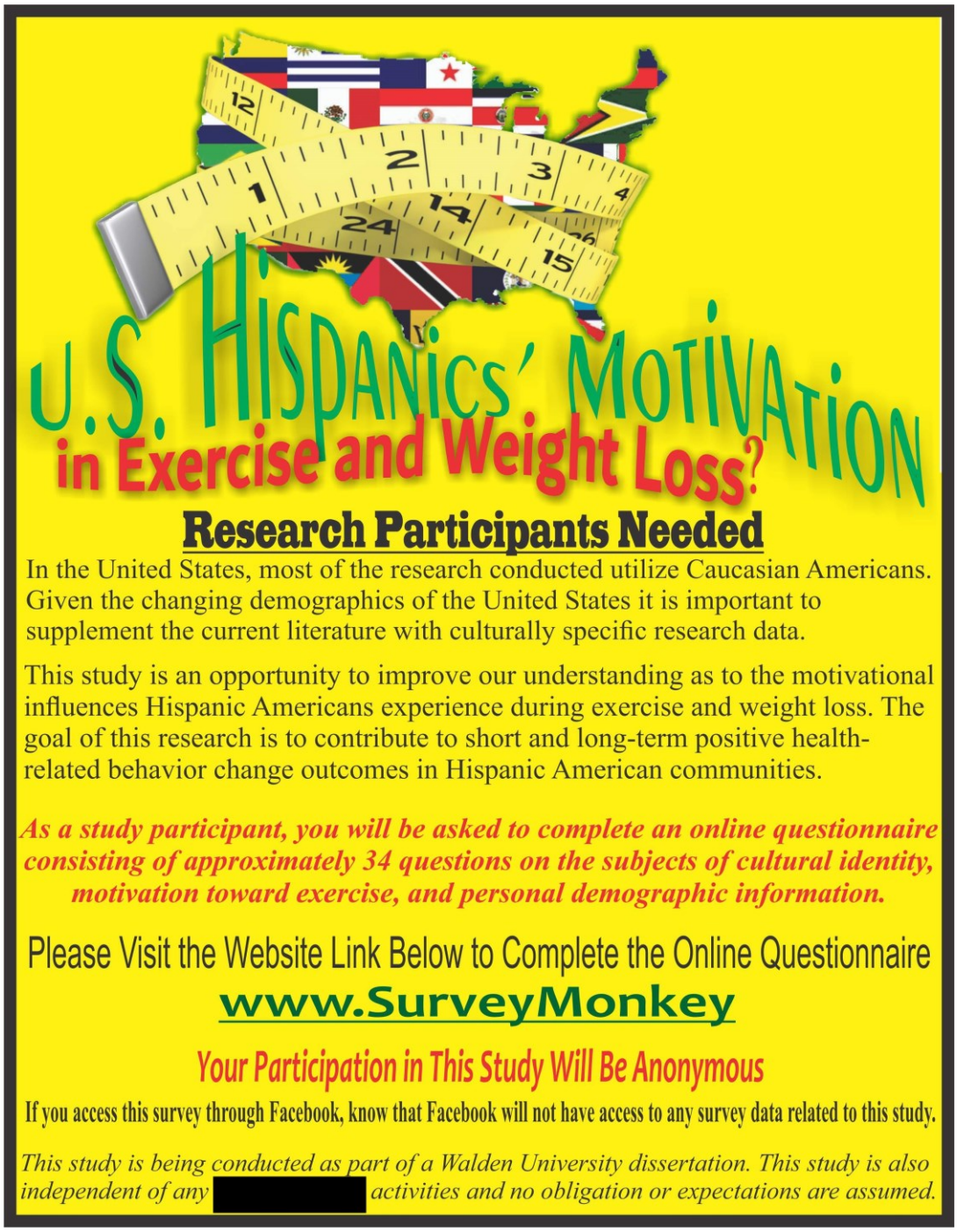
Sincerely,

[redacted]

Appendix E: Participant Recruitment Poster



Appendix F: Inclusion-Exclusion Questionnaire

Inclusion-Exclusion Questionnaire

The following items contain demographic and background information. Please answer each question with a **yes or no**. If your answers to questions 1-5 were yes, your answer to question 6 was no, and you agree to participate in this study, please indicate your consent by proceeding with completing the online questionnaires.

1. Can you speak and read English?
   - ☐ Yes
   - ☐ No

2. Do you live in the Greater El Paso, Texas area?
   - ☐ Yes
   - ☐ No

3. Do you identify as Hispanic or Latino?
   - ☐ Yes
   - ☐ No

4. Are you between the ages of 18 and 65?
   - ☐ Yes
   - ☐ No

5. Have you undergone bariatric surgery?
   - ☐ Yes
   - ☐ No