Preferred Physical Activity Program Characteristics by a Latina Community

by

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ABSTRACT

The purpose of this study was to investigate physical activity (PA) program characteristics preferred by low-income childbearing age Latinas and the relationship with the participants' personal characteristics, cultural values, and acculturation. This was an exploratory study guided by the Preferences and Health Behavior Model (PaHBM), developed by this investigator. Recruitment occurred at three sites; two sites were located in Phoenix, AZ and one site was located in Houston, TX. Non pregnant Latinas between 18 to 35 years old were included (N=275). Latinas were excluded if they were pregnant, incarcerated, physically or mentally disabled, or had chronic diseases (e.g. cardiovascular disease). Quantitative data were collected using the Predictors and Preferences of Physical Activity Research Intervention Participation in an Underserved Latina Community Questionnaire, developed by this author, along with the Brief Acculturation Rating Scale for Mexican Americans, and the Mexican American Cultural Values Scale. The hypotheses were tested utilizing Chi-square, Pearson correlation and logistic regression. Annual family income, parity, country of origin, BMI and acculturation were the personal characteristics significantly associated with preferred PA program by this group of Latinas. Latino women were heterogeneous in their preferences. In general, sixty percent endorsed dancing as the type of activity preferred, 20% preferred PA education and 20% preferred walking. Major differences were found between the types of activity the Latino women were currently participating in compared to their preferred type of activity. Of the 124 who reported to be walking/jogging, almost half (49) preferred dancing, 22 preferred PA education and only 12 preferred walking. The study findings add to the existing knowledge by looking at factors that should be considered

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when developing PA interventions as well as when prescribing or recommending PA to this population. These results demonstrate the need to identify the preferred PA program characteristics of Latinas prior to developing interventions. Failure to know the patient's preferred PA program characteristics may result in prescribing or recommending an undesired activity and decrease participation in PA interventions.

RESUMEN

El propósito de este estudio fue identificar las características preferidas en un programa de actividad física por una comunidad de mujeres Latinas de bajos recursos económicos y en edad fértil, así como la relación de esas características con sus propias características personales, sus valores culturales y su adaptación a la comunidad Anglosajona. Este fue un estudio exploratorio guiado por el "Modelo Preferencias y Comportamiento Saludables" (PaHBM), por sus siglas en Ingles, desarrollado por esta investigadora. El reclutamiento de las Latinas ocurrió en tres sedes: Una en Houston, TX y dos en Phoenix, AZ. Las mujeres Latinas fueron incluidas si tenían entre 18 y 35 años de edad. Se excluyeron mujeres que estaban embarazadas, estuvieran encarceladas, físicamente o mentalmente incapacitadas o que sufrieran alguna enfermedad crónica. Los datos cuantitativos fueron recolectados a través de una encuesta llamada "Predictores y preferencias de participación en un programa investigativo de actividad física", desarrollada por la autora de este estudio, además utilizando la escala breve de aculturación para Mejicanos Americanos y la escala de valores culturales en Mejicanos Americanos. Las hipótesis fueron probadas utilizando el Chi-cuadrado, la correlación de Pearson, y la regresión lógica. Las características personales más asociadas con las características del programa preferido fueron el salario anual de la familia, el número de hijos, el país de origen, y el índice de masa corporal. En general, 60% prefirieron bailar, 20% clases de actividad física y 20% caminar. Mayores diferencias se encontraron en el tipo de actividad en las que las mujeres Latinas estaban participando, comparado con lo que ellas preferían. De 124 participantes que estaban caminando o trotando, 49 Latinas (39%) preferían bailar, 22 Latinas (17%) preferían clases de actividad física y solo 12

Latinas (10%) prefirieron caminar. Estos resultados demuestran la necesidad de identificar las características del programa de actividad física antes de crear dicho programa. Estos resultados son una adición a los conocimientos existentes, en los que se identificaron factores que deben ser considerados cuando se planea un programa así como cuando se prescribe o se recomienda actividad física a esta población. Sera un fracaso no conocer las preferencias de una paciente para mantenerse físicamente activa porque puede resultar en la prescripción o recomendación de actividades que la paciente no desea y esto se traducirá en reducción de la participación en programas de actividad física.

DEDICATION

This dissertation is dedicated to the most important people in my life. My son, Jacob Stewart Beaver-Jimenez who attended school with me from the moment he was in my womb to the finalization of my Master's. Later, as a young adult, he understood my thirst for knowledge and supported my decision to seek my doctorate degree, even though it meant completely changing our lifestyle and having me home less. **Son, we did it!** To the memory of my parents, Jesus Jiménez and Rosario Romero de Jiménez; my best teachers. They taught me their family values: showing respect and kindness to others and to myself, honesty, hard work, and perseverance. Also, they understood my worldviews and supported all my decisions, which were a little bit different from the rest of my siblings. An extra-heartfelt dedication of this achievement to the memory of my father, who spent time listening to my daydream stories and encouraged me to keep dreaming and to work hard to reach my dreams. To my wonderful friends who became part of my family. They have been for me and my son, to lessen our challenges and celebrate our successes. To the Jimenez-Romero dynasty: sisters, brothers, nieces, nephews, and the rest of the family your unconditional love and prayers are priceless.

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Este proyecto está dedicado a las personas más importantes de mi vida. A mi hijo Jacob Stewart Beaver Jiménez quien estuvo conmigo desde el momento en que estaba en mi vientre hasta la culminación de la maestría. Más tarde, cuando ya era un joven adulto, él comprendió mi deseo de adquirir más conocimiento y me apoyó cuando decidí completar mi doctorado aunque ello significo cambiar completamente nuestro estilo de vida y estar menos tiempo en casa. **Hijo, lo logramos**. A la memoria de mis padres Jesús Jiménez y Rosario Romero de Jiménez, mis mejores profesores. Ellos me enseñaron los valores de nuestra familia, demostrando respeto para otros y para mí misma, honestidad, trabajo duro y persistencia. También, ellos entendieron mis puntos de vista y apoyaron todas mis decisiones aunque eran un poco diferente del resto de mis hermanos(as). Con todo mi corazón ofrezco este logro a la memoria de mi padre quien dedicó tiempo para escuchar mis historias de cuando soñaba despierta y me animaba a seguir soñando y a trabajar duro para alcanzar mis sueños. A la dinastía Jiménez-Romero: hermanas, hermanos, sobrinas, sobrinos cuñadas, cuñados y el resto de la familia, gracias porque su amor incondicional y sus oraciones no tienen precio. Por último a todos mis amigos quienes siempre serán parte de mi familia

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CHAPTER 1. INTRODUCTION

Back Ground and Significance

Preventing a disease before it starts is essential to helping people live healthier lives and reduce health disparities (Center for Disease Control and Prevention [CDC], 2015a). PA is one of the most efficacious means (along with other health promoting behaviors) to prevent diabetes and cardiovascular diseases. Physical activity (PA) is defined by the Center for Disease Control and Prevention (CDC, 2015b) as "any bodily movement produced by the contraction of skeletal muscle that increases energy expenditure above a basal level." Although Latino women agree that PA is beneficial, Latinas have high levels of non-participation in PA (Blackwell, Lucas, & Clarke, 2014). Therefore, it is important to continuing investigating additional factors that may help to reduce this behavior. It is essential to understand what low-income Latino women actually preferred to do.

Physical Activity Benefits

The benefits of PA to improve the health in people of all ages are well documented (U.S. Department of Health and Human Services [USDHHS], 2008a, World Health Organization [WHO], 2010). PA is identified as a major contributor to prevention of weight gain, Type 2 diabetes mellitus (T2DM), some cancers, and cardiovascular disease (CVD), (CDC, 2013a). PA is beneficial for Latinas as well (Keller et al., 2011; Records, Keller, Ainsworth, & Permana, 2007). As in other populations, Latinas may decrease the risk of CVD (Perez, Fleury, & Shearer, 2012; Myers, 2003) and breast cancer (Loprinzi, Cardinal, Smit, & Winters-Stone, 2012). In addition, PA may decrease the risks for gestational diabetes (Hedderson, Williams, Holt, Weiss, & Ferrara, 2008;

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Redden, LaMonte, Freudenheim, & Rudra, 2011; Tobias, Zhang, Van Dam, Bowers, & Hu, 2011) by incorporating PA into their lifestyle.

The PA guidelines are explained in the 2008 Physical Activity Guidelines for Americans, and re-stated in Healthy People 2020. In general, the PA guidelines recommend a minimum of 2 hours and 30 minutes of moderate intensity or 1 hour and 15 minutes of vigorous intensity weekly for healthy adults. The main emphasis of the PA guidelines for Americans 2008 is that long-term benefits could be gained when individuals increase PA in their lives.

Lack of Physical Activity

Lack of PA or inactivity has been identified as a leading cause of death worldwide (WHO, 2010) and is considered a global pandemic (Kohl et al., 2012). Physical inactivity is defined by Booth, Roberts, and Laye (2012) as "Physical activity levels less than those required for optimal health and prevention of premature death" (p.1144). The PA Guidelines 2008 defines inactive people as those who do activities of daily life only (e.g. standing, walking slowly and lifting light-weight objects). In the U.S., more than half of all adults are insufficiently active; these adults are not reaching the PA levels recommended by the 2008 Physical Activity Guidelines for Americans (CDC, 2013b). Insufficiently active is defined as some physical activity but not enough to meet existing recommendations (CDC, 2015b). In a recent study, many of the U.S. adults were found to be inactive and not participating in physical activity, while others were insufficiently active. The study sample was 234,921 adults. Of this number, the researchers identified 69,487 (30%) inactive and 46,371 (20%) insufficiently active. In addition, of 80,434 non-Hispanic White women, 22,512 (28%) were inactive and 17,724 (22%) insufficiently

active (Blackwell et al. 2014). Latino women were also found lacking PA in the same study. When comparing the PA guidelines with physical activity levels of Latino women 18 years of age and over, it was reported that of 17,442 Latinas, 6,839 (39%) were inactive; and 3,550 (20%) insufficiently active. In other words, 59% of Latinas did not meet the PA guidelines. This lack of physical activity was also identified in a sample of 103 low-income Latinas between 18 to 39 years of age who lived in a Southwestern U.S. city. A total of 89% of the study sample (N = 139) spent most of their day insufficiently active (Ainsworth et al., 2013). In Latinas, lack of PA is a high risk for non-communicable diseases (NCDs). For example, some cancers (CDC, 2013a), CVDs (Perez et al., 2012), diabetes mellitus, and gestational diabetes mellitus [GDM] (Hedderson et al., 2008; Redden et al., 2011; Tobias et al., 2011). Infants born to mothers with GDM are at a higher risk for stillbirth and neonatal death than are infants whose mothers do not have GDM (Kristensen, Vestergaard, Wisborg, Kesmodel, & Secher, 2005). This chain reaction of health risks from mother to child increases not only the health problems, but the financial burden of the U.S.

Lack of PA also impacts healthcare costs. It has been estimated that $131 billion of US healthcare expenditure dollars are related to inadequate levels of PA (Carlson, Fulton, Pratt, Yang, & Adams, 2015). Lack of PA is associated with obesity (CDC, 2013b), and obesity-related medical costs are expected to increase from $48 billion in 2014 to $66 billion per year by the years 2030 (Harvard School of Public Health Obesity Prevention, 2015). Further, the national medical costs for gestational diabetes in 2007 were calculated to be $636 million, from which $596 million were allocated to maternal costs and $40 million to neonatal costs (Chen et al., 2009). This is only one example of

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the economic burden created by lack of physical activity, which also affects the Latino population.

Latinos in the United States

In 2010, the U.S. Census Bureau defined Hispanic or Latino as "a person of Cuban, Mexican, Puerto Rican, South or Central American, or other Spanish culture or origin regardless of race" (Ennis, Rios-Vargas, & Albert, 2011, p. 2). The terms Hispanic or Latino are used interchangeably; however, the term Latino will be used throughout this dissertation. To better understand the complexity of the health issues in the Latina population, it is necessary to have a deeper understanding of this community.

Geographical location. It is estimated that approximately 54 million Latinos are living in the US, representing 17% of its total population (Ennis et al., 2011). Latinos are located throughout US, living in areas grouped mostly by country of origin. Guatemalans (38%), Salvadorians (40%), and Mexicans (52%) largely reside in the West. More than 77% of Cubans are located in the South. Greater than 78% of Dominicans live in the Northeast, as do Puerto Ricans (53%). South Americans are more dispersed and live in the South (42%), the Northeast (37%), the West (15%), and 6% in the Midwest (Ennis et al., 2011). In 2010, a total of 37 million Latinos lived in California, Texas, Florida, New York, Illinois, Arizona, New Jersey, and Colorado. However, California, Texas, and Florida have attracted more than half of the Latino population in the US. Overall, Mexicans, Puerto Ricans, Cubans, Salvadorans, Dominicans, Guatemalans, Colombians, Hondurans, Ecuadorians and Peruvians make up 92% of the U.S. Latino population (Ennis, et al., 2011).

Expected demographic changes. The Latino population is estimated to increase from 55 million in 2014 to 119 million in 2060. It is anticipated that 29% of the U.S. population will be Latino by 2060 (Colby & Ortman, 2015) making one out of three individuals projected to be of Latino origin. It is also expected that by 2050 the Latina population in the U.S. will reach 51 million (Ameridia Corporation, 2012). This significant and expected demographic change highlights the importance of health promotion and disease prevention for the government, policy makers, researchers, and healthcare providers, as well as the Latino community because the Latino population will play a major role in the future health of the U.S.

Health status of Latinas. The Department of Health and Human Services Advisory Committee on Health Promotion and Disease Prevention defines *health disparity* as a "type of health difference that is linked with economic or social disadvantage" (USDHHS, 2008b, p. 28). Major health disparities in Latinas are (1) cancer, particularly breast and cervical cancer; (2) diabetes, including gestational diabetes; and (3) cardiovascular disease and stroke (Office of Minority Health, 2005). In general, compared to white non-Latino women, Latinas are 1.7 times more likely to be diagnosed with diabetes, and 20% more likely to have a stroke (Schiller, Lucas, & Peregoy, 2012). In addition, one in five Latino women will be diagnosed with cancer in their lifetime. Most of these health disparities in Latino women are NCDs that could be prevented or decreased by reducing modifiable risk factors. Modifiable risk factor is defined as an individual's behavior that could be controlled by intervention and could reduce the probability of disease (CDC, 2013a). One modifiable risk factor is lack of

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physical activity, which could be decreased in Latinas and possibly in their family because the important role the mother plays in the Latino family.

The role of Latinas in their family. Familialism is the most important cultural value in the Latino community (Lawton, Gerdes, Haak, & Schneider, 2014; 2012). Familialism refers to a cultural value that is related to a strong identification with nuclear family, parents and siblings, and extended family members. Familialism emphasizes children's respect for their parents (Knight et al., 2010), and Latino women are recognized as the nucleus of the family. Because of this important role of Latinas, the likelihood that children and family will follow the mother's guidance is high. Because of this, one could assume that promoting and increasing PA in Latina women would serve to promote healthy behaviors in their children and other family members. Evidence has demonstrated that increasing PA could increase quality of life and prevent several NCDs in all populations, including low-income childbearing age women. Consequently, it is crucial to understand low-income Latino women's PA preferences to join efforts to increase PA. The purpose of this study is to investigate PA program characteristics preferred by low-income childbearing age Latinas and the relationships of these characteristics with participant's personal characteristics, cultural values, and acculturation, with an aim to lay the groundwork for the development of future tailored interventions to increase and sustain PA in this population. When it is understood what Latinas want to do for PA, then the next step in health promotion is to provide the means to accomplish positive changes in PA behavior.

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Study Aims and Hypotheses

Aim 1

To explore relationships between study participants' personal characteristics (age, marital status, country of origin, number of children, participants' family annual income, level of education, youngest child's age) and participants' preferred PA program characteristics (type of activity, type of music, time of the day, day of the week, times per week, minutes per session, and number of months of the program).

Hypothesis 1. Participants' age will be associated with the preferred PA program characteristics.

Hypothesis 2. Participants' marital status will be associated with the preferred PA program characteristics.

Hypothesis 3. Latinas' country of origin will be associated with the preferred PA program characteristics.

Hypothesis 4. Parity status (having or not children at home) will be associated with the preferred PA program characteristics.

Hypothesis 5. Participants' annual family's income will be associated with the preferred PA program characteristics.

Hypothesis 6. Participants' educational level will be associated with the preferred PA program characteristics.

Hypothesis 7. Participants' youngest child's age will be associated with the preferred PA program characteristics.

Aim 2

Aim two explored the relationships between the type of activity performed by the Latino women at the time of enrollment and their preferred activity.

Hypothesis. Significant differences in PA currently performed and type of activity preferred will be identified.

Aim 3

Explored the relationships between Body Mass Index (BMI) categories and participants' preferred PA program characteristics.

Hypothesis. Participants' BMI categories will be associated with preferred PA program characteristics.

Aim 4

Determined the influences of acculturation and cultural value on participants' preferences for PA program characteristics at PCO-EFPG.

Hypothesis. Acculturation and cultural values will independently predict participants' PA program preferred.

Aim 5

Determined the relationships between Mexican American cultural values and acculturation of the Latino women at site PCO-EFPG.

Hypothesis. Participants' acculturation level will be associated with their cultural values.

Significance

Significance of the Study

The present study investigated the preferred physical activity (PA) program characteristics by a low-income childbearing age Latina if they have the opportunity to decide on a type of PA program for health promotion and disease prevention in their community. To the best of my knowledge, this is the first study in this population investigating PA program characteristics preferred and the relationships with cultural values, personal characteristics, and acculturation. Identifying these relationships could provide information with actual preferred activities, which can be incorporated when developing PA interventions.

In addition, this study's findings could elucidate effective interventions to promote and sustain PA in the Latino community. Because Latino women are the nucleus of the family and children look up to them, one can assume that identifying what could help Latinas to reach the 2008 physical activity guidelines for adults could result in a decrease in NCDs for the mother and the children and family. This assumption is corroborated by Keller, Coe, and Moore (2014). They explained that Latinas no longer see PA only as a method to losing weight, but rather that Latino women want to be a role model for their children.

Furthermore, the proposed study has the potential to increase knowledge related to the relationships among factors that could increase and sustain PA of low-income childbearing age Latinas. PA preferences in the low-income Latina population and their relationships with other personal characteristics are not well established. This proposed study will be undertaken in different geographical areas, increasing the potential

generalizability of the findings, thus adding to its significance. The study results could be used to guide future interventions tailored to each one of the three study sites.

Significance of the Study to Nursing

This study is significant to nursing in several aspects. Information from this study will help to develop culturally responsive, evidence-based interventions considering multiple factors that affect behavioral change (National Institute of Nursing Research, 2011). Identifying the relationships between participants' characteristics and their preferences, as will be done in this study, could provide essential information to achieve increased PA among Latinas. This study could be used as a model in nursing as a knowledge developer for PA intervention and individual PA prescription. Benton (2012) calls for nurses to step forward, learn the benefits of PA, and take a lead role in this area of practice.

Furthermore, this knowledge could be used to elucidate methods to identify patients' preferred PA before PA is prescribed, especially in any of the three sites where this study is undertaken. Prescription of PA should be handled in the same manner as medication is prescribed, based on patient preferences and health goals as well as the need for developing and providing patient-centered and evidence-based care (Burman, Robinson, & Hart 2013). This study aligns with nursing evidence-based practice (EBP), which is defined as an integration of research evidence, practitioner expertise, and patient preferences (Melnyk, Fineout-Overholt, Stillwell, & Williamson, 2010).

Conclusion

Knowing the preferred PA program characteristics by this population and the relationships with their cultural values, personal characteristics, and their levels of acculturation could provide findings to lay the background to develop tailored interventions and to be part of the solution to have a healthier future for the US population. In order to achieve this purpose, a literature review to identify the state of the science about preferred PA program characteristics by low-income childbearing age Latino women has merit. In addition, a framework to guide the study is necessary. Chapter II provides full details about both the state of the science and the study's framework.

CHAPTER 2. LITERATURE REVIEW AND CONCEPTUAL FRAMEWORK

Literature Review

Increasing PA to prevent NCDs is a global concern. Efforts to identify new methods to help people to increase PA continues internationally (WHO, 2010). In the U.S. participants' preferences in the general population has been studied for more than four decades (Burton, Khan, & Brown, 2013). Nevertheless, this work did not focus on PA program preferences in low-income childbearing aged Latinas. The purpose of this literature review was to determine the state of the science in regard to preferred PA program characteristics by Latinas between 2005 and 2015.

The goal of this literature review had to be modified due to the scarcity of studies exclusively targeting the Latina population. In addition to the few studies including Latinas, studies where researchers included women only or that included both men and women of any race/ethnicity 18 years old and older were also included. Nonetheless, because the aim of this study is to identify low income Latinas' PA preferences, the reviewed literature focus on results for women only. Studies were excluded if men and women were included, but the results were not reported for each gender separately as well as studies prior to 2005. In general, 16 studies were found, and the heterogeneity of the designs, aims, sample characteristics, and sample sizes among the studies were noticeable, making the analysis of the literature challenging. In order to present a comprehensive review of the literature, it is presented in three sections: (1) PA preferences in women with chronic health conditions; (2) PA preferences in healthy women, and (3) PA preferences in studies including Latinas. For the purpose of clarity, the three major findings in each study, if provided, will be reported. Also, it is worth

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noting that in several of these studies, participants were asked to select more than one response; the results exceeded 100% in some studies.

PA Preferences and Women with Chronic Health Conditions

PA preferences and breast cancer survivors. Researchers (Green, Steinnagel, Morris, & Laakso, 2014; Karvinen, Raedeke, Arastu, & Allison, 2011; Paxton et al., 2014) investigated participants' PA counseling preferences. PA intervention delivery preferred, for PA interventions, and preferences for receiving PA information. Karvinen et al. (2011) undertook an exploratory study to identify the participants' PA counseling preferences during or after radiation therapy. The sample size was 90 women, 18 years of age and over. This study took place at an ambulatory cancer center in a rural community in eastern North Carolina. Participants provided consent, and data were collected by researcher administered face-to face questionnaires (Karvinen et al., 2011). The researchers reported that respondents demonstrated greater preferences for exercise counseling from an exercise specialist who was from the cancer center (71%). Of this group, face-to-face private PA counseling was preferred by 50% of the respondents. Furthermore, time preferred for PA counseling during or after radiation treatment varied: (1) within the next 2 weeks after radiation (38%); (2) at least 2 weeks after radiation, but before 2 months (26%); and (3) twenty three percent endorsed a minimum of 2 months after radiation (Karvinen et al., 2011).

The same research team reported that less than half (47%) of respondents preferred the cancer center, and 32% preferred home as a setting to receive PA counseling. In addition, this team identified that walking was preferred by 61% of the participants, weight training by 24%, and cycling by 24%. When asked about preferences

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for companionship during exercise, 25% preferred to exercise with other cancer survivors, about a quarter of participants preferred exercise alone (24%), while an equal percentage (24%) had no preference (Karvinen et al., 2011). The instruments utilized by this research team to measure participants' preferences were questions from Jones and Courtney (2002) and questionnaires developed by Karvinen, Courneya, and Venner (2007).

Other researchers (Green et al., 2014; Paxton et al., 2014) have examined PA information delivery mode, exercise type, and companionship during exercise preferred by breast cancer participants using a descriptive study design. Paxton and colleagues examined a sample of 291 African American women between 18 and 80 years of age from the US National African American Breast Cancer Survivors Network in 19 states. Social media and e-mail were used to recruit participants; a link to the survey was provided to the women who agreed to participate. Participants were allowed to choose multiple options when choosing their preferences for information delivery mode. The study results show that 50% of the participants preferred PA counseling via email, while others (48%) preferred web-based or a clinic (45%). Respondents preferred PA interventions that promoted walking (32% – 43%) and resistance training (24%–45%). In terms of with whom participants would prefer to participate during the PA intervention, a large number (64%) of the participants preferred to exercise alone, with a friend (14%), or with a family member 13% (Paxton et al. 2014).

Green et al. (2014) included 145 women who were between 32 and 82 years of age in their study. Similar to Paxton and colleagues (2014), recruitment took place from breast cancer survivor support groups. People who decided to participate in the study

were surveyed either face-to-face, over the phone, answering a survey posted to the support group online, or a combination of these methods. In regards to PA counseling delivery modes, the participants preferred face-to-face (51%), mailed brochures (42%), or Internet (33%). Respondents' preferred timing to start counseling was at diagnosis or shortly after diagnosis (49%); at any time (40%); 28% of the participants preferred 3 to 6 months after diagnosis (Green et al., 2014).

PA preferences and lung cancer survivors. Preferences for when to start PA counseling and preferences for PA type were investigated by Lin et al. (2013) and Philip et al. (2014) in groups of women who were lung cancer survivors. Both research teams used a descriptive study design with a multiple choice preferences questionnaire developed by Jones and Courneya (2002). However, Phillip and associates added 12 additional questions to fit their aims.

Lin and colleagues (2013) recruited a sample of 43 women age 18 and over, who were registered as lung cancer patients in the clinical chest and surgery departments of two medical centers in Northern and Southern Taiwan. The surveys were given to the participants; however, a researcher read the survey to those participants who were unable to read. Respondents (85%) preferred to receive exercise counseling 3 to 6 months after treatment (21%), during their cancer treatment (17%), or had no preference (20%). In the same study, face-to-face PA counseling was preferred by 48%, brochure by 21%, and videotapes by 19%. Moreover, when asked from whom study participants preferred to received PA counseling, almost half (47%) of the participants did not have a preference, while 53% preferred receiving counseling from an oncologist (28%), or from nurses (18%). In terms of physical activity program type, walking was preferred by 89%,

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gymnastics by 38%, and cycling by 27%. In terms of time of the day, 53% preferred early morning, 20% preferred afternoon, and 12% preferred evenings (Lin et al., 2013).

Phillip et al. (2014) recruited early stage lung cancer survivors to investigate their preferences in receiving PA advice (e.g. from whom, when, where, and how), and preferences for participating in PA. This research team utilized clinical and research databases from a thoracic surgery clinic in the US to identify possible participants. A total of 111 women who were mostly Caucasian (93%) were included in the study. Participants had a mean age of 68.73 years. Informed consent and an invitation to participate in the survey were sent to each qualified participant. Respondents preferred receiving advice about PA from a physician (80%), exercise specialist in a cancer center (11%), or had no preference (8%). A total of 68% preferred PA advice before cancer treatment, immediately after treatment (23%), and 7% preferred 3 to 6 months after treatment. The majority of participants (95%) preferred face-to-face interactions (Phillip et al., 2014).

PA preferences and survivors with different types of cancers. Gjerset et al. (2011) undertook a descriptive study to identify preferences in women with either lymphoma, ovarian, cervical, or breast cancer. The research team members examined preferences for exercise counseling, type of program, and time of delivery in 717 Norwegian women who were 18 to 75 years old. The participants were recruited from the central registry of the Norwegian Radium Hospital. A packet containing the informed consent, instructions, the questionnaire and a pre-paid return envelope were sent to people who were qualified for the study. Gjerset and associates (2011) reported using multiple-choice questions from the Jones and Courneya (2002a). The questionnaire to

assess preferences for exercise counseling, and program characteristics was adapted from Vallance, Courneya, Jones, & Reiman (2006) and Jones and Courneya (2002a).

Gjerset and associates (2011) found 95% of the participants preferred face-to-face PA counseling, led by (1) an exercise specialist from the cancer center (53%), (2) a specialist from a community center (27%), and (3) a physician at the cancer care center (12%). Walking was preferred by 33%, followed by resistance training (23%) and stretching (20%). Participants wanted to start PA counseling immediately after the treatment was completed (47%), between 3 to 6 months after treatment (23%) and during treatment (16%). This research team also investigated participants' preferences for companionship during exercise, and participants' preferences varied; exercise with other cancer patients/survivors (26%) or alone (17%); 32% of the participants had no preference. Also, results showed time of the day preferred for the participants to attend PA were mornings (34%) and afternoon (32%) or no preference (18%).

PA preferences and multiple sclerosis (MS) patients. To the best of this researcher's knowledge, only one study (Asano, Duquette, Andersen, Lapierre, & Mayo, 2013) in this population investigating PA preferences was undertaken between the years 2005 and 2015. Asano and colleagues investigated the current exercise preferences in women aged 19 to 65 (n = 99) who were physically inactive. The participants were recruited from two hospitals in Montreal, Canada. Preferences were assessed by a five items. Study participants preferred walking (57%), followed by flexibility/stretching (45%) and biking (36%). When asked about companionship during PA 28% preferred to exercise alone; 26% with friends or family members; and 25% with an instructor or assistant. Preferred sites for PA included the gymnasium (47%), outdoors (30%), or at

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home (23%). In addition, participants preferred three sessions per week of PA lasting for 48 minutes each session (Asano et al., 2013).

Summary

The PA preferences studies undertaken in women with chronic health conditions have identified several PA preferences that could moderate PA behavior in different populations. Type of activity, counseling, timing, companionship, and delivery method all fall under the broader concept of preferences. Although comparing these studies is a challenge due to sample numbers, study design, geographical location, type of disease, the results have shown some similarities and differences in studies in participants with similar health conditions.

Findings from two studies of breast cancer survivors asking when to start PA counseling varied. Karvinen and colleagues (2011) found that participants preferred to start PA within 2 weeks after radiation, while Green and colleagues (2014) found that breast cancer participants preferred the introduction of a PA program the time of diagnosis or soon after. However, similarities among breast cancer survivors were also found, for instance in terms of PA counseling information delivery. Green et al. (2014) and Paxton et al. (2014) found that more than half of study participants preferred face-to-face counseling and almost half preferred web-based e-mail. Other similarities among the PA preferences in women with health conditions were present. Most of the researchers (Asano et al., 2013; Gjerset et al., 2011; Karvinen et al., 2011; Lin et al., 2013; Paxton et al., 2014) reported that the majority of participants preferred to be alone when attending a PA program. Other commonalities among these studies were that participants preferred walking and face-to-face counseling.

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In lung cancer survivors, some differences were identified. Phillip et al. (2014), identified that most study participants (85%) preferred receiving PA advice face-to face from a physician, while Lin et al. (2013) reported that less than half of participants (48%) preferred faced-to-faced PA advice and only 28.4% from a physician. Another difference was found in the time of PA counseling: participants (85%) in the study by Lin et al. (2013), preferred to be counseled during their treatment, while more than half of the participants (73%) preferred to receive PA counseling before treatment in the study by Phillip et al. (2014).

It is important to note that in some studies, participants were presented with the option to choose "no preference." In these studies, some participants chose this option. For example in terms of with whom the participants would like to be at the moment of the PA program delivery, 24% to 32% of participants had no preference (Gjerset et al., 2011; Karvina et al., 2011; Phillip et al., 2014). In addition, when participants were asked about the type of PA preferred, 19% of the participants had no preference and when they were asked with whom participants would preferred to receive PA counseling, 49% had no preference (Lin et al., 20013).

PA Preferences and Healthy Women

Few investigators have studied healthy women and their PA preferences (Cleland & Ball, 2012; Daley et al., 2010; Hall, Petruzzello, Ekkekakis, Miller, & Bixby, 2014). The sample sizes in these studies vary, from 20 (Cleland & Ball, 2012) to 4408 participants (Daley et al., 2010). Because the variables evaluated in each study and the study designs varied (e.g. quantitative and qualitative), comparisons among these studies are challenging. Instead, an overview of each one is described.

Childbearing age women. Cleland and Ball (2012) undertook a qualitative design to investigate women's perceived feasibility of and barriers to PA participation to develop future research interventions. The sample consisted of 20 low-income non pregnant, inactive, childbearing age women. The study was conducted in urban and rural areas of Victoria, Australia as a part of a research program titled Resilience for Eating and Activity Despite Inequality (READI). Data were collected via face-to-face semi-structured interviews. The interviews took place in different settings. Participants could be recruited from university libraries, participants' homes or workplaces according to the participants' preferences (Cleland & Ball, 2012). Three strategies were preferred by the study's participants to increase PA participation: (1) community center-based program with childcare, (2) providing a housekeeper to help at home, and (3) a neighborhood program that involves activities with women from the local community with the option of including their children. Nevertheless, some women voiced their opinion about (1) being unsure if the housekeeper would help them to be more active; (2) concerns about the small size of the house; (3) guilt; and (4) concerns about privacy. In addition, they believed housework is part of being physically active. Finally, opinions on including children in PA programs were divided. Women with children wanted to include them, while women without children preferred PA programs without the presence of children.

College Students. Participants from private universities to identify PA preferences were studied by Hall et al. (2014). This team developed a cross-sectional study to examine the relationships between self-reported preferences for exercise intensity with performance in fitness tests of 327 women. This team of researchers enrolled participants from a private university in the southeastern US. Informed consent

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was signed, and the Physical Activity Readiness Questionnaire was answered prior to a fitness assessment that was based on guidelines from the American College of Sports Medicine. The participants in this study underwent fitness testing at an on-campus free exercise clinic. Preference for exercise intensity was measured using the Preference For and Tolerance of the Intensity of Exercise Questionnaire ([PRETIE-Q], developed by Ekkekakis, Thome, Petruzzello, & Hall (2008). Study results showed that preference scores were significantly related to performance and with PA participation. Women's preferences were mainly for push-ups and curl-ups.

Menopausal-age women. Preferences in menopausal women were also studied. In the United Kingdom, Daley et al., (2010) assessed delivery mode preferences for different PA interventions among low-income women. The total sample recruited was 1562 white and 130 non-white women (ages 46 to 55) from urban and suburban areas. A summary of the study, the questionnaire booklet and a prepaid, pre-addressed return envelope were mailed to women who qualified for participation. Results showed that participants preferred walking, swimming, dancing, and cycling. Most (68%) participants preferred PA consultations with a fitness advisor and 41% with a nurse practitioner. The preferred method of exercise program delivery was face-to-face with a fitness advisor (67.6%) and with a nurse practitioner (40.5%).

Summary

Although, few studies in the area of PA preferences in healthy women were found, the results are noteworthy: (1) One should not assume that because participants are from the same group, ethnicity, or community, everybody will be agreeable to having children present when participating in a PA intervention; (2) while PA preferences are

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diverse, knowing preferences prior to an intervention may be essential for a successful program; and (3) although participants are healthy, one must not assume that everybody will prefer the same type of exercise.

Importance of Providing Patients' Preferences

Patient preferences are an essential part of evidence based practice (EBP) in nursing, and psychology and evidence based medicine (EBM).

Evidence Based Practice

Nursing. In nursing the utilization of best research, clinical data, clinical expertise and client's preferences are the main components of EBP (Melnyk et al., 2010). This team of researchers recognizes that at the moment to make a treatment decision, the balance in utilization of each component of EBP depends on the clinical situation (Melnyk et al., 2010). In addition, Burman et al. (2013) stated that patient preferences can provide a link between patient-centered care and EBP. In terms of PA, Benton (2012) encourages nurses to step out and increase their knowledge about PA and prescribe it based on patients' personal preferences and their health needs.

Psychology. Client preference is a main component of EBP in psychology (American Psychological Association ([APA], 2006). The use of preferences could determine whether or not clients seek counseling, the length of counseling or preference for specific gender of the counselor (Rosen, 1967). In psychology, as in medicine, clients who received a treatment that matched their preferences were less likely to drop out of treatment and more likely to improve their health outcome compared with clients who do not have their preference matched (Swift, Callahan, & Vollmer, 2011).

Evidence Based Medicine

     Patient's care. Client preferences are also a major component of Evidence Based Medicine (EBM). EBM is defined as the combination of external clinical evidence from research, individual clinical expertise and patient. Expertise can be presented by thoughtful identification of individual's preferences when making decisions about an individual's care (Sackett, 1997). Within the realm of individual care is the best research evidence. Attention to patient preferences when it comes to research is suggested by Torgerson and Sibbald (1998); this allows the participant to have the desired treatment and randomized for those who do not have preferences for treatments.

     Clinical trials. The concept of patient preferences has been used in clinical trials. For instance, Henshaw, Naji, Russell, and Templeton (1993) developed a patient-centered, partially randomized trial to investigate women's preferences for method of legal abortion, medical abortion or vacuum aspiration, in 363 women. Some participants voiced their approval for being able to have the method preferred rather than being randomized, whereas other women had no preferences. Henshaw and colleagues concluded that women should be allowed to choose the method of their preference and to randomize those who are willing to be randomized. Kowalski and Mrdjenovich (2013) state that when different interventions are compared among groups of people, it is inevitable that individual preferences for one type of intervention will be present; thus, leading to attrition if the person is not randomized to the preferred treatment.

<div align="center">

Physical Activity Preferences Including Latinas

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     PA preferences research studies including Latinas as part of the sample are scarce. Three studies undertaken between 2005 and 2015 were found in the literature (Casper,

Harrolle, & Kelley, 2014; Larson, Whiting, Green, & Bowker, 2014; Williams & Raynor, 2013).

Physical Activity Site Preferences

This investigation enrolled diverse race/ethnic groups (Caucasian, Latino, African American, and Asian) and were examined by Larson et al. (2014). Participants were age18 and older who visited three parks in Georgia (Fort Mountain, Fort Yargo, and Red Top Mountain). This group of researchers utilized descriptive mixed-method design in a sample of 10,526 participants. This sample was divided in two groups: observations ($n =$ 9453) for qualitative study and surveys (n = 1073) for the quantitative study. A total of 563 women qualified for the study comprised the sample for the analysis. The research team members approached every person 18 and older who entered the parks during 115 different data collection times, requesting them to complete the survey. Observations were made during 217 different periods (Larson et al., 2014). Preferences for a safe environment ranked number one among all demographic groups. In regard to socially oriented PA preferences, they found that Latino and Asian women preferred to be active with friends and family. Age were highly associated with preference for natural scenery; as age increased, the importance of the natural scenery increased (Larson et al., 2014).

Preferred Type of Activities

In a sample of 265 Latinas, between 19 to 69 years of age, living in Wake County, NC were studied by Casper et al. (2014). The survey was developed by the authors in collaboration with a Latino advocacy group and then pilot tested with a group of Latinos. These research members utilized promotores du salud (community health workers) to collect data from participants according to zip code numbers. To assess PA program

preferences, all respondents were asked to indicate what program/activity they would be most interested in. In terms of PA program preferences women preferred: walking (68%), dancing, (63%), aerobics (56%), and aquatics (55%).

Preferences for Imposed or Self-elected Intensity

The effects of PA intensity and preferences for self-selective PA intensity or imposed PA intensity were undertaken by Williams and Raynor (2013). These researchers utilized the behavioral choice framework to guide their study. They enrolled a sample of 29 sedentary women between the ages of 19 to 55 in the following categories: Non-Hispanic White (n = 23), Non-Hispanic Asian (n = 4), Hispanic (n = 2), and Non-Hispanic African American (n = 1). Participants were recruited via advertisements posted in the local newspaper and on the website of a large healthcare corporation in United States. The researchers concluded that their sample population preferred self-selected PA intensity instead of imposed higher intensity by a trainer.

Summary

The few studies identified in the Latina population asked participants' preferences for type of sites, scenario, and preferences for PA intensity, activities and programs. These findings are important to identify additional factors that could help increase activity in this population; however, only three studies were identified that included Latinas, and the Latina representation in the sample was minimal.

This literature review presents the state of the science of PA preferences in women in general and in low-income childbearing age Latinas in particular. All studies reviewed had face and content validity. Reliability was not addressed. To know participants' preferences, researchers must ask directly what the women think they should

be doing or want to do. Direct questions with clear options give the participants opportunities to answer directly. It is also important to recognize that some researchers (Gjerset et al., 2011; Karvinen et al., 2011) identified that some participants had no preference.

Gaps in the Literature

Several gaps were found: (1) Most PA interventions targeting low-income Latinas to increase PA have been pre-designed; (2) few PA preference studies of childbearing Latino women were found and those found included men and or other ethnicities; (3) published PA preference studies are minimal, and those few published have small sample sizes (e.g. N = 29 with only 2 Hispanic participants were identified); (4) the participant's ages ranged from 18 to 69 years of age making it very difficult to identify the percentage of low-income childbearing Latinas who participated in these studies; and (5) to the best of this researcher knowledge, published studies between the years 2005 to 2015 that directly asked Latina preferences regarding PA program, characteristics were absent. This state of the science depicts the importance of an exploratory study to learn more about the phenomenon of interest, low income Latina PA preferences. In order to do this, the identification of a framework to guide the study is necessary.

Theoretical Framework

Preferences and Health Behavior Model

The present study is guided by the Preferences and Health Behavior Model (PaHBM; Figure 1). This model explains the different factors that contribute to an individual's PA behavior. This model is an (1) adaptation of Preference Theory (PT) by Hakim (2000), the pillar of this investigation, in combination with the Ecological Model of Four Domains of Active Living (EM4D) by Sallis et al. (2006), (2) the researcher's own world view, (3) empirical knowledge and communicating with low-income women, including Mexicans, Guatemalans, Peruvians, Caucasians, Somalians, and Colombians for more than 6 years of research.

Figure 1. Preferences and Health Behavior Model (PaHBM)
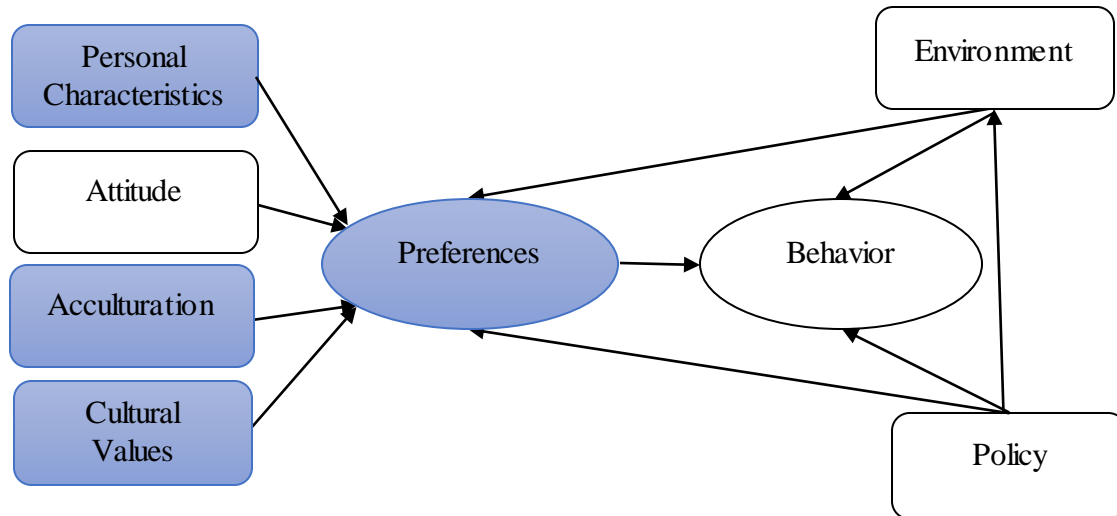
The Preference Theory was developed to be utilized in research about women (Hakim, 2000). It recognizes women's wide range of preferences and priorities. It also emphasizes the importance of preferences, values (e.g. cultural, organizational) and attitudes, environmental changes and policy as determinants of women's chosen work-

lifestyle and as important dimensions of an individual's behavior and social processes. Further, Hakim (2000) identified the need for data on personal preferences to identify the lifestyle of women's own life rather than relying on public opinion polls (Hakim, 2000). This social theory offers two theoretical levels: (1) theory as a conceptual framework to analyze and understand a phenomenon and (2) theory to confirm the end-product of research (Hakim, 2000). As recommended by Hakim in the preference theory, the first approach will be used in this dissertation. The PT was originally developed to analyze women's preferences in work-lifestyle and highlights the importance of women's preferences as the main factor contributing to their behavior and recognizes women's heterogeneity.

The EM4D by Sallis et al. (2006) explains behavior as a result of a person's interaction with the environment and focuses on the nature of a person's relationship with the socio-cultural surroundings. The EM4D occurs at four levels (1) active recreation, (2) active transportation, (3) household activities, and (4) occupational activities (Sallis, et al., 2006). In other words, the EM4D includes environmental and policy variables that are expected to influence behavior, in addition to psychosocial variables. Healthy behaviors can be maximized when environments and policies support healthful choices, and individuals are motivated to make personal choices (Sallis et al., 2006). Multiple ecological levels: individual, environment, and public policy influence health behaviors and these influences interact across all levels. The distinction of these two models is that Sallis et al. (2006) emphasize the importance of analyzing and understanding the relationships among the individual, environment, and policy in order to produce changes, and Hakim (2000) reiterates that attitude, values, and preferences interact with

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environment, and policy to shape women's behaviors. The PT has not been fully explored in low-income childbearing age Latinas' PA preferences. However, the EM4D has been widely utilized. The integration of the PT and EMAD models to investigate the relationships among study concepts provide the framework to guide this investigation.

The proposed PaHBM is aligned with the PT perspectives and the EM4D. At the individual level, the PaHBM utilizes body mass index, age (intrapersonal level), and cultural values as well as preferences (interpersonal level) to explain the factors that influence women in being physically active. Furthermore, the PaHBM includes environmental and policy concepts, which are part of the PT and the EM4D. In addition, as the PT proposed, PaHBM could be utilized to (1) analyze and understand a phenomenon and (2) to confirm research outcomes. The present study was designed to understand the phenomenon.

Major Concepts of the Preference and Health Behavior Model (PaHBM)

The major constructs depicted in the PaHBM (see Figure 1) are personal characteristics, cultural values, acculturation, attitudes, PA preferences, environment, policy, and behavior. However, only participants' characteristics, cultural values, acculturation and preferences will be investigated for the purpose of this dissertation.

Personal characteristics. The utilization of participants' characteristic varies. Some researchers (e.g. Lin, Lai, Lu, Lai, & Lin, C., 2013; Paxton et al., 2014) utilized individuals' characteristics to identify the relationships among individual personal characteristics with PA preferences. Lin et al. (2013) investigated a sample of Taiwanese women with lung cancer. This researchers identified that college educated women (52%) preferred to received PA counselling from an specialist affiliated with the cancer center

versus non-college graduates (25%); the majority of participants (72%) who were younger than 65 years of age preferred PA in the morning compared to 47% of individuals older than 65 years; and those participants who were single (86%) preferred dancing versus those who were married (35%). Paxton et al. (2014) studied African American women who were breast cancer survivors. The study results showed that study participants younger than 50 preferred cardiovascular-type exercise compared to women 50 and older; however, preferences to participate with a partner or not were not different among women of all ages.

In the Latino population, personal characteristics have also been analyzed. For instance, Ainsworth et al. (2013) described the personal characteristics of 139 postpartum Latinas before initiating the Madres Para la Salud [Mothers for Health], walking intervention study, which was investigating the relationships between PA and social support. Some of the personal characteristics of Latino women were 28.3 ± 5.6 yr. of age and BMI $= 29.7 \pm 3.5$ kg·m^2, only 20% of the participants had more than high school education with an average of 3 children per home. Davila, Reifsnider, and Pecina (2011) studied the influence of Familismo on Hispanic Health behavior. Perez-Escamilla and Putnik (2006) stated that health outcomes in the Latino population may be confounded by Latino's socio-economic status and age as well as by the specific Latino subgroup. Personal characteristics are important part of research. One can use this information to either describe a sample of participants or to identify the relationships among participants' characteristics and other factors that could be related to individuals' behavior.

Attitude. The concept of attitude has been studied for more than 50 years. Attitude is a function of an individual's beliefs about the object and the evaluative aspects of those beliefs. Positive or negative attitudes toward a particular action are associated with the intention to act or not to act Ajzen and Fishbein (1980). Negative attitudes toward PA were identified in Asian American women. PA is not a priority for this population because they are busy accommodating their cultural traditions before their personal needs. In addition, this group of Asian Americans believed that PA is not for Asian girls (Im et al., 2012). African American women's PA attitude was also investigated by Im and colleagues (2010). This team identified that PA was viewed as some type of luxury that they cannot afford; it was not necessary because in the African American culture being heavy (overweight) was acceptable; and because in the African American culture all physical activity is restricted during the time a woman's menstrual period is present.

Similarly, negative attitudes were identified in Hispanic women. Finding time for individual activities that take these women away from their family responsibilities is considered waste of time. Because of their cultural beliefs, family comes first, and care of their children is given a higher priority over their personal needs and wants (Chee et al., 2010). This attitude is believed to preclude Hispanic women from participating in PA during their leisure time. Another mixed methods study was conducted to explore attitudes toward PA among 359 diverse Latinas subgroups (Lopez, Bryant, & McDemott, 2008). These researchers identified that Latinas with positive attitudes were active as non-Hispanic women; these Latinas did not identify PA as a masculine attribute and had

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high physical activity levels. This positive attitude toward PA was present in women who worked outside the home.

Regardless of race/ethnicity, negative or positive attitudes toward PA could either preclude or enhance PA behavior in individuals. To improve positive attitudes toward PA, it is important that one be cognizant of the different attitudes according to the participants' cultural values and tailored intervention to their specific needs. Also, it is important to recognize that some individuals are more or less acculturated to the Anglo culture.

Acculturation. Acculturation is defined as the process by which the attitudes, values, beliefs, and behaviors of a specific culture are adopted by people from another culture (LaFromboise, Coleman, & Gerton, 1993). Acculturation has also been defined as an evolving process due to individuals' interactions with different cultures, while holding on to some characteristics of their own culture (Handwerker, 2002). Acculturation has been identified as responsible for individuals' positive or negative health behaviors. The behavior of acculturated individuals has been linked to skin cancer. High acculturated individuals show riskier skin cancer behavior than low acculturated and bicultural individuals (Heckman & Cohen-Filipic, 2012).

Acculturation and its relationships with PA were investigated by Vermeesch and Stommel (2014). These researchers analyzed the National Health Interview Survey data from 2008-2011 for Cuban, Puerto Rican, Dominican, and Central American women. From this sample, foreign born participants who had low acculturation to the mainstream culture did not meet the 2008 PA guidelines for Americans, whereas those participants who were born in the United States and highly acculturated to the mainstream culture did

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meet these guidelines. However, individuals with low acculturation levels demonstrated healthier eating behaviors than those participants who were born in the United States (Vermeesch & Stommel, 2014).

Acculturation has been identified as being correlated with Latinos' positive or negative health behaviors. In terms of acculturation and PA behavior, conflicting results are present. In particular, Perez-Escamilla and Putnik (2007) discussed the possibility of modifying PA in this population through acculturation. This research team identified that PA during leisure time increased as the individual's acculturation increased. However, this was true only for single individuals who had jobs that did not involve PA as part of their duties. Other researchers (Marquez & McAuley, 2006) identified no relationship between acculturation and PA.

Acculturation is largely studied in Mexican and Mexican Americans using the Brief Acculturation Rating Scale for Mexican Americans-II (ARSMA-II). However, several inconsistencies of outcomes were identified by Perez-Escamilla and Putnik (2007). They state that acculturation is modified by Latinos' sub-groups and gender.

Cultural values. Cultural values are defined as the acceptance of similar behaviors, beliefs, values, and symbols without questioning them, and are passed from one generation to another within people from the same culture. Cultural differences between Caucasian and other race/ethnicity groups has been studied. Caucasians value individualism, while Asians value the social role (Li & Karakowsky, 2001). In a research study by Im et al. (2013), it was identified that in the Asian culture family comes first; Asian women give priority to family events rather than having individual time to participate in PA. These researchers also found that in African American culture, where

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the woman is not a bread winner, the man goes for a workout while the woman is taking care of the children.

Hovell et al. (2008) examined the efficacy of a community based culturally tailored dance program intervention in a group of low-income Latinas (N = 151), 6 months in duration and 3 times per week. These researchers concluded that culturally tailored dance can increase PA and improve cardiovascular fitness in low-income Latinas. Familialism (Lawton et al., 2014), also known as familism (Lugo-Steidel & Contreras, 2003) has been identified as one of the most important values in the Latino culture. Familialism refers to a strong connection with the immediate family and the extended family (Marín & Gamba, 2003). Cultural values have been identified as being related to Latinas' low levels of PA (Im, Lee, et al., 2010). This researcher investigated 23 low-income Latinas and determined that Latinas' lack of PA was due to their cultural belief that their children come first before their personal needs. The cultural value of familialism can also be defined as when an individual's needs or wants are set aside to do the thing that is most beneficial for the family (Davila, Reifsnider, & Pecina, 2011).

Preference. Client preferences are defined as "what clients would want a therapy encounter to be like if the choice was left to them" (Swift et al., 2011, p.156). Sometimes the term preference is used interchangeably with expectation and choice. However, these three terms are different. Swift and colleagues explain that expectations are based on what the individual believes will happen, and preferences are based on individual's wants and values. Further, Kern et al. (1998) indicate that choice is used as a method of measuring preferences.

Individual preferences have been studied in different disciplines and populations. PA preferences in women 65 and over with CVD were investigated by Rolfe (2012) using a mixed-method design. Walking, gardening, and housekeeping were the activities preferred by these women as a part of their routine to sustain their health. Yee et al. (2015) developed a cross-sectional study to examine the mode of preferred delivery in 240 pregnant women in San Francisco, California. Most participants (91%) preferred vaginal delivery versus Cesarean section. Burton et al. (2012) undertook an exploratory research study to investigate the PA context preferred by a group of adults aged 45 to 67 years in Austria. Adults 60 to 67 preferred activities with adults of the same age, flexible and non-competitive compared to individuals aged 45 to 49. Compared to high income participants, low income participants preferred activities that were low cost and supervised.

Preference studies in the Latino population are limited. In one study, teenage girls (Caucasian, African American, and Latinas) PA preferences were assessed Grieser et al., 2006). (This group of researchers identified that teenage Latinas preferred swimming (31%), dance (26%), and rollerblading (22%). Although the concept of preference is well known, it has not been fully explored in the Latina population. Promoting physical activity will be more effective if the community preferences are understood (Booth, Bauman, Owen, & Gore, 1997). Descriptive work using this concept in PA is increasing, but more research in the area and the population of interest of this researcher is needed.

Environment. Environment refers to "conditions and influences that affect the growth, health, and progress of someone or something" (The Association of State and Territorial Health Officials [ASTHO], 2013, n. p.). The members of this association

highlight the influence of environment (e.g. built, social, and neighborhood) in the overall health and well-being of all communities. In addition, Boehmer, Hoehner, Deshpande, Ramirez, and Brownson (2007) emphasized that neighborhood environments are important determinants of PA behavior. The actual environment as well as the perceived environment is highly correlated to PA behavior, and this effect can be beneficial or detrimental (Huberty, Dodge, Peterson, & Balluff, 2009). A team of international researchers (Sugiyama et al., 2014) from eleven countries including the US studied the relationships between the perceived environment and walking for recreation. This team identified that walking for recreation was positively related with perceived safety and accessibility to parks. In addition, a 26% increase of odds of walking for recreation was associated with aesthetics. In the Latino population located in the US, as in other communities, the environment could exacerbate the lack of PA or could improve PA levels. The influence of neighborhood characteristics that do not support walking is related to Hispanic women's obesity (Keller et al. 2013). This research team reported that the neighborhood environment where most of the study sample (N = 139) lived was unsafe. Fourteen percent of the housing units were vacant; domestic violence, homicides, and robberies were the highest in the city and second for sexual assaults. However, in another study of 359 women, Lopez et al. (2008) identified that women who had access to activity facilities and perceived their environment as safe, had high levels of physical activity.

The actual environment where an individual lives, whether built or perceived, is vital to promote PA in all populations. However, in low-income communities (e.g. Latino communities) where residents are more likely to live in neighborhoods that do not

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support PA due to their socio-economic level, attention to this issue is necessary. Many times this situation could be solved through the policy changes.

Policy. Policy is an overall plan that includes general goals and acceptable procedures. Policy is a "legislative or regulatory action taken by federal, state, city, or local governments, government agencies, or nongovernmental organizations…" (Schmid, Pratt, & Witmer, 2006, p. S20). In 2010, the Health in All Policies (HiAP) initiative was created to bring various sectors together to confront complex and current health challenges in the population and promote healthy PA behaviors (Rudolph, Caplan, Ben-Moshe, & Dillon, 2013). In 2009 the United States Department of Health and Human Services and the Centers for Disease Control recommended community strategies to prevent obesity. These strategies included policy implementation to create safe communities that supported PA. For instance, for communities to improve PA, they could: (1) support schools within walking distance of residential areas, (2) enhance personal and traffic safety, and (3) improve access to outdoor recreational facilities and infrastructure that supports PA (Khan et al., 2009). The effect of policy in PA was studied by Huberty et al. (2009). In an effort to promote PA in Omaha, Nebraska, this group of researchers created a 5 year work plan to achieve a bicycle/pedestrian initiative. The program was incorporated into the county transportation master plan. A behavior change in the Omaha community occurred; walking increased from 68% in 2005 to 79% in 2008.

Policies can have an impact on the community as well as individual behaviors. Policies could potentially be reinforced by law and could set community standards, but could have a negative impact in high costs and implementation (Rudolph et al., 2013). Using research to influence policy is a challenge. However, Giles-Corti et al. (2015)

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proposed strategies that could translate research into policies to have an active community. One of those strategies is "conduct research focusing on community needs and preferences" (p 238).

Behavior. Behavior is defined as "the interpretation of interaction and the environment with the other domains of active living" (Sallis et al., 2006, p. 300). Sharma and Romas (2012) defined behavior as, "Any overt action, conscious or unconscious, performed by an individual that has a measurable frequency, intensity, and duration; a category of actions with a specification of target, action, context, and time" (p. 5). Numerous theories and models to understand and promote PA behavior have been developed (e.g. Theory of Planned Behavior Behavior [TPB], (Ajzen, 1985); Social Cognitive Theory [SCT], Bandura (1986); Transtheoretical Model [TTM] Prochaska, & DiClemente (2003). Understanding an individual's health behavior is important. It could help to identify approaches to guide individuals to undertake healthier behaviors.

Relationships among sedentary behavior (SB), cardiometabolic risk factors (CVRF) and moderate–vigorous physical activity (MVPA) were investigated in a subgroup (n = 1914) of adults, 65 years and over (Gennuso, Gangnon, Matthews, Thraen-Borowski, & Colbert, 2013). Data were extracted from The National Health and Nutrition Examination Survey (NHANES). The results showed that MVPA was not associated with SB and also not with weight; however, positive relationships between SB and weight, and waist circumference were found in the Latino population. Davila et al. (2011) studied the association between Familism and health behavior in a sample of 50 Latinos. It was identified that Familism had a significant relationship with health behavior; for example, health behavior was defined by family needs. Davila and

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colleagues (2011) emphasized the importance of considering familyism when planning health behavioral change in this community. Sedentary behavior in a group of 139 postpartum Latinas was investigated by Ainsworth et al. (2013) who concluded this sample of Latinas had a high level of sedentary behavior (89%).

The importance of theories and frameworks as well as research studies to investigate people's behavior to better understand and help them to reach a healthy lifestyle is demonstrated. However, the relationship about PA preferences and health behavior is unclear. This is also true in low income childbearing Latinas, which conveys the importance of the PaHBM proposed in this dissertation.

Summary

Evidence has demonstrated that the concepts building the PaHBM, personal characteristics, attitude, acculturation, cultural values, environment and policy, are associated positively or negatively with an individual's behavior. Furthermore, the concepts included in the PaHBM are strongly related to Latinas' PA levels. By including Latinas' PA preferences and identifying the relationships among these concepts, it is hoped that additional information to better understand this population will be identified. For the purpose of this study, the relationships between personal characteristics, acculturation and cultural values with preferences were investigated.

The proposed framework includes constructs that are parallel to the preference theory by Hakim (2000) and are included in the five levels that affect behavior explained by Sallis et al. (2006). In general, personal characteristics, PA preferences, and attitudes are at the individual level while cultural values and acculturation are at the interpersonal level. Sallis and colleagues (2006) emphasized the relationships among individuals,

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environment, and policy with PA behavior. Hakim (200) highlighted the influence of environmental changes and policies in women's preferences and behavior. The chief paradigm of the preference theory is based on asking women directly what they prefer. Women are heterogeneous and their PA characteristic preferences could be too (Hakim, 2002).

Conclusion

The state of the science of PA preferences in non-Hispanic women and in low-income Latinas undertaken between the years 2005-2015 have been reviewed. The results demonstrate: Dirsts, program characteristics preference is a concept that has not been explored in the low income Latina population exclusively. Second, concepts included in the PaHBM: personal characteristics, cultural values, acculturation, environment, and policies are vital in shaping human health behavior. Third, these concepts could have relationships with individuals' PA preferences, which need to be studied. These findings in the literature establish the importance of investigating these relationships that could provide additional information to better understand this population and develop interventions that might help to increase and sustain PA in this community. Based on the results of the state of the science review, one can conclude that a quantitative exploratory research study investigating PA program characteristics preferred by low-income childbearing age Latinas has merit.

CHAPTER 3. METHODOLOGY

This chapter discusses the methodology utilized to test the study aims and hypothesis of the study and is divided in seven sections: (1) study design; (2) settings; (3) study population and sample; (4) procedures; (5) ethical review; (6) data collection; and (7) data management and analysis. The study aims and hypotheses are presented in Chapter I as well as the significance, strengths, and limitations.

Study Design

This was an exploratory study that collected quantitative data using structured surveys administered once to study participants. An exploratory design provides information about the study variables, but does not permit inferential analysis, thus limiting understanding of causality. However, this was appropriate for this investigation because little is known about PA program characteristics preferred by low-income childbearing age women of Latina/Hispanic origin.

Settings

Study participants were recruited from three sites: (1) Women's Care Clinic (MIHS-WCC); (2) Arizona State University Nurse Practitioner Grace Clinic (ASU-NPGC), both in Phoenix, AZ; and (3) from the project titled "Preventing Childhood Obesity through Early Feeding and Parenting Guidance Project" (PCO-EFPG) currently underway in Houston, TX. These sites were selected because they serve low-income childbearing age Latinas who are the target population of this investigation.

MIHS-WCC. Site #1 is a part of the Maricopa Integrated Health System (MIHS) located on the Maricopa Medical Center campus, which provides health care services primarily to uninsured or underinsured individuals. The MIHS-WCC offers a friendly

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environment with culturally sensitive and bilingual staff as well as interpreter services. At this site, underserved and uninsured women can receive medical treatment regardless of their financial situation.

ASU-NPGC. Site # 2 is a funded clinic administered through the Arizona Family Health Partnership, a non-profit organization that manages funds for clinics in the network with funding provided by the USDHHS, ASU, and patient donations. Patients at this location are low income, and uninsured or underinsured. The staff members at ASU-NPGC are bilingual in Spanish and English. All the healthcare providers are nurse practitioners who have been working with this population for more than 10 years (D. Link personal communication, January 21, 2014).

PCO-EFPG. Site # 3 was a group of Latino women who were enrolled in the PCO-EFPG program. These women were recruited at a Women Infants and Children (WIC) supplemental program office located in the Magnolia Health Center, Houston, TX. This clinic offers services to low income uninsured or underinsured Latina women. Community health workers and research staff members are bilingual (E. Reifsnider, personal communication, February 13, 2015).

Study Population and Sample

Target Population. The target population was low income Latino women of childbearing age who are of Latina/Hispanic descent. The inclusion criteria for participants were: (1) self-identified low income; (2) self-identified Latina or Latina descent, (3) age between 18 and 35 years. The exclusion criteria included childbearing age Latino women who were: (1) pregnant, (2) physically and mental disabled, (3) incarcerated, or (4) chronically ill (e.g. heart problems).

Procedures

The study Principal Investigator (PI) provided screening, enrollment and data collection training to clinic personnel involved in the screening process and volunteer data collectors (VDC) prior to participant enrollment. The PI provided in-service training about the study's purpose, inclusion and exclusion criteria, and study processes. Likewise, training about screening, enrollment, data collection, and data management was provided to the VDCs. Clinic personnel at each of the sites screened low-income Latino women who were potentially eligible as study participants.

The VDCs received extensive training to: (1) make sure they fully understood the study and its procedures and (2) to assure participants was provided with standard information. PI went over each instrument with VDCs explaining the concepts and definitions of terms and explained how to handle participant questions. In addition, the importance of reassuring the participants that participation in the study was voluntary and that they were going to receive the same quality of treatment if they decided not to participate in the study was emphasized. Role playing was done to assess the VDCs understanding of the entire process and was repeated until each VDC demonstrated proficiency in the study procedures. A binder with copies of each instrument and detailed information about the study was given to each VDC. In addition, the PI sent e-mails to healthcare providers and other staff members at each site to explain the purpose of the study.

Participants were enrolled primarily by the PI with assistance of a VDC at sites #1 and #3. Recruitment at site #2 was undertaken by the PI only. Women were screened for eligibility by staff members from the three sites at the time of the visit. The staff

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members informed the PI or the VDC if the woman qualified as a participant. Latino women were approached after anthropometrics data were collected as part of the normal clinic visit procedures. This method re-assured participants that their private health information was not compromised, provided them with updated information about their anthropometric measures, and helped the researcher to collect accurate information to calculate Body Mass Index (BMI) for each participant.

Ethical review. This study was reviewed and determined to be exempt by the Institutional Review Board (IRB) from Maricopa Integrated Health system (MIHS0 and Arizona State University (ASU). As an exempt study, written informed consent was not required.

Data collection. When a woman was determined to be eligible for the study, a thorough explanation of the study was provided. It included (1) an explanation that participation in this study was voluntary; (2) what was involved to participate in the study; (3) time required to complete the study instruments; and (4) that if they elect to participate, they could either read the questionnaire on their own or if they prefer the PI or the VDC could read the document to them. The strategy of providing this option to the participants offered equal opportunity to those individuals who were interested in participating, but had a low literacy level. After participation was confirmed, the PI or the VDC either read or gave the questionnaire to the participant based on her preference. Participants completed a survey that includes questions about personal characteristics and PA program characteristics preferred. This was the only survey that participants completed at sites #1, #2 and #3. Participants at the site #3 were asked to complete two additional instruments: (1) the brief acculturation rating scale for Mexican Americans-II

(ARSMA-II, Baumann, 2005; Cuellar, 2004) and (2) the Mexican American Cultural Values Scale (MACVS, Knight et al., 2010). The three instruments are described in the measures section.

   Definition of terms. The following definitions were used in this investigation. Personal characteristics are defined as age, marital status, educational level, country of origin, number of children, age of the last child born, BMI, and income. Physical activity (PA) preferences are defined as type of physical activity, timing of sessions, and length of sessions as categorized in the Predictors and Preferences of Physical Activity Research Intervention Participation in an Underserved Latina Community Questionnaire (Jimenez, Reifsnider, & Coonrod, 2013). Cultural values are the degree to which participants will endorse Mexican American values or mainstream values as classified by Knight et al. (2010) on the MACVS. Acculturation is the degree to which participants will favor either Anglo oriented or Mexican orientation as categorized by the brief ARSMA-II (Bauman (2005).

Measures

   For the purpose of this investigation, only two groups of variables: (1) personal characteristics and (2) physical activity preferences were collected at all sites (MIHS-WCC, ASU-NPGC, and PCO-EFPG). In addition, two more groups of variables acculturation and cultural values were obtained from participants at the PCO-EFPG site only. A description of each measurement is presented below:.

   Personal characteristics. Participants' age, marital status, level of education, income, and age of the youngest child living at home were measured in categories. Country of origin, and number of children that the participant has given birth to were

open ended questions. BMI was calculated from height (in inches) and weight (in pounds) using the following formula: $[weight/(height)^2]*703$. The resulting scores will be classified as underweight (<18.5); normal (18.5-24.9); overweight (>24.9).

Preferences. Participants from the three study sites were asked to answer the Predictors and Preferences of Physical Activity Research Intervention Participation in an Underserved Latina Community Questionnaire (Jimenez et al., 2013). This questionnaire is a 27-item survey with multiple choice questions and open ended questions with categorical answers. This survey was developed based on: (1) the Preference Theory, which investigates what women want, rather than what they are expected to do (Hakim, 2000); (2) the 2008 PA guidelines for American adults, which provided options for timing, minutes per session, and day of the week; (3) literature reviewed, and (4) the PI's research knowledge acquired while working on clinical, academic and behavioral research as assistant, coordinator, and manager for approximately 7 years in total, with Latina participants. Initially, the English questionnaire had 21 multiple choice questions.

This instrument was reviewed for content validity by two clinical and research experts who have had more than 15 years of clinical and research experience working with the Latina population. After the experts' feedback was received, the questionnaire was modified and resulted in 32 items. The survey was translated into Spanish by a bilingual translator. Discrepancies between the two language versions were resolved by consistent discussion and agreement between the PI and translator. The questionnaire was pilot tested with five women who had the same characteristics as the population of interest: they were Latinas of low socioeconomic status, underinsured, and underserved with a low literacy level. Questions were modified to reflect participant feedback. The

English questionnaire was then reviewed by the same two clinical and research experts who reviewed the initial survey and no other revisions were needed. The translation department at MIHS reviewed the English and Spanish surveys. Both surveys met the department's requirements. After, the two surveys were submitted to the IRB as part of the IRB application packet. The final version has 27 items: personal characteristics, 10 items (e.g. age, marital status); PA preferences, 7 items (e.g. "What activity would motivate you to participate in a physical activity program?" "What type of music would you prefer for dancing?" "What days do you think are the best for this type of program?"), and predictors, 10 items. Although, predictors are part of the instrument, this study will be examining only preferences and personal characteristics.

Acculturation. The Brief ARSMA-II will be used to measure acculturation. This instrument measures an individual's level of acculturation on a Mexican oriented scale (MOS) or Anglo oriented scale (AOS). The MOS comprises four subscales 6 items, 5-point Likert rating (from 1 = *not at all* to 5= *almost always*; e.g. "my thinking is done in Spanish" Responses to the items will be summated. Participants with high scores mean they are more Mexican Oriented. The AOS comprises four subscales 6 items, 5 -point Likert rating (from 1 = *not at all* to 5= *almost always*; e.g. "my thinking is done in English"), which was added. Participants with high scores mean they were more Anglo oriented.

Acculturation was calculated by subtracting MOS mean from the AOS mean (AOS mean - MOS mean). The participants' answers felt in one of the acculturation levels (level 1: < - 1.33; level 2: ≥ -1.33 and ≤ -.07; level 3: > - .07 and < 1.19; Level 4: ≥ 1.19 and < 2.45; and level 5: > 2.45) proposed by Cuellar, (2004). The Brief ARSMA-II

was validated based on two studies. One study had 288 participants and the second one 112. Internal consistency was reported for the first sample as Cronbach's alpha of .93 on the MOS and .69 on the AOS. For the second sample, Cronbach's alpha was reported as .84 on the MOS and .75 on the AOS (Bauman, 2005).

   Cultural values. Cultural values of the participants were measured by using the MACVS where participants could score as Mexican American values or mainstream values (G. Knight, personal communication on June 30, 2015). The MACVS comprises 8 subscales: familism, referent, respect, religion, traditional gender roles, material success, independence and self-reliance and competition and personal achievement. The MACVS has 50 items answered on a 5-point Likert scale (from 1 = *not at all* to 5 = *completely*), which includes 36 items related to Mexican cultural values (e.g. "It is important to have close relationships with aunts and uncles") and 14 items related to mainstream values (e.g. "When there are problems in life a person can only count on him or herself"). High scores on the MACVS indicate that Mexican values are predominant in that participant. Low scores on the MACVS are indication that mainstream values are predominant in that individual (G. Knight, personal conversation, June 30, 2015). The MACVS has shown acceptable construct validity as well as reliability: Cronbach's alphas of .88 for both mothers and fathers on the Mexican American value subscale; and .81 for mothers and .82 for fathers on the mainstream value subscale were identified. The overall Cronbach's alpha was identified as .87 for women and .84 for men for the Mexican American values and for the overall mainstreams values of .79 for women and .79 for men (Knight et al., 2010). This instrument was selected for this study because it will be completed by participants at the PCO-EFPG site only. At this site, approximately 95% of the

participants are Mexican American or of Mexican descendent (E. Reifsnider personal communication, May 2, 2013).

Rational for the Research Team

Principal investigator. The PI has research work experience and attained professional education to be an independent investigator. The PI has extensive knowledge about the Latino culture by having been born and raised in a Latino family. Starting as a research assistant and working up to research manager and working over 7 years with low-income Hispanic/Latina populations has given the PI the experience needed to engage in biomedical and social behavioral research. Research involvement includes: (1) Influenza Vaccine Coverage among Pregnant Women in a Public Hospital System During the 2009-2010 Pandemic Influenza Season (Coonrod, Jimenez, Sturgeon, & Drachman, 2012); (2) An International Randomized Trial of Planned Cesarean or Vaginal Delivery for Twin Pregnancy (Barrett et al., 2013) and (3) The Early External Cephalic Version (ECV) 2 Trial: An International Multicentre Randomized Controlled Trial of Timing of ECV For Breech Pregnancies (Hutton et al., 20011). As a member of the Latino community, the PI has firsthand knowledge of the Latino culture. She has direct interactions with Latinos from different countries of origin (e.g. Guatemalans, Peruvians, Mexicans, Colombians, Cubans, Dominicans, Puerto Ricans, Spaniards and Venezuelans). Also, the PI is fully bilingual, proficient in both English (professional) and Spanish (professional/native). In addition, the PI has a Human Subject Protection Certification in Biomedical Research as well as Social and Behavioral Research from the Collaborative Institutional Training Initiative (CITI) Course.

Volunteer data collectors. The VDC at MIHS was the research coordinator in the MIHS Obstetrics/Gynecology research department. This VDC is enrolled in a master's program at ASU, and has Human Subject Protection Certification. In addition, the VDC is of Latino descendent, has worked with the Latina population for approximately 4 years, was part of the recruitment team for the study Madres Para La Salud (Keller et al., 2011), and is bilingual (English and Spanish). The VDC at PCO-EFPG has received training as a Community Health Worker and is certified. In addition, this VDC has Human Subject Protection Certification. The VDC is bilingual (English and Spanish) has been working on the PCO-EFPG project for the past 2 years and has received additional research training from the PI at PCO-EFPG project (E. Reifsnider, personal communication, July 9, 2015).

Data Management and Analysis

Data Management

A study number and designated code according to the site name (e.g. MIHS-1, ASU-NPGC-1, and PCO-EFPG-1) was assigned to each participant in a consecutive order according to date and time of enrollment. Completed surveys were labeled with this code immediately after the survey was completed. After the study was completed, all documents were stored and will be stored for a minimum of 3 years according to Federal regulations (45 CRF 26) required for Social and Behavioral Sciences. Then, hard copy documents will be shredded and recycled, and electronic files will be deleted using commercial software specifically for this purpose. If any data are stored on portable data

devices, they will be physically destroyed. Finally, a written document that describes date and method used to destroy these documents will be created.

Data Analysis

Initially, data were analyzed for missing data and to identify outliers. Frequencies were employed to describe the sample as a whole. All data were analyzed utilizing SPSS version 20 (IBM Inc., Armonk, NY, USA). Significance was set at alpha of .05. Answers to preferences and personal characteristics were analyzed for participants from all three sites as a total sample. In addition, acculturation and cultural values were analyzed for PCO-EFPG site participants. After the data had been cleaned, the hypotheses were tested.

Chi-square. First, crosstabs were run without the exact test on the categorical variables. After that, the output was reviewed to determine sufficient cell size ($\geq 5\%$). When small cell sizes ($< 5\%$) were found, crosstabs were run again with the exact test. When the exact test failed to converge, it was necessary to collapse the categories until the cell sizes were resolved. This process allowed us to retain all the data for the analyses. This process was done for aims 1 to 3. Chi-Square was used to test the hypotheses from Aim 1 to Aim 3.

Logistic regression. Logistic regression analysis was utilized to determine whether acculturation and cultural values predict participants' PA preferences. A dummy code was assigned (0 or 1) for all dependent variables. Zero indicated the non-preference for PA, and one indicated the preference for PA. For instance, preference for walking was given 1, whereas no preference for walking was given 0. The likelihood or probability (low or high) of the observed results determined the effect of cultural values and

acculturation in PA preferences. Logistic regression was utilized to test the hypothesis for Aim 4.

Correlation statistics (Pearson r). Correlation statistics (Pearson r) was used to determine the relationships that existed between acculturation and cultural values. The correlation coefficient ranges from +1.00 through .00 to -1. A r = .00 indicated no relationships between the acculturation and cultural values, a +1.00 indicated a positive relationship between the two variables and a -1.00 indicated a negative relationship. Correlation statistics (Pearson r) was used to test the hypothesis for Aim 5.

These statistical tests were chosen because they were the best fit for the study and the study aims. Chi-Squared is a non-parametric measure used with categorical data, logistic regression is a parametric measure utilized to analyze binary variables, and correlation statistics (Pearson r) to measure the association between continuous variables. Data were analyzed and the study's findings are presented in Chapter 4.

CHAPTER 4. STUDY RESULTS

As stated in chapter one, the purpose of this study was to explore physical activity (PA) program characteristics preferred by low-income childbearing aged Latinas and the relationships of these characteristics with the participant's personal characteristics, cultural values, and acculturation. A secondary aim was to layout groundwork for the development of future tailored interventions that may help to increase PA participation and sustainability in the Latina population.

Participants' Personal Characteristics

Total sample. Overall, 74% of the Latina women were overweight, (BMI >24.9), almost three quarters (71%) were between 25 and 35 years of age, and 76% were foreign born Latinas. When it came to social and economic characteristics, the majority (72%) were married or living with a partner, more than half (61%) completed high school or had some education beyond high school, and over half (55%) had a family income less than $15,000. The great majority (90%) had children, and more than half (60%) had children aged 12 months and over. In synthesis, the typical Latina women participating in this investigation was overweight, between 25 to 35 years of age, was foreign born Latina, was married or had a partner, had completed high school or had some type of education beyond high school, had a family annual income less than $15,000, had children and the youngest child was 12 months of age or older as presented in Table 1.

MIHS-WCC. Several personal characteristics similar to the total sample were identified. The majority (71%) were overweight (BMI >24.9), 73% ranged in age between 25 to 35 years, and 77% were foreign born. In regard to their social and economic characteristics, almost three quarters (71%) were married or living with a

partner, three quarters (87%) had children and more than half (51%) of the participants

had a youngest child who was 12 months of age or older as shown in Table 1. Two

differences were identified: (1) Compared to the total sample, a higher number of the

participants in this site reported annual family income less than $15,000 (55% vs 64%)

and (2) 65% percent have achieved high school or some type of education beyond high

school compared to 61% of the total sample. In summary, a typical Latina in this site was

overweight, between 25 to 35 years of age, was foreign born Latina, was married or

living with a partner, had achieved high school or some type of education beyond high

school, had an annual family income less than $15,000, had children, and the youngest

child was 12 months old or older as presented in Table 1.

ASU-NPGC. Some characteristics similar to the total sample were identified at

this site. Almost three quarters (73%) of the women were between 25 to 35 years old,

59% had completed high school or some type of education beyond high school, 86% had

children and 79% had a youngest child who was 1 year of age or older (see Table 1).

Differences between the participants' characteristics at this site and the total sample were

also identified. Sixty percent of the Latinas were overweight (BMI >24.9), compared to

the (74%) of the total sample, most of the participants (90%) were foreign born,

compared to 76% of the total sample. Sixty three percent of the Latino women were

married or living with a partner compared with 71% of the total sample and almost three

quarters (76%) of the participants had an annual income less than $15,000 compared to

55% in the total sample (See Table 1). A typical Latina in this site was overweight,

between 25 - 35 years old, non - U.S born Latina, had a high school diploma or some

education beyond high school, was married was living with a partner, had an income less

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than $15,000, had children, and the youngest child was 12 months old or older as shown in table 1.

PCO-EFPG. Few similarities and several differences between this site and the total sample were identified, as was expected. The Latina women from the site #3 were recruited from Houston Texas. In regard to their similarities, the level of education was somewhat similar in which 59% had achieved high school and beyond compared to 61% of the total sample and 56% had a youngest child age 12 months or older compared to the total sample (59%), a total of 69% of the women were between the ages of 25 to 35, which is very close to the total sample (71%). In terms of the differences, the majority (97%) of the Latinas at this site were overweight compared to 74% of the total sample, 55% were non-U.S born Latinas compared to 76% in the total sample, and 82% were married/living with a partner compared to 72% of the total sample as presented in Table 1.

In addition, one hundred percent (100%) of the women in site# 3 had children compared to 90% of the total sample and more than three quarters (79%) had a family annual income higher than $15,000 compared to 38% in the total sample. A typical Latina at this site was between 25 and 35 years of age, foreign born, married or living with a partner, had a high school diploma or some education beyond high school, had a family income higher than $15,000, and had children with the youngest child being12 months or older as shown in Table1

Table 1

Participants' Personal Characteristics (N=275)

Variable	Total Sample (N= 275)* n (%)	MIHS (n= 100)* n (%)	ASU-NPGC (n= 100)* n (%)	PCO-EFPG (n=75)* n (%)
Age				
18 to 24 years of age	79 (29.0)	27 (27.0)	29 (32.0)	23 (31.0)
25 to 29 years of age	91 (33.0)	31 (31.0)	32 (36.0)	28 (37.0)
30 to 35 years of age	105 (38.0)	42 (42.0)	39 (43.0)	24 (32.0)
Marital Status				
Single/Widowed/Divorce/Separated	76 (28.0)	29 (29.0)	37 (37.0)	10 (13.0)
Married	97 (35.0)	32 (32.0)	36 (36.0)	29 (34.0)
Living with a partner	102 (37.0)	39 (39.0)	27 (27.0)	36 (48.0)
Origin				
Non U.S. Latina	208 (76.0)	77 (77.0)	90 (90.0)	41 (55.0)
U.S. Latina	67 (24.0)	23 (23.0)	10 (10.0)	34 (45.0)
Children				
Childless	21 (10.0)	6 (13.0)	14 (14.0)	0 (0.0)
Have Children	254 (90.0)	87 (87.0)	86 (86.0)	74 (100.0)
Family's annual Income				
<$15K	150 (55.0)	64 (64.0)	71 (76.0)	15 (21.0)
>$15K	105 (38.0)	26 (26.0)	23 (24.0)	56 (79.0)
Level of Education				
Some Elementary School and Some High School	106 (39.0)	35 (35.0)	40 (40.0)	31 (41.0)
High School and Beyond	168 (61.0)	65 (65.0)	59 (60.0)	44 (59.0)
Youngest Child's Age				
< 12 Months	93 (34.0)	42(45.0)	18 (21.0)	33 (44.0)
> 12 or Older	161 (59.0)	51 (55.0)	68 (79.0)	42 (56.0)
BMI				
Underweight	5 (2.0)	3 (3.0)	2 (2.0)	0 (0.0)
Normal	67 (24.0)	26 (26.0)	39 (39.0)	2 (3.0)
Overweight	201 (74.0)	71 (71.0)	59 (59.0)	71 (97.0)

*Numbers may not add up to the total due to occasional missing data

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Participants' Preferred Activities

Overall, the type of activity preferred by low-income Latino women (N=258) to participate in a PA program are: (1) Sixty percent (60%) preferred dancing, (2) twenty percent (20%) preferred walking/jogging, and (3) twenty percent (20%) preferred PA education. The type of activity preferred based on the participant's demographics (age, marital status and country of origin) and social and economic characteristics (marital status, family education annual income, and education) by this group of Latinas was identified as follows: Dancing was somewhat equally preferred by the three groups' age (18 to 24 [60%], 15 to 29 [55%] and 30 to 35 [66%]) as shown in Table 2. Participants between 18 to 24 years of age indicated preferences for PA education (24%) over walking/jogging (16%), women between the ages of 25 to 29 years also preferred PA 26% classes versus walking/jogging 20%. However, women between 30 to 35 years old favored walking/jogging (22%) over PA education (11%). Compared to foreign born Latinas (59%), U.S. born Latinas preferred dancing (64%). U.S born Latinas (28%) preferred PA education compared to walking (13%) and foreign born Latinas were nearly equally divided between walking (22%) versus PA education (19%). Participants' activity preferences based on BMI categories were somewhat different. Underweight Latinas representation was very small (3%). Although the underweight Latinas are a very small percentage of the total, it is important to report that they differ in preferences. Fifty percent (50%) of them preferred walking/jogging while the other 50% was equally divided between dancing (25%) and PA education (25%). In addition, more than half of

the Latina women with normal weight preferred dancing (54%); however, 29% preferred PA education over walking (17%) as shown in Table 2

Furthermore, Dancing was preferred by the single/widowed/divorce/separated group [59%], married [59%] and living with a partner [63%]). Also, single/widowed/divorce/separated Latina women were more interested in walking (22%) than PA education (19%). Similar results were identified for married Latinas who also preferred walking (22%) over PA education (20%). However, Latina women living with a partner preferred PA education (20%) rather than walking (16%). In addition, regardless of the family's annual income, Latinas preferred dancing: sixty percent by those whom the annual income is less than $15,000 63% by those whom the annual family income is equal or more than $15,000 (22%) compared to PA activities (20%) and twenty one percent of the Latinas with family income over $15,000 preferred PA education over walking (17%) as presented in Table 2.

Parity status did not change the Latinas' preference for dancing (55%, 61% respectively). However, childless Latinas preference for PA education (36%) was four times higher than walking (9%). In addition, the age of the youngest child did not change the Latinas' preference for dancing. Fifty six percent of the Latinas who had the youngest child less than 12 months old preferred dancing, followed by walking (29%) and PA education (15%). Similar results were observed in Latinas who had a child 12 months old or older as they preferred dancing (63%), walking (20%) and PA education (17%). Regardless of the participants' personal characteristics, this group of Latinas preferred dancing more than walking. Surprisingly, preference for PA education over preference

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for walking were somehow similar among this sample population, except for the

overweight Latinas who chose, walking (54%) and PA education [16%] (see Table 2).

Table 2

Participants' Preferred Activity

Variable	Walking/ Jogging %	Dancing %	PA Education %
Age			
18 to 24 years of age	16.2	59.5	24.3
25 to 29 years of age	19.8	54.7	25.6
30 to 35 years of age	22.4	66.3	11.2
Marital Status			
Single/Widowed/Divorce/Separated	22.1	58.8	19.1
Married	21.7	58.7	19.6
Living with a partner	16.3	63.3	20.4
Origin			
Foreign born Latina	21.8	59.4	18.8
U.S. born Latina	13.1	63.9	27.5
Children			
Childless	9.1	54.5	36.4
Have Children	20.9	61.3	17.9
Family's Annual Income			
<$15K	21.6	58.1	20.3
≥$15K	16.7	62.7	20.6
Education			
Some Elementary School and Some High School	20.6	59.8	19.6
High School and Beyond	19.4	60.6	20.0
Youngest Child's Age			
< 12 Months	29.1	56.4	14.5
≥12 or Older	19.6	63.4	17.0
BMI			
Underweight	50.0	25.0	25.0
Normal	16.9	53.8	29.2
Overweight	53.8	64.2	15.5

Note. * Numbers may not add up to the total due to occasional missing data

Aims/Hypothesis and Corresponding Findings

Initially, chi-square statistics were computed for aim one. After reviewing the results it was clear that some crosstabs had small cell sizes. A second analysis was run, this time including the Exact Test. Most of the small cells issues were solved; nevertheless, the Exact Test failed to run for some of the characteristics; it was necessary to collapse it into new categories. For example, initially, income had four categories then it was collapse into two categories (less than 15,000 and 15,000 and over). A similar procedure was done for aims 2 and 3.

Aim 1

Aim one explored relationships between study participants' personal characteristics (age, marital status, country of origin, children, family annual income, level of education, and youngest child's age) and participants' preferred PA program characteristics (type of activity, type of music, time of the day, day of the week, times per week, minutes per session, and number of months preferred to participate in the PA program).

Hypothesis 1. Participants' age will be associated with the preferred PA program characteristics. Age was significantly associated with the time of the day the Latino women preferred to attend a PA program ($\chi^2 =15.78$, $p = .015$). Eighty six present between the ages of 18 to 29 years old preferred evenings, and 43% aged 30 - 35 preferring mornings (see Table 3). The difference among participants toward the afternoon as the time of the day less preferred to participate in a PA program could also drive this association. No association between participants' age and other preferred PA

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Table 3

Physical Activity Preferred by Age

Age	18 to 24	25 to 29	30 to 35		
Variable	%	%	%	χ^2	*p*
Type				**7.75**	**.101**
Activity					
Walking/Jogging	16.2	19.8	22.4		
Dancing	59.5	54.7	66.3		
PA education	24.3	25.6	11.2		
Music				**3.12**	**.794**
Salsa	8.2	8.2	8.1		
Zumba	24.7	17.6	26.3		
Different/other	38.4	44.7	43.4		
Zumba and Salsa	28.8	29.4	22.2		
Timing					
Time of the day				**15.78**	**.015** *
Morning	21.6	34.1	43.4		
Noon	17.6	20.0	14.1		
Afternoon	14.9	5.9	3.0		
Evening	45.9	40.0	39.4		
Day of the week				**3.89**	**.692**
Saturday	10.8	11.6	7.1		
Sunday	2.7	1.2	3.0		
Saturday and Sunday	4.1	5.8	2.0		
Weekdays	82.4	81.4	87.9		
Times per week				**1.65**	**.949**
One	14.9	15.3	12.2		
Two	24.3	20.0	27.6		
Three	37.8	41.2	38.8		
More than three	23.0	23.5	21.4		
Length of the sessions					
Minutes per session				**5.16**	**.272**
30 minutes	13.5	22.9	11.2		
45 minutes	27.0	24.1	25.5		
60 minutes	59.5	53.0	63.3		
Number of Months				**5.50**	**.240**
Three months	.0	1.0	.0		
Five Months	37.8	43.0	30.3		
Six months	62.2	55.8	69.7		

*p<.05; **p<.01; ***p<.001

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program characteristic were identified. Age was not associated with type of activity ($\chi2 =$ 7.75, p = .101, type of music ($\chi2 = 3.12$, p = .794), days of the week ($\chi2 = 3.89$, p = .692), times per week ($\chi2 = 1.65$, p = .949), length of the sessions ($\chi2 = 5.16$, p = .272) or number of months ($\chi2 = 5.50$, p = .240), as shown in Table 3.

Hypothesis 2. Participants' marital status will be associated with the preferred PA program characteristics. Marital status was associated with one preferred PA program characteristics; times per week ($\chi^2 = 15.899$, $p = .014$). The preference for three times per week Latinas living with a partner (40%), married (34%), and single/widowed/divorce/separated (47%). The driving force of this preference seems to be found in the groups' differences about their preferences for a PA program to be held more than three times per week. Single/widowed/divorce/separated (10%) preferred more than three times per week compared to 34% for those married, and 31% for those living with a partner. Marital status was not associated with other Latinas preferred PA program characteristics: type of activity ($\chi^2 = 1.19$, $p = .881$), type of music ($\chi^2 = 9.437$, $p = .151$), time of the day ($\chi^2 = 9.268$, p = .159), day of the week ($\chi^2 = 3.043$, p = .821), length of the sessions ($\chi^2 = 4.215$, $p = .381$), and number of months ($\chi^2 = 7.257$, $p = .075$) as shown in Table 4).

Hypothesis 3. Latinas' country of origin will be associated with the preferred PA program characteristics. A strong relationship ($\chi^2 = 29.76$, $p = .001$) between country of origin and type of music preferred. The largest difference was found in participants' preference for Zumba and Salsa, with only 18% foreign born Latinas preferring Zumba and Salsa compared to U.S. born Latinas (53%).

Table 4

Physical Activity Program Preferred by Marital Status (N= 275)

Variable	Single/ Divorced arated/ owed %	Married %	Living with a Partner %	χ²	†p
Type					
Activity				1.19	.881
Walking/Jogging	22.1	21.7	16.3		
Dancing	58.8	58.7	63.3		
PA education	19.1	19.6	20.4		
Music				9.437	.151
Salsa	11.8	7.6	6.2		
Zumba	27.9	21.7	20.6		
Different/other	47.1	41.3	40.2		
Zumba and Salsa	13.2	29.3	33		
Timing					
Time of the day				9.268	.159
Morning	27.5	42.4	30.9		
Noon	13	16.3	20.6		
Afternoon	11.1	3.3	8.2		
Evening	47.8	38	40.2		
Day of the week				3.043	.821
Saturday	10.1	9.8	9.2		
Sunday	4.3	1.1	2		
Saturday and Sunday	5.8	3.3	3.1		
Weekdays	55	79	84		
Times per week				15.899	.014*
One	21.7	11.1	11.2		
Two	21.7	31.1	19.4		
Three	46.5	34.4	38.8		
More than three	10.1	34.4	30.6		
Length of the sessions					
Minutes per session				4.215	.381
30 minutes	11.8	13.5	20.4		
45 minutes	30.9	27	20.4		
60 minutes	57.4	59.6	59.2		
Number of Months				7.257	.075
Three months	1	.0	.0		
Five Months	31	35	29		
Six months	37	57	70.4		

*p<.05;   **p<.01;   ***p<.001   †p = Exact test

(48%) of foreign born Latinas preferred different/other type of music compared to 23% of U.S. born Latino women, and foreign born Latinas (24%) chose Zumba compared to U.S. born Latinas (18%). In addition, country of origin was highly associated with time of the day preferred ($\chi^2 = 16.69$, $p = .001$). Foreign born Latinas preferred to attend a PA program during the morning compared to U.S. born Latinas (40% versus 15%). Five percent of foreign born Latina preferred the PA education to be held in the afternoon compared to 15% of U.S. born Latinas. Foreign born Latinas (39%) preferred evenings compared to U.S born Latinas (49%). Country of origin was also associated with times per week preferred ($\chi^2 = 8.14$, $p = .043$). The relationship seems to be driven by the participants' differences about their preference for 2 times per week, with 27% of the foreign born preferring 2 times compared to 15% for U.S born Latinas. Also, fewer foreign born Latinas (19%) preferred more than 3 times per week compared to U.S. born Latinas (34%). Country of origin was not associated with the type of activity preferred ($\chi^2 = 2.36$, $p = .308$), the day of the week preferred ($\chi^2 = 1.65$, $p = .662$), the length of the sessions ($\chi^2 = .96$, $p = .618$), or the number of months ($\chi^2 = .44$, $p = .082$) as presented in Table 5.

Hypothesis 4. Parity status (having or not children at home) will be associated with the preferred PA program characteristics. Parity status was borderline significant ($\chi^2 = 5.09$, p = .066) and associated with type of activity preferred. More than half (55%) of Latinas who are childless and 61% of Latinas who had children preferred dancing. Parity status was highly associated ($\chi2 = 13.34$, p = .004) with the type of music preferred. Both groups, childless Latino women (46%) and Latinas who had children (42%) preferred

Table 5

Preferred Physical Activity Program Characteristics by Country of Origin (N=275)

Variable	Foreign born Latina %	U.S. born Latina %	χ^2	p	
Type					
Activity			**2.36**	**.308**	
Walking/Jogging	21.8	13.1			
Dancing	59.4	63.9			
PA education	18.8	27.5			
Music			**29.76**	**.000**	***
Salsa	9.1	5.0			
Zumba	24.4	18.3			
Different/other	48.2	23.3			
Zumba and Salsa	18.3	53.3			
Timing					
Time of the day			**16.69**	**.001**	***
Morning	40.1	14.8			
Noon	15.7	21.3			
Afternoon	5.1	14.8			
Evening	39.1	49.2			
Day of the week			**1.65**	**.662**	†
Weekdays	10.2	8.1			
Saturday	2.0	3.2			
Sunday	4.6	1.6			
Saturday and Sunday	83.2	87.1			
Times per week			**8.14**	**.043**	*
One	13.8	14.8			
Two	27.0	14.8			
Three	40.3	36.1			
More than three	18.9	34.4			
Length of the sessions					
Minutes per session			**.96**	**.618**	
30 minutes	15.0	17.7			
45 minutes	26.9	21.0			
60 minutes	58.0	61.3			
Number of Months			**.44**	**.820**	†
Three months	**1.0**	**0.0**			
Five Months	36.0	38.7			
Six months	63.5	61.3			

*p<.05; **p<.01; ***p<.001   † p = Exact test

different/other music. Zumba was preferred by childless Latino women (32%) and Zumba/Salsa preferred by Latinas who had children (29%) as shown in Table 6.In addition, parity status was also associated with the day of the week preferred ($\chi^2 = 9.41$, $p = .031$). The great majority preferred a PA program during weekdays. Latinas who had children (86%) and Latinas who were childless (64%); this could be explained by the low number of participants who preferred Saturdays (18% and 9% respectively) see Table 6. In addition, parity was associated with times per week ($\chi^2 = 10.86$, $p = .012$). Childless Latino women (41%) and Latinas with children (39%) preferred a PA program that offers 3 sessions per week. Also, 32% of childless Latinas preferred one time per week compared to Latinas with children (12%). Parity status was not associated with time of the day ($\chi^2 = 2.67$, $p = .456$), minutes per session preferred ($\chi^2 = 2.32$, $p = .314$), or the number of months ($\chi^2 = 3.30$, $p = .181$) as shown in Table 6.

Hypothesis 5. Participants' annual family's income will be associated with the preferred PA program characteristics. Significant associations between annual family income and preferred PA program characteristics to participate in a PA program were identified in almost three quarters (71%) of the categories. Income was highly associated with type of music Latinas preferred to dance to during a PA program ($\chi^2 = 55.462$, $p = .001$). Latino women with an annual family income less than $15,000 reported higher preference for different/other type of music (52%) and Latinas with an annual family income higher than $15,000 preferred Zumba and Salsa (51%). Only 9% of Latinas who had an annual family income less than $15,000 preferred Zumba and Salsa and only. 30%

Table 6

Physical Activity Program Preferred by Parity (N=275*)

	Childless %	Have Children %	χ²	p	
Type					
Activity			**5.09**	**.066**	†
Walking	9.1	20.9			
Dancing	54.5	61.3			
PA education	36.4	17.9			
Music			**13.34**	**.004**	***
Salsa	22.7	6.8			
Zumba	31.8	22.2			
Different/other	45.5	42.3			
Zumba and Salsa	0.0	28.6			
Timing					
Time of the day			**2.67**	**.456**	†
Morning	36.4	34.0			
Noon	4.5	17.9			
Afternoon	9.1	7.2			
Evening	50.0	40.9			
Day of the week			**9.41**	**.031**	**†
Saturday	18.2	8.9			
Sunday	9.1	1.7			
Saturday and Sunday	9.1	3.4			
Weekdays	63.6	86.0			
Times per week			**10.86**	**.012**	**†
One	31.8	12.4			
Two	27.3	23.9			
Three	40.9	39.3			
More than three	0.0	24.4			
Length of the sessions					
Minutes per session			**2.32**	**.314**	
30 minutes	4.5	16.8			
45 minutes	27.3	25.4			
60 minutes	68.2	57.8			
Number of Months			**3.30**	**181**	†
Three months	0.0	0.4			
Five Months	54.5	35.2			
Six months	45.5	64.4			

*p<.05;   **p<.01; ***p<.001   † p = Exact test

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of Latinas with annual family income equal or greater than \$15,000 preferred different/other as presented in Table 7.Further, annual family income was associated with time of the day, day of the week and times per week preferred for participating in a PA program. A significant association between time of the day and income ($\chi^2 = 8.897$, $p = .031$) was identified. Latinas with an annual family income less than \$15,000 preferred mornings (40%), noon (42%) and evenings (43%). Time of the day preferred varied also among the Latinas with annual family income equal or greater than \$15,000. However, almost half (41%) preferred evenings. The day of the week was also significant ($\chi^2 = 8.563$, $p = .030$). An overwhelming preference for weekdays as the day of the week preferred to participate in a PA program by both annual family income Latinas groups was identified; Latino women who had an annual family income less than \$15,000 (80%) and Latinas with an annual family income equal or greater than \$15,000 (90%) as shown in Table 7.

In addition, annual family income was associated with times per week preferred ($\chi^2 = 36.858$, p = .001). Latinas with an annual family income less than \$15,000 preferred 3 times per week (42%) fallowed by 2 times per week (33%). Latinas with an annual income equal or greater than \$15,000 endorsed more than three times per week (39%) and three times per week (38%). Moreover, annual family income was associated with number of months preferred as a length of time to participate in a PA program ($\chi^2 = 10.902$, p = .020). Among the Latinas with an annual family income less than \$15,000, 55% preferred 6 months and 45% favored five months. However, almost three quarters (74%) of Latinas with an annual family income greater than \$15,000 (73%) preferred six

Table 7

Physical Activity Program Preferred by Family's Annual Income (N=275)

Variable	<$15K %	≥ $15K %	χ²	p	
Type					
Activity			.976	.614	
Walking/Jogging	21.6	16.7			
Dancing	58.1	62.7			
PA education	20.3	20.6			
Music			**55.462**	**.000**	***
Salsa	8.8	7.8			
Zumba	30.6	11.8			
Different/other	51.7	30.4			
Zumba and Salsa	8.8	50.5			
Timing					
Time of the day			**8.897**	**.031**	*
Morning	39.9	26.5			
Noon	41.5	22.5			
Afternoon	6.1	9.8			
Evening	42.6	41.2			
Day of the week			**8.563**	**.030**	*†
Saturday	10.1	8.7			
Sunday	3.4	1			
Saturday and Sunday	6.1	0			
Weekdays	80.4	90.3			
Times per week			**36.858**	**.000**	***
One	16.3	10.8			
Two	32.7	11.08			
Three	41.5	38.2			
More than three	9.5	39.2			
Length of the sessions					
Minutes per session			**.491**	**.782**	
30 minutes	17.1	14.9			
45 minutes	23.3	26.7			
60 minutes	59.6	58.4			
Number of Months			**10.902**	**.020**	*†
Three months	0	1			
Five Months	44.6	25.2			
Six months	55.4	73.8			

*p<.05;   **p<.01; ***p<.001   † p = Exact test

months. Annual family income was not associated with type of activity ($\chi 2 = .976$, p = .614) or minutes per session ($\chi 2 = .941$, p = .782) as presented in Table 7.

Hypothesis 6. Participants' educational level will be associated with the preferred PA program characteristics. Latino women's level of education was associated with day of the week preferred to participate in a PA program ($\chi^2 = 8.287$, $p = .035$). Eighty percent of the Latino women who had some elementary or high school and 87% of the Latinas who had high school or beyond preferred weekdays. Eight percent (8%) of the participants who had some elementary/high school preferred Saturdays and Sundays versus the 1% of the participants who had high school or beyond, which endorsed this option. Educational level was not associated with a Latino women's preferences for activity preferred ($\chi^2 = .590$, $p = 0.971$), music ($\chi^2 = .876$, $p = .831$), time of the day ($\chi^2 = 2.790$, $p = .425$) times per week ($\chi^2 = 4.890$, $p = .180$), minutes per session ($\chi^2 = 1.058$, $p = .589$), and number of months per session, ($\chi^2 = .710$, $p = 0.870$) as shown in Table 8

Hypothesis 7. Participants' youngest child's age will be associated with the preferred PA program characteristics. The age of the youngest child was highly associated with type of music preferred by the Latino women ($\chi^2 = 12.932$, $p = .005$). Latinas who had a child younger than 12 months favored different/other type of music (54%) than Latinas who had a youngest child age 12 months or older (46%). This relationship was driven by the low preference for Zumba and Salsa (4%) of the Latinas with children younger than 12 months old versus 25% by those with the youngest child' age was 1 months or older. Also, a difference for Salsa was identified, where 13% of Latinas with a

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Table 8

Physical Activity Program Preferred by Educational Level (N=275)

	Some Elem-Some High School	High School or Beyond	χ²	p
	%	%		
Type				
Activity			.590	.971
Walking/Jogging	20.6	19.4		
Dancing	59.8	60.6		
PA education	19.6	20.0		
Music			.876	.831
Salsa	7.1	8.9		
Zumba	20.4	24.1		
Different/other	43.9	41.8		
Zumba and Salsa	28.6	25.3		
Timing				
Time of the day			2.790	.425
Morning	32.0	35.6		
Noon	18.6	16.3		
Afternoon	4.1	8.8		
Evening	45.4	39.4		
Day of the week			8.287	.035 *†
Saturday	9.2	10.0		
Sunday	3.1	1.9		
Saturday and Sunday	8.2	1.3		
Weekdays	79.6	86.9		
Times per week			4.890	.180
One	15.3	13.3		
Two	28.6	21.5		
Three	30.6	44.3		
More than three	25.5	20.9		
Length of the sessions				
Minutes per session			1.058	.589
30 minutes	18.8	13.9		
45 minutes	24.0	25.9		
60 minutes	57.3	60.1		
Number of Months			.710	.870 †
Three months	0.0	0.6		
Five Months	37.8	57.0		
Six months	62.2	63.7		

*p<.05; **p<.01; ***p<.001   † p = Exact test

child younger than 12 months old preferred salsa versus 6% of Latinas whose youngest

child's age was 12 months or older. In contrast, the child's age was not associated with the rest

of PA program characteristics preferred by the Latino. Type of activity ($\chi2$ =2.219, p

= .347), time of the day ($\chi2$ = 4.384, p = .127), day of the week ($\chi2$ = 5.631, p = .127), times per

week ($\chi2$ = 7.101, p = .069), length of the sessions ($\chi2$ =d1.700, p =.427), or number of months

($\chi2$ =2.819, p = .371) as shown in Table 9.

Table 9

Physical Activity Program Preferred by Youngest Child's Age (N=275)

	Child's Age				
	0-12 Months	12 Months or Older			
	%	%	X^2	*p*	
Type					
Activity			2.119	.347	
Walking	29.1	19.6			
Dancing	56.4	63.4			
PA education	14.5	17			
Music			12.932	.005	**†
Salsa	13.0	5.9			
Zumba	29.6	23.5			
Different/other	53.7	45.8			
Zumba and Salsa	3.7	24.8			
Timing					
Time of the day			4.384	.221	
Morning	43.6	35.1			
Noon	7.3	18.8			
Afternoon	7.3	5.8			
Evening	41.8	40.3			
Day of the week			5.631	.127	†
Saturday	9.1	10.4			
Sunday	1.8	1.9			
Saturday and Sunday	9.1	1.9			
Weekdays	80.0	85.7			
Times per week			7.101	069	†
One	18.5	12.4			
Two	35.2	23.5			
Three	37	41.2			
More than three	9.3	22.9			
Length of the sessions					
Minutes per session			1.700	.427	
30 minutes	21.2	13.7			
45 minutes	26.9	27.5			
60 minutes	51.9	58.8			

	Child's Age				
	0-12 Months	12 Months or Older			
	%	%	χ^2	p	
Number of Months			2.819	.371	†
Three months	0.00	0.6			
Five Months	47.3	35.1			
Six months	52.7	64.3			

*p<.05; **p<.01; ***p<.001   † p = Exact test

Aim 2

Aim two explored the relationship between the type of activity performed by the Latino women (N=275) at the time of enrollment and their preferred activity.

Hypothesis. Significant differences in PA currently performed and type of activity preferred will be identified. Study results showed a significant difference between participants who were either walking/jogging, dancing or were not physically active at the moment they participated in this study compared to their activity preferred ($\chi^2 = 27.564$, $p = .001$). Out of 124 Latinas who were walking/jogging, 61 preferred dancing compared to 36 who preferred walking/jogging. That means that 25 of the participants are walking/jogging even though what they want to do as PA is dancing. In addition, more than a quarter (27) of the Latinas preferred PA education. Out of 23 Latinas who were dancing, 19 endorsed dancing, 2 favored walking and 2 endorsed dancing. Interestingly, out of 110 Latino women who were not currently performing any type of activity, more than three quarter (76) selected dancing as the type of activity they preferred to participate in a PA program, followed by 22 who preferred PA education and only 13 endorsed walking as presented in Table 10.

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Table 10

Physical Activity Currently Performed vs. Activity Preferred (N=257)

	Activity Preferred			
	Walking/ Jogging	Dancing	PA education	Total
Activity Performed	n	n	n	n
Walking/Jogging	36	61	27	124
Dancing	2	19	2	23
None	13	76	22	111
Total	51	156	51	258

Aim 3

Aim three explored the relationship between Body Mass Index (BMI) of study participants and their preferred PA program characteristics.

Hypothesis. Participants' BMI categories will be associated with preferred PA program characteristics. BMI categories were associated with type of music, times per week and number of months preferred by this group of Latino women. BMI was highly associated with type of music ($\chi^2 = 37.575$, $p = .001$), as shown in Table 11. Overweigh/obese Latinas preferences were somehow divided in two groups 38% preferred different music/other and 34% preferred Zumba and Salsa. Latinas of normal weight (54%) also preferred different/other music fallowed by 25% who preferred only Zumba. One hundred percent of the underweight Latinas preferred different/other music.

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Table 11

Physical Activity Program Characteristics Preferred by BMI (N=275)

	Underweight %	Normal %	Overweight %	χ^2	†*p*	
Type						
Activity				8.648	.075	
Walking/Jogging	50.0	16.9	20.3			
Dancing	25.0	53.8	64.2			
PA education	25.0	29.2	15.5			
Music				37.575	.000	***
Salsa	.0	18.5	4.8			
Zumba	.0	24.6	23.1			
Different/other	100.0	53.8	37.6			
Zumba and Salsa	0.0	3.1	34.4			
Timing						
Time of the day				5.757	.438	
Morning	50.0	34.0	34			
Noon	0.0	9.0	20			
Afternoon	0.0	9.0	7			
Evening	50.0	48.0	39			
Day of the week				11.924	.099	
Saturday	50.0	13.8	7.4			
Sunday	0.0	0	3.2			
Saturday and Sunday	0.0	4.6	3.7			
Weekdays	50.0	81.5	85.6			
Times per week				24.776	.001	***
One	50.0	21.5	10.8			
Two	0.0	32.3	22			
Three	50.0	41.5	38.2			
More than three	.0	4.6	29			
Length of the sessions						
Minutes per session				8.133	.087	
30 minutes	0.0	12.3	17.4			
45 minutes	75.0	32.3	22.3			
60 minutes	25.0	55.4	60.3			
Number of Months				12.856	.018	*†
Three months	.0	1.5	.0			
Five Months	50.0	52.3	31.4			
Six months	50.0	46.2	68.6			

*p<.05; **p<.01; ***p<.001   † p = Exact test

Latinas' low preference for Salsa was also found with 19% normal weight, 19% normal weight and 5% overweight/obese Latinas. Latinas' BMI was associated with times per week to participate in PA ($\chi2$ =24. 776, p = .001). Latino women who had normal weight (42%) preferred three times and two times (32%), overweight/obese Latinas (38%) preferred three times and 29% endorsed more than three times. Number of months were also significant ($\chi2$ = 12.856, p = .018). More than half (69%) of overweight/obese Latinas preferred six months as the duration of a PA program. Normal weight Latinas 52%) preferred five months. Fifty percent of the underweight/obese Latinas preferred five months and the other 50% preferred six months.

Moreover, BMI was associated with the number of months the Latino women would prefer to participate in a PA program ($\chi2$ =12.856, p =.018). Five month PA program duration was preferred by Latino women as follow: underweight (50%), normal weight (52%) and overweight/obese (31%); whereas six months PA program duration was preferred by underweight (50%), normal weight (46%) and overweight/obese (68%). On the other hand, BMI was not associated with type of activity (χ^2 =8.48, p = .075), time of the day (χ^2 = 5.757, p = .438), day of the week (χ^2 =11.924, p = .099), and minutes per session (χ^2 = 8.133, p = .087) as presented in Table 11.

In chapter three, a description of the method utilized to calculate acculturation was explained. To summarize, the Brief ARSMA-II, at the linear level, places individuals among five levels of acculturation according to the respondents' answers. These levels are presented in table 12

Table 12

Acculturation Categories From Brief ARSMA-II

Linear Level	Categories
Very Mexican Oriented (VMO)	< −1.33
Mexican Oriented or Balanced Bicultural (MO/BB)	>=-1.33 & = -0.07
Slightly Anglo Oriented Bicultural (SAOB)	> -0.07 & < 19
Very Anglo Oriented Bicultural (VAOB)	>= 1.19 & < 45
Assimilated/ Anglicized (AA)	> 2.45

Aim 4

Aim four determined the influences of acculturation and cultural values on preferred PA program characteristics by participants at site 3 (PCO-EFPG).

Hypothesis. Acculturation and cultural values independently predict participants' preferred PA program characteristics

Walking. A significant overall model was identified for walking as the PA program preferred with cultural values and acculturation as predictors ($\chi2 = 8.833$, *p* =.032). One's mainstream cultural value had a significant and positive association with preferring walking (Odds=1.338, p = .017); the higher one's mainstream score the more likely they will prefer walking. The term mainstreams values refers to the American values. This terminology was utilized in focus groups by the investigators who developed the Mexican American Cultural Value scale to motivate discussion among the study

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participants (Knight, et al. 2010). Acculturation and Mexican American cultural values were not predictive of the preference for walking as shown in Table 13.

Dancing. A significant overall model was present for preferring dancing as the PA program cultural values and acculturation as predictors ($\chi2 = 8.894$, $p = .031$). Acculturation level was negatively related to dancing (Odds=.702, $p = .023$). The more acculturated one is the less likely one will prefer dancing. In contrast to acculturation level, the cultural values of Mexican American and mainstream were not related to a preference for dancing.

PA Education. The overall model for preference for PA education based on cultural values was not significant ($\chi2 = 5.405$, $p = .144$). Though, acculturation had a significant positive association with the preference for PA education (Odds = 1.412, $p = .037$); cultural values did not. In summary, the more one was acculturated, the more likely one would prefer PA education.

Music. Among the type of music preferred, the only category endorsed by the Latino women was Zumba and Salsa. Acculturation was not predictive of the type of music preferred. In addition, Mexican American values and mainstream values were not predictive of the type of music preferred.

Timing. A significant overall model existed for afternoon as the PA program preferred time and cultural values and acculturation as predictors ($\chi2 = 7.844$, p = .049).

Acculturation was predictive of Latino women's preferences to participate in PA program in the afternoon (Odds = 1.670, $p = .018$). The more one was acculturated the higher the likelihood one preferred afternoons to participate in PA program. Also, a

significant logistic model was found for preferring evenings ($\chi2 = 8.970$, $p = .03$). Mainstream values were negatively predictive of evenings as the time of the day preferred (Odds = .913, $p = .029$). Latino women with higher scores on the mainstream values scale were less likely to prefer evenings. Mexican American cultural values were not predictive of the time of the day preferred by the Latino women as presented in Table 13.

No significant logistic models for times per week was identified. However, Mexican American cultural values approached positive predictability for three times a week as the preference (Odds = 1.071, $p = .068$); high scores on the Mexican American cultural values scales were associated with a high likelihood of preferring three times a week. Also, a borderline negative predictability for Mexican American cultural values and preferences for more than three PA program sessions a week (Odds = .933, $p = .054$); Latinas with high scores on the Mexican American cultural scale were less likely to prefer more than three times a week as shown in Table 13.

Length. While the overall model for preferring 30 minutes was not significant ($\chi2 = 6.266$, $p = .101$) a significant positive prediction existed for Mexican American cultural values (Odds = 1.090, $p = .049$). Stronger Mexican American cultural values were associated with a greater likelihood of preferring 30 minutes. Acculturation, Mexican American cultural values, and mainstream values were not predictive of the preference for the number of months preferred by this group to participate in a PA program as presented in Table 13.

Aim 5

Aim five determined the relationships between Mexican American cultural values and acculturation of the Latino women at site 3 (PCO-EFPG).

Hypothesis. Participant's acculturation level will be associated with their cultural values. It was identified that cultural values and acculturation were related to traditional gender role (TGR) and material success. Acculturation level was negatively associated with TGR ($r = -.362, p = .001$). As the Latinas become more acculturated, they tended to give TGR less importance than those Latinas who were less acculturated. In addition, a positive relationship was observed between cultural values with Mexican oriented Latinas ($r = .246, p = .003$). The Latinas with high Mexican oriented values were inclined to give TGR higher importance. TGR was negatively predictive of Anglo oriented Latinas ($r = -.37, p = .001$). As the Latinas became more Anglo oriented, they rated TGR lower. In regard to material success, acculturation was also negatively predictive ($r = -.297, p = .01$). As acculturation in these Latinas women increased, material success value decreased. In addition American oriented acculturation scores were negatively correlated with material success ($r = -.318, p = .005$); the more the Latina became American oriented, the lower they tended to rate material success as presented in Table 14.

In general, acculturation was not correlated with (a) familism: ([support: $r = -.052, p = .657$]; [Obligation: $r = .028, p = .810$]; and [referent: $r = .050, p = .670$]); (b) respect, ($r = .050, p = .670$); (c) religion ($r = .174, p = .135$); (d) independence and self-reliance, ($r = -.045, p = .699$) and (e) competition and personal achievement ($r = -.045, p = .699$). Acculturation of Mexican Oriented Latinas was not correlated with (a) familism:

([support: r = .083, p = .479]; [Obligation: r = .040, p = .731]; [referent: r = .026, p = .826]; (b) respect, r = .037, p = .754; c) religion (r = -.122, p = .295); (d) independence and self-reliance, (r = .099, p = .397) and (e) competition and personal achievement (r = .099, p = .397). In addition, acculturation of American oriented Latinas was not correlated with (a) familism: ([support: r = -0.019, p = .871]; [Obligation: r = -.014, p = .907]; [referent: r = .094, p = .421]; (b) respect, r = -.060, p = .611; c) religion (r = .175, p = .134); (d) independence and self-reliance, (r = .003, p = .979) and (e) competition and personal achievement (r = .003, p = .979), as presented in Table 14.

Table 13

PA Program Characteristics Preferred by Linear Acculturation (Brief ARSMA II) & Cultural Values (MACVS), PCO-EFPG, (n= 75)

Variable	Linear Acculturation (ARSMA)			Mexican American (MACVS)			Mainstream (MACVS)		
	b	OR	*p*	b	OR	*p*	b	OR	*p*
Type									
Activity									
Walking/Jogging	.850	1.088	.775	-.061	.940	.313	.291	1.338	.017*
Dancing	-.353	0.702	.023*	-.010	.990	.745	-.081	0.922	.076
PA education	.345	1.412	.037*	.028	1.028	.435	.018	1.018	.695
Music									
Zumba and Salsa	.115	1.122	.759	.089	1.094	.365	-.111	.335	.895
Timing									
Time of the day									
Morning	-.333	.717	.088	-.013	.718	.987	.013	1.013	.802
Noon	-.257	.773	.063	-.048	.953	.095	.050	1.051	.195
Afternoon	.513	1.670	.018*	.021	1.021	.620	.067	1.070	.240
Evening	.215	1.240	.130	.055	1.056	.094	-.092	.913	.029*
Day of the week ^Ø									
Times per week									
One ^Ø									
Two	.229	1.257	.44	.026	1.026	.699	-.024	.976	.773
Three	.143	1.153	.328	.068	1.071	.068	-.067	.935	.136
More than three	-.186	.83	.189	-.069	0.933	.054	.068	1.07	.116

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Table 13 (cont.)

PA Program Characteristics Prediction by Cultural Values and Linear Acculturation, (MACVIS) PCO-EFPG, (n= 75), cont.

Variable	Linear Acculturation (ARSMA)			Mexican American (MACVS)			Mainstream(MACVS)		
	b	OR	*p*	b	OR	*p*	b	OR	*p*
Length of the sessions									
Minutes per session									
30 minutes	-.041	.96	.796	.086	1.090	.049*	-.019	.981	.696
45 minutes	.297	.297	.098	-.015	.985	.661	.022	1.023	.644
60 minutes									
Number of Months									
Five Months	.248	1.282	.190	-.002	.998	.960	-.036	.965	.470
Six months	-.248	.780	.190	.002	1.002	.960	.036	.050	.522

Ø These categories had a zero response

Table 14.

Correlation between acculturation and cultural values (n=75)

MACVS Subscales (Variables)	Acculturation Level 1-5 Pearson (r)	p	Brief ARSMA-II MOS Pearson (r)	p	ARSMA-II AOS Pearson (r)	p
Mexican American Values	-.091	.437	.089	.446	-.073	.532
Familism						
Support	-.052	.657	.083	.479	-.019	.871
Obligations	-.028	.81	.04	.731	-.014	.907
Referent	.05	.67	.026	.826	.094	.421
Respect	-.057	.627	.037	.754	-.06	.611
Religion	.174	.135	-.122	.295	.175	.134
Traditional Gender Roles	-.362	.001***	.246	.033**	.37	.001***
Mainstream Values	-.155	.184	.155	.185	-.123	.294
Material Success	-.297	.01**	.182	.117	-.318	.005**
Independence and Self-Reliance	-.045	.699	.099	.397	.003	.979
Competition and Personal Achievement	-.045	.699	.099	.397	.003	.979

CHAPTER V. DISCUSSION

The purpose of this study was to investigate PA program characteristics preferred by low-income childbearing age Latinas and the relationship of these characteristics with the participant's personal characteristics, cultural values, and acculturation; with an aim to lay the groundwork for the development of future tailored interventions to increase and sustain PA in this population. This chapter contains a synthesis of the type of activity preferred by the low-income Latina, based on their personal characteristics, discussion and evaluation of findings, implications for practice and health promotion, future utility of the Preferences and Health Behavior Model (PaHBM), limitations and conclusions.

Participants Personal Characteristics

In general, participants' age was somewhat equally distributed among the three categories (18 to 24 years of age 29%, 25 to 29 years of age 33%, and 30 to 35 years of age 38%). However, almost three quarters (71%) of the participants were between 25 to 35 years of age, overweight, foreign born Latina, married or had a partner, had completed high school or had some type of education beyond high school, had a family annual income less than $15,000, and children with the youngest child 12 months of age or older.

Participants Preferred activity

Low-income Latinas' preferred activities were heterogeneous. Sixty percent endorsed dancing as the type of activity preferred, 20% preferred PA education and 20% preferred walking. Other interesting patterns were identified in Latinas' preferences for

type of activity. First, a group of Latino women preferred PA education over walking. The main characteristics of this group of Latinas were: U.S. born Latino women, between 18 to 29 years of age, had normal weight, were living with a partner, were childless, had an annual family income over $15,000, and had high school education or beyond. The preferences for PA education over walking could be explained by some of the comments; "I know that PA is good for my health, but I am not overweight, so I don't want to walk". Second, a group of Latinas preferred walking over PA education. The main characteristics of this group were: foreign born Latinas, 30 to 35 years old, overweight, either single/widowed/divorced/separated or married, with some elementary/high school, had an annual family income less than $15,000, and had children. Finally, underweight Latinas equally endorsed dancing and PA education.

Discussion and Evaluation of Findings

Aim 1

Aim one explored the relationships between study participants' personal characteristics and participants' preferred PA program characteristics. In general, all the hypotheses were partially confirmed.

Hypothesis 1. It was hypothesized that age would be associated with preferred PA program characteristics. Age was significantly associated with the time of the day. Latina women age 18 to 24 and 25 to 29 years old preferred evenings. In contrast, Latino women age 30 to 35 preferred mornings. These differences could be due to the fact that more than three quarters of Latinas between ages 30 to 35 had children. The preferences for mornings echoes a comment made by many Latino women during the survey. "Pues,

en las mañanas es mejor; después que uno deja los muchachos en la escuela" ("Well, it is better in the mornings; after one drops the children at the school"). Relationships between participants' age and type of activity, type of music, day of the week, times per week, minutes per session, and number of months were not found. These results coincide with other study results where age was not associated with some participant's preferences (Burton et al., 2012).

Hypothesis 2. It was hypothesized that marital status would be associated with times per week preferred. Single/divorced/separated/widowed women preferred to participate in PA three times or less per week. In contrast, Latino women who were married or were living with a partner preferred three times per week or more. These findings differed from the ones reported by Im et al., (2010). They reported that Latinas do not like to take time away from their family to take care of themselves because it is considered an act of selfishness. In a similar manner, Hakims, (2000) stresses, in presenting her preference theory, that most of the women are doing what it is expected from them, rather than doing what they prefer or want. No other associations were identified between marital status and type of activity, type of music, day of the week, minutes per session, and number of months of the program.

Hypothesis 3. It was hypothesized that country of origin would be associated with preferred PA program characteristics. Country of origin was associated with several PA program characteristics. Country of origin was significantly associated with type of music. U.S. born Latinas preferred Zumba and Salsa. In contrast, foreign born Latinas preferred different/other types of music. For some foreign born Latinas Zumba is

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difficult. One participant's comment was "a mi no me gusta Zumba porque es muy rápida [después de] cinco minutos estoy muerta [laugh]" (I don't like Zumba because it is too fast; [after] five minutes I am dead, [laugh]". Country of origin also had a relationship with time of the day. U.S born Latinas preferred evenings versus foreign born Latinas who preferred mornings. Country of origin was associated with times per week. U.S born Latinas endorsed three times per week or more. In contrast, foreign born Latinas' preferences for one or two times per week was higher than their preferences for three or more. The difference in times per week preferred could be due to the perception that foreign born Latinas have about family responsibilities. For Latino women family comes first; (D'Alonso, 2012; Im et al., 2010). U.S. born Latinas may not have the same strong family value as foreign born Latinas. The difference in the amount of time Latinas want to spend per week in PA based on place of birth is important for developing PA interventions. Physical activity planning for Latinas needs to consider Latinas' country of origin in the designing phase. Efforts to identify the PA program characteristics preferred by Latinas from different countries of origin are a must. Tailoring interventions will help these subgroups of Latinas to increase PA and ultimately decrease health disparities. The need to tailor interventions to different Hispanic subgroups has been highlighted by researchers Marcus, et al., (2013) and Vermeesch & Stommel, (2014). These researchers advocated more research and interventions that include Latino women from different countries to better identify how to help their communities to decrease health disparities.

Hypothesis 4. It was hypothesized that parity status would be associated with participants' preferred PA program characteristics. Parity status was highly associated

with the type of music. Childless Latinas preferred different/other types of music while Latino women who had children preferred Zumba and Salsa. Parity status had a significant relationship with day of the week. The majority of Latino women who had children preferred weekdays. Childless Latino women also preferred weekdays; however, they endorsed other days of the week compared to Latino women who had children. Parity status was significantly associated with times per week. Latino women who had children and childless Latinas preferred three times per week. However, childless Latinas also had a high preference for one time per week while Latinas who had children had a high preference for more than three times per week. The differences in the preferred time of the day and the times per week preferred by childless Latinas and Latinas who have children are important. Tailoring interventions based on their preferred day of the week and times per week may promote higher participation and retention in both groups of Latino women. Parity status was not associated with type of activity, type of music, times per week, minutes per session or number of months. No other associations were found between parity and preferred PA program (type of activity, times of the day, minutes per session, or number of months).

   Hypothesis 5. It was hypothesized that annual family income would be associated with participants' preferred PA program characteristics. Annual family income was associated with type of music preferred. Differences were identified between the two income groups. More than half of the Latino women who had an annual family income less than $15,000 highly endorsed different/other types of music and endorsed Zumba only as a second option. In contrast, Latino women who had an annual family income of

$15,000 or more highly preferred Zumba and Salsa, and endorsed different/other types of music only as a second option. Annual family income was also associated with time of the day preferred. Half of the Latino women who had an annual family income less than $15,000 preferred evenings and the other half was mostly distributed between noon and morning. In contrast, the Latino women who had an annual family income of $15,000 or more endorsed evenings, mornings, and noon.

Annual family income was associated with day of the week. The great majority of Latino women who had an annual family income less than $15,000 and the Latino women who had an annual family income of $15,000 or more preferred weekdays. However, 6% of the Latino women who had an annual family income less than $15,000 preferred Saturday and Sunday while Latino women who had an annual family income of $15,000 or more didn't endorsed it. The relationship between annual family income and times per week was also significant. Latino women who had an annual family income less than $15,000 preferred 3 times per week or less. In contrast the Latino women who had an annual family income of $15,000 or more reported a high preference for three times per week or more.

Annual family income was also associated with the number of months preferred by this sample of Latinas. The number of months preferred for the Latino women who had an annual family income less than $15,000 was almost equally divided between 5 months and 6 months. In contrast, near to 3 quarters of the Latino women who had an annual family income of $15,000 or more preferred six months. The differences of preferred PA program characteristics based on annual family income highlights the

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heterogeneity of preferences that Latina women within the low-income childbearing age Latino women have. It is important to incorporate these factors when planning PA interventions. Understanding the relationships between income and preferred PA program characteristic better enables researchers to tailored PA interventions and for healthcare providers to recommend PA options.

Hypothesis 6. It was hypothesized that the Latino women's educational level would be associated with the preferred PA program characteristics. Educational level was associated with day of the week preferred. Although, Latinas who had some elementary/high school and Latinas who had high school or beyond predominately preferred weekdays, a difference was identified. Eight percent of the Latinas who had some elementary/high school preferred Saturday and Sunday while only 1% of Latinas who had high school or beyond endorsed that option. Educational level was not associated with type of activity, type of music, times of the day, times per week, minutes per session, or number of months. No other significant associations existed between educational level and preferred type of activity, type of music, times of the day, times per week, minutes per session, or number of months.

Hypothesis 7. It was hypothesized that the age of the youngest child would be associated with type of preferred PA program characteristics. The age of the youngest child was associated with type of music preferred. Both Latino women who had children less than 12 months and Latinas who had children older than 12 months were somewhat similar. Both groups had high preferences for different/other types of music with Zumba as the second type of music preferred. However, a significant difference was observed.

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Few Latino women who had children less than 12 months endorsed Zumba and Salsa. In contrast, a quarter of Latinas who had children older than 12 months endorsed Zumba and Salsa. No other significant associations were identified between the youngest child's age and preferred PA program characteristics (type of activity, type of music, times of the day, times per week, minutes per session, or number of months).

Aim 2

Aim two explored the relationship between the type of activity performed by the Latino women and their preferred activity. It was hypothesized that the type of activity performed by the low-income Latino women at the time of enrollment would be associated with their preferred type of activity. Large differences were found between the types of activity the Latino women in this sample were currently participating as compared to their preferred type of activity. Of 124 Latinas who reported to be walking/jogging, more than half (61) preferred dancing, 22 preferred PA education and classes and only 12 preferred walking. Of 110 Latino women who reported zero activity performed, 75 preferred dancing, 20 preferred PA education and only 13 preferred walking. In summary, Latinas are participating in activities that they don't want of prefer. These results are very important. Tailored interventions based on their preferred activities could help low-income Latinas to be active and increase activity in their life-style.

Aim 3

Aim 3 explored the relationship between the participants' Body Mass Index (BMI) categories and preferred PA program characteristics. It was hypothesized that BMI categories would be differentially associated with preferred PA program characteristics.

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BMI categories were highly associated with type of music preferred. One hundred percent of the underweight Latinas preferred different/other types of music. In contrast, women with normal weight preferred three different music styles and overweight Latinas highly preferred Zumba and Salsa. Latinas' BMI was also associated with times per week. Underweight Latinas preferences were equally divided between one and three times per week. In contrast, Latinas with normal weight preferred one, two and three times per week. Overweight Latina preferred two, three, and more than three times per week. BMI was associated with number of months. Five months and 6 months were the two options preferred by underweight Latino women and Latinas who had normal weight. In contrast, overweight Latinas endorsed 6 months. No other associations were found between BMI and preferred PA program characteristics.

Aim 4

Aim four looked at the influence of acculturation and cultural values on the participants' preferences for a PA program. It was hypothesized that acculturation and cultural values independently influence the participants' preferred PA program. This hypothesis was partially confirmed. Type of activity was related to mainstream cultural values. Latino women who scored high in the mainstream cultural value preferred walking. Acculturation was negatively related to dancing and positively associated with the preference for PA education. Latina women who were acculturated preferred not to dance and were more likely to prefer PA education. In terms of the type of music preferred, the only category endorsed by the Latino women was Zumba and Salsa. However, neither acculturation, Mexican American values, nor mainstream values were

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predictive of the type of music preferred. Timing was positively associated with acculturation. The more acculturated the Latino woman was the higher the likelihood that they preferred afternoons for a PA program. In addition, a negative association was identified between Latinas' preferences for evenings and mainstream cultural values. Latino women with higher scores on the mainstream values scale were less likely to prefer evenings. Length of the sessions was positively associated with Mexican American cultural values. Latino women who scored high in the Mexican American scale had a greater likelihood of preferring 30 minutes. Acculturation and Mexican American cultural values were not predictive of the preference for walking.

Aim 5

Aim five looked at the relationship between Mexican-American cultural values and linear acculturation. It was hypothesized that acculturation would be associated with cultural values. In general, no statistically significant relationship were identified between cultural values and acculturation as a whole. However, further analysis of the subscales identified that traditional gender role (TGR), a Mexican American cultural value (MACVS), was negative associated with linear acculturation. As Latino women were more acculturated, they tended to give TGR less importance. Also, a positive association was found between TGR and a Mexican orientation (ARSMA-MOS). Latinas with high MOS were inclined to give TGR high importance. Finally, traditional gender role was negatively related to having an Anglo orientation (ARSMA II-AOS). As Latinas became more Anglo oriented, they rated TGR lower. Material success, a mainstream value (MCVS), was negatively associated with one's acculturation. As acculturation increased,

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material success value decreased. In addition, material success was also negatively related with having an Anglo orientation. The more the Latina became Anglo oriented, the lower they tended to rate material success. No other significant associations were identified between acculturation (Brief ARSMA-II) and cultural values (MCVS).

Implications for Practice and Health Promotion

These findings are relevant to practice in both health promotion and disease prevention. The findings inform health providers the need to identifying the type of activity preferred by the patient before prescribing PA. Burman, Robinson, & Hart (2013) suggest that nurses should prescribe PA the same way as prescription medicine is prescribed. That is, PA prescription should be tailored to each patient. Having knowledge of the patients' preference will help to increase adherence to the treatment (Swift et al., 2011). Failure to know the patients' PA preferences may result in recommending a PA that will not help the patients to incorporate PA into their life-style. For example, dancing was prescribed to a woman who does not like to dance. This was a situation that was witnessed with a Latino woman while doing this research. "…el doctor me dice que valla a clases de Zumba [para bajar de peso] pero yo no bailo, no me gusta…" ("The doctor told me to go to Zumba classes, [to lose weight] but I don't dance, I don't like it…").

These results are also important to research. The findings demonstrate the large differences existing in the preferred PA program characteristics among Latino women that must be considered when tailoring interventions. Those characteristics are as follows: (a) country of origin and income (type of activity, music, time of the day, times per week and number of months, (b) parity (type of music, day of the week and number of month)

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and BMI (type of music, times per week and number of month). These differences bring some challenges when developing an intervention; however, they should be seen as an opportunity to improve interventions as well. The results also demonstrate that participant's age, marital status, education and the youngest child's age were personal characteristics that presented the majority of differences in the preferred PA program.

The differences and similarities identified in the preferred characteristics for a PA program for a group of low-income Latinas in this study opens a window of opportunity to find innovative approaches to helping this group of women. For example, many Latino women endorsed PA education. Offering small group gatherings about the benefits of PA, the consequences of the lack of physical activity and how PA could be incorporated into their family traditions could be a strong starting point. If Latino women prefer to play with the children at the park (Larson et al., 2014), finding and recommending group activities involving children that can be done at parks will help to increase PA and keep the family together. The organization of family-oriented events which can promote a variety of physical activities in parks is also recommended by Stodolska, Shinew & Li, (2010). In addition, utilizing family gatherings as a way to impart knowledge about PA will be beneficial for Latinas with a low reading level.

Latinas' heterogeneity in preferences reflect the need to tailor interventions to various Latinas subgroups and design interventions according to the unique characteristics of the participants. Interventions that work for one subgroup of Latinas in Houston should not be generalized to a different subgroup in Arizona. The findings also emphasize the need to develop interventions for Latinas from different countries of

origin. What might work for a Mexican subgroup may not work for other Latino subgroups (e.g. Cubans, Costa Ricans, Guatemalans, or Colombians).

These findings add to the existing knowledge by looking at factors which should be considered when intervening to help Latinas increase their PA participation, adherence, and sustainability; three major challenges facing low-income childbearing women. For instance, a quarter of the Latinas preferred to attend PA education over dancing and walking. This is an excellent opportunity to capitalize on this information. Including talks about PA benefits and the risks of lack of activity for them and their family could give more meaning to the interventions being offered. Understanding the PA program characteristics preferred by the low-income childbearing Latina community and incorporating these preferences, along with their cultural values, to tailor PA interventions holds out the possibility of increased participation, adherence, and sustainability within this group of women. In this way, community based participatory interventions utilizing the PaHBM can have an impact on low income Latinas.

Future Utility of the Preferences and Health Behavior Model (PaHBM).

The main pillar of PaHBM is the preference theory by Hakims (2000). The main tenets are: (1) changes in environment and policies are related to women preferences, (2) the importance of a women's attitude, preferences and values in their decisions, and (3) the recognition of women's heterogeneity. The PaHBM was developed to be utilized in several ways: (1) to assess, analyze, and understand the phenomenon, (2) develop interventions based on that information, and (3) assess the intervention. Based on what we know about the low-income Latina population and how the environment and policies

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affect, negatively or positively, on their PA levels; the PaHBM could be utilized to inform research or be utilized in an ambitious, but doable plan that calls for a community based intervention. This could be done by first, identifying the relationships among the preferences of a specific community of Latinas and the constructs of the PaHBM (personal characteristics, attitudes, acculturation, cultural values, preferences, environment, policy and environment). Second, through the assessment of environment and policies which hinder or enhance PA. Third, through the development of tailored interventions specific to the preferences of the local Latina community. Finally, the PaHBM could be utilized to develop investigations for other health issues or to work on interdisciplinary interventions. For instance, nutrition goes hand on hand with PA to prevent many non-communicable diseases (NCDs).

Limitations

The results of this investigation make available valuable information; however, the study has some limitations. The sampling was a convenience sample which limits the generalizability of the results. However, these three sites were selected because of the prevalence of low-income childbearing age Latinas attending the sites. Another limitation could be the collapsing of variables, which loses information. However, this statistical decision was needed in order to reduce zero cells. Small representation from different Latino subgroups was another limitation. Although the study sample was large (N=275), most of the participants were Mexican descendants (n = 263) either born in U.S or born in Mexico. The representation of other countries was very low: Guatemala (n=6), Colombia (n=2), El Salvador (n=2), Dominican Republic (n=1). As a result participants

were re-grouped into the foreign born Latinas and U.S born Latinas. Also, generalizing the results to the Latino women in general would not be appropriate given the heterogeneity in preferences.

Conclusion

This is the first exploratory study offering an extensive analysis of PA program characteristics preferred by Latina women based on their personal characteristics and how these personal characteristics are associated to PA preferences. Annual family income, country of origin, and BMI were salient characteristics that influenced PA preferences in this sample of Latino women. Close attention to these characteristics during interventions and PA recommendations is a must. In regard to BMI representation, the number of underweight Latinas and Latinas who had normal weight was small. However, the preferences or absence of preferences identified among the Latinas who had normal weight and the Latinas who were underweight are very important. Latino women who have normal weight or are underweight must be approached. These women could be the perfect target population to start promoting PA among the Latino women and their families to help them prevent and reduce health disparities.

These findings could be utilized in several ways. First, as general information, people are heterogeneous, so are their preferences and their ways to be physically active. Second, Mexican and Mexican Americans have different preferences when it comes to preferred PA program characteristics. Thus, because a person is of Mexican descendent does not mean that the same intervention is appropriate for all Mexicans. Third, the need to know more about Latinas preferred PA program characteristics needs to be recognized;

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especially those characteristics preferred by low-income childbearing age Latinas from other countries of origin. If differences among one Latina subgroup are, it is possible that differences between and among the rest of Latina subgroups will exist. Consequently, further studies are needed to identify the PA program characteristics preferred by low income Latinas from all Latino women subgroups. Participants' preferences could be the answer to help Latinas to achieve healthier behaviors. Unfortunately, tailoring the intervention to the preferences and cultural values is not enough. The interventions must also consider the environment and community policies within which the women live. Only by working with policy makers can the necessary changes be made to enhance potential interventions and provide adequate environment. Minimizing barriers and increasing PA through a variety of activities in line with Latino women group's preferences should be the next step.

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