

**DANSA, A DANCE CURRICULUM TO INCREASE PHYSICAL ACTIVITY IN A
NEWLY EMERGING LATINO COMMUNITY**

by

Karina Elisabet Steren

BA, University of Pittsburgh, 2009

Submitted to the Graduate Faculty of
Graduate School of Public Health in partial fulfillment
of the requirements for the degree of
Master of Public Health

University of Pittsburgh

2015

UNIVERSITY OF PITTSBURGH
GRADUATE SCHOOL OF PUBLIC HEALTH

This thesis was presented

by

Karina E. Steren

It was defended on

July 24, 2015

and approved by

Thesis Advisor:

Elizabeth Felter, DrPH,
Visiting Assistant Professor
Behavioral and Community Health Sciences
Graduate School of Public Health
University of Pittsburgh

Committee Member:

Patricia Documét, MD, DrPH
Associate Professor
Behavioral and Community Health Sciences
Graduate School of Public Health
University of Pittsburgh

Committee Member:

Ralph Bangs, PhD
Professor
University Center for International Studies
University of Pittsburgh

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Elizabeth Felter, DrPH

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ABSTRACT

This thesis develops a culturally appropriate dance curriculum to increase physical activity among the Latino community in Allegheny County. The program is called, DanSa: Danza, Salud y Familia (Dance, Health and Family). DanSa stemmed from an extensive review of the literature and lessons learned from the dance program Dancing 4 Health, a dance program developed by the Latin American Cultural Union (LACU) in 2014 and funded by Highmark, Blue Cross Blue Shield. The program's goals were to promote health among Latinos in Pittsburgh, while preserving Latin-American and Caribbean culture.

DanSa is a program incorporating a Latin American dance curriculum that aims to decrease sedentary behavior among Latinos. It is a 12-week program, offered three times per week to adults and their families in Casa San Jose, a center serving Latinos in the region. The program will include biometric measures and personal data that will be collected pre, mid and post program. In addition, exercise during the classes and outside of them will be measured through pedometers used by participants.

DanSa aims to incorporate the community in the marketing and delivery of the program. Because the Latino community in Allegheny County is small (<2% of the total population) and geographically dispersed, the program will have a robust marketing campaign involving referrals

(through word of mouth, physicians, key community members and organizations), transportation advertisement, print media and social media.

The public health significance of this thesis is that it provides the field with a curriculum to increase physical activity in a newly emerging Latino community.

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PREFACE

I would like to acknowledge my committee and all the people that have encouraged me during this experience. I want to thank my husband, my parents, my sister, my parents in-law and my friends for standing by my side during this journey and supporting me in my many adventures throughout this master's program.

1.0 BACKGROUND

Obesity is a growing public health issue in the United States. The Centers for Disease Control and Prevention (CDC) has described obesity as “...common, serious and costly” and have pointed out that in “... 2009-2010, more than one third of U.S. adults (35.7%) were obese” (2012). Furthermore, the percent of adults at a healthy weight decreased from 41.7% to 29.5%, since 1988 to 2012 meaning that more than two-thirds of the adult population in the country or either overweight or obese (“Healthy People 2020,”). Obesity-related medical costs were estimated to be \$190.2 billion in 2005, when obesity rate for adults was around 30% (Cawley & Meyerhoefer, 2012). This is significant, since obesity increases the risk for the development of chronic diseases and death (McCully, Don, & Updegraff, 2013).

One of the leading risk factors for obesity is an inadequate level of physical activity. The 2008 Physical Activity Guidelines indicate that adults require at least 150 minutes per week of moderate intensity physical activity in order to experience the most health benefits associated with exercise. An example of moderate intensity physical activity is brisk walking or dancing. For those who wish to lose weight, the guidelines indicate that adults need to do moderate physical activity for 150-300 minutes per week or more (Office of Disease Prevention and Health Promotion, 2008). According to the CDC, 4 out of 5 adults are not achieving the minimum recommendation for physical activity (2014b). Over the last 50 years, there has been a significant decline in regular physical activity in the workplace, as the economy has shifted from

farming and manufacturing to largely service-sector jobs; although leisure time physical activity has improved, it is still at very low levels (Church et al., 2011; Moore, Harris, Carlson, Kruger, & Fulton, 2012). While in 1960, 43% of American occupations demanded moderate physical activity; in 2008, only 20% of occupations had such physical demands (Church et al., 2011). Inactivity is one of the causes of metabolic syndrome, a group of factors that increase the risk of chronic diseases such as heart diseases, diabetes and stroke (NHLBI, 2011).

Although obesity affects the U.S. population as a whole, not all ethnic groups are impacted equally. African-Americans and Latinos experience the highest levels of obesity and chronic diseases in the country (Healthy People 2020, 2014; Marcus et al., 2013; Martyn-Nemeth, Vitale, & Cowger, 2010). In addition, Latinos tend to live more sedentary lives when compared to the general population (Marcus et al., 2013).

Between April and September of 2014, I worked with the Latin American Cultural Union (LACU) as a Health Coordinator intern and evaluator for a dance program funded by Highmark Blue Cross Blue Shield. The program was called Dancing for Health (Dancing4Health) and involved five traditional Latin American dance classes along with short educational health presentations over 12 weeks. The goal of Dancing4Health was to promote and preserve Latin American culture while promoting exercise and health. The LACU is a volunteer-based 501(c) 3 non-profit organization founded in Pittsburgh in 1986. The organization's mission is to "preserve and nurture Latin American culture and traditions in Southwestern Pennsylvania, and unify the Latino community in Pittsburgh" (LACU, 2012).

This based on the experience of the 2014 dance program, and all the request of the LACU, this paper will propose a culturally-sensitive dance program informed by the relevant

literature and the lessons learned from Dancing4Health, to be implemented by the Latin American Cultural Union in the fall of 2015.

2.0 LITERATURE REVIEW

2.1 OBESITY

“Obesity” is defined as a body mass index (BMI) equal-to-or-over-30 and “overweight” as having a BMI of 25 to 29. This measurement is a person’s weight in kilograms divided by the square of his or her height in meters, and it is utilized by the medical and scientific community to describe body size. This measure has been shown to have a positive relation to disease risk and mortality (CDC, 2015a). In the United States, obesity among adults 20 to 74 years old has gone from 13.4% between 1960 and 1962, to 35.1% between 2006-2006 (NHANES, 2008). In 2010 a group of researchers from Harvard University published a modeling study primarily based on data from the Framingham Heart Study, estimating that obesity will reach 42% by the year 2050, with the potential to continue increasing past that date (Hill, Rand, Nowak, & Christakis, 2010).

Latinos in the United States have the second to highest rate of obesity among racial and ethnic groups. Between 2009 and 2012 40.5% of the Hispanic adult population in the U.S. was obese (Healthy People 2020, 2014). As mentioned above, obesity comes with many risk factors, which are reflected in the Hispanic population through high prevalence of diabetes and cardiovascular disease (CDC, 2014c). With that said, it is important to note that the prevalence of diabetes among south American Hispanics is the same as that for non-Hispanic whites (10.2%),

but the rates are much higher for the rest of the Hispanic population in the U.S. (up to 18.3% for people of Mexican descent) (Alexandria, 2014).

Similar health trends are found among Hispanics in Pennsylvania, with obesity rate rising 7% over five years, reaching 34% in 2009. As a result, rates of diabetes and heart disease are on the rise as well (Pennsylvania Department of Health, 2015).

2.1.1 Disease and obesity

The current rate of obesity is problematic because obesity increases the risk of many health conditions and early death (NHLBI, 2012). The incidence rate ratio for developing type 2 diabetes if obese is 12.41 for females and 6.74 for males. For overweight adults, the incidence rate ratio is 3.92 for females and 2.40 for males (Guh et al., 2009). This has translated into a 9.3% incidence of type 2 diabetes in the U.S. population and 12.8% among Hispanics in the country. Furthermore, it has been estimated that 8.1 million people are living with undiagnosed type-2 diabetes. Diabetes can lead to further health problems, such as heart disease, stroke, limb amputations, kidney failure and blindness (CDC, 2014c). This is not only a health problem but a financial problem as well. Diagnosed cases of diabetes accounted for a total cost of \$245 billion in 2012 (an increase of \$71 billion in 5 years), 28% of which is due to productivity loss. It is important to note that 62.4% of the total cost of diabetes is paid for by the government (American Diabetes Association, 2013).

Heart disease and cancer are also conditions exacerbated by obesity (CDC, 2014a; Guh et al., 2009; NHLBI, 2012). Heart disease risk is increased with overweight and obesity through the effects the excess weight may cause on the body. These can range from increasing blood pressure, to increasing triglycerides and LDL cholesterol in the blood, and decreasing HDL

cholesterol; all of which can lead to the development of metabolic syndrome. Metabolic syndrome is diagnosed when three or more heart disease risk factors are present. Those risk factors are a large waist line and as mentioned above, high triglyceride levels, low HDL cholesterol levels, high blood pressure, and high resting blood sugar (NHLBI, 2011, 2012). This is a concern, since major cardiovascular disease is the leading cause of death among the general population as well as among the Hispanic population in the United States, at 252.0 deaths per 100,000 population among the general population and 82.5 deaths per 100,000 population in the Latino community in 2013 (CDC, 2014a, 2015c). Additionally, cancer is the second leading cause of death in the general population and among the Hispanic community in Allegheny County (CDC, 2015c). Obesity is a risk factor for several cancers, including esophageal, pancreatic, colon, breast, endometrial, kidney, thyroid, and gallbladder cancer. While the exact mechanisms are not fully understood, obesity is thought to raise the risk of cancer through systemic changes often that occur in the bodies of obese people including low levels of chronic inflammation, abnormal hormonal production, and high levels of insulin and insulin-like growth factor-1 (National Cancer Institute, 2012).

There are many more health issues that are affected by obesity and overweight. However, the focus has been on cardiovascular disease and cancer because these are leading causes of death (CDC, 2015c).

2.1.2 Lifestyle

Excess caloric consumption and a sedentary lifestyle in the United States are two of the leading causes of obesity in the population (Church et al., 2011; Hall et al., 2012). It is estimated that Americans consumed an average of 2700 calories per day in the year 2000, which is 24.5% more

than they did in 1970 (USDA). In addition, the CDC's data from the Behavioral Risk Factor Surveillance System (BRFSS) reported that 51% of respondents indicated performing 20+ minutes of vigorous physical activity three or more days per week or 30+ minutes of moderate physical activity five or more days per week at the national level, suggesting a slight increase (~6%) from 1996 to 2010. In Pennsylvania, the percent of Hispanic adults reporting 20+ minutes of vigorous physical activity three or more days per week or 30+ minutes of moderate physical activity five or more days per week was 43.9% and 48.7% for the overall population in 2005 (2015b). This indicates that the Hispanic population is at above-average risk for inadequate levels of physical activity.

Furthermore, the daily demands of physical activity in the workplace have statistically significantly dropped from 1960 to 2008 by 140 calories for men and 124 calories for women. This change has been primarily due to the shift in the types of jobs Americans are performing, from 48% of jobs demanding moderate intensity physical activity in 1960, to 20% demanding such effort in 2008 (Church et al., 2011). It is important to note that although in 2000 the labor force distribution among U.S. born Hispanics was similar to that of non-Hispanic whites, foreign born Hispanics are disproportionately represented in construction and agriculture (men), and manufacturing (women) (Duncan, Hotz, & Trejo, 2006). These are jobs in which the demand for physical activity is greater. Nonetheless, foreign-born Hispanics make up a smaller proportion of the Hispanic population, compared to U.S. born Hispanics in the U.S. (Colby & Ortman, 2014).

2.1.3 Childhood obesity

Childhood obesity has been increasing in recent years, reaching 16.9% overall and 21.8% among Latino children 2 to 19 years old between 2009 and 2012 (Healthy People 2020, 2015).

Childhood obesity, even if without initial consequences, may lead to further later in life. Approximately 25-50% of people who were obese as children are obese as adults (Must & Strauss, 1999). Childhood obesity has also been shown to lead to the early development of diabetes, and risk factors for cardiovascular disease (Carlson, Crespo, Sallis, Patterson, & Elder, 2012; Must & Strauss, 1999). A diagnosis of Type 2 diabetes before the age of 20 may reduce life expectancy by approximately 15-27 years (Mayer-Davis et al., 2009). Physical activity along with a healthy diet, are ways in which childhood obesity can be prevented (Carlson et al., 2012).

2.2 PHYSICAL ACTIVITY INTERVENTIONS

There are a variety of physical activity interventions for adults, from walking interventions to workplace wellness programs, and aerobic and dance classes.

In the past three decades, employers have become increasingly aware of the benefits of having fit and healthy employees, leading to some companies around the country implementing workplace wellness programs (Goetzel & Ozminkowski, 2008; Linnan et al., 2008). In the mid-1980s, the Wellness Council of America was established in order to help the private sector with worksite wellness initiatives (Sparling, 2010). Based on the literature, wellness programs in the workplace seem to fall into two categories, those that facilitate access to gyms and promote overall wellness (i.e. nutrition, stress management), and those that attempt to promote movement during work hours. Highmark's wellness program in 2002 is an example of the former, in which health education, behavior change support and facilities were provided to employees (Naydeck, Pearson, Ozminkowski, Day, & Goetzel, 2008). Another example of comprehensive wellness programs in the workplace is the 2003 Steps to a Healthier Austin. This program was carried out

by the Capital Metropolitan Transportation Authority in Austin Texas and included preventive screenings and health assessments, health coaches and other forms of health education and support, as well as two fitness centers for all employees (Davis et al., 2009). These comprehensive wellness programs have shown to be effective in reducing blood pressure, excess weight and in increasing physical activity and healthy eating (Davis et al., 2009; Naydeck et al., 2008; Wang, McDonald, Champagne, & Edington, 2004). However, they require a large monetary investment. On the other hand, some companies have focused on addressing movement during work hours. These interventions have involved reminders to walk throughout the day and take the stairs, as well as using treadmill desks, sit-stand desks and bicycle pedals under desks. These have shown moderate results in decreasing sedentary behavior throughout the workday and in weight loss (Carr, Walaska, & Marcus, 2012; Dutta, Koepp, Stovitz, Levine, & Pereira, 2014; Pronk, Katz, Lowry, & Payfer, 2012).

Workplace interventions have demonstrated that a successful physical activity program must be accessible to participants in terms of location, time, and environment. In addition, providing people with the physical fitness facilities or fitness programs is crucial as well (Davis et al., 2009; Naydeck et al., 2008; Sparling, 2010).

In addition to worksite health promotion programs, community-focused physical activity interventions exist to promote activity in a population's non-work hours. These programs can include aerobic and strength training classes, community walking groups and health education. They can also add nutritional education to the physical activity interventions. In order to discern the effects of nutrition education alone in comparison to it combined with physical activity, a research team from the University of Pittsburgh conducted a randomized controlled experiment (Goodpaster et al., 2010). The experiment consisted of two groups of adults composed of whites

and African Americans, ages 30 to 55 with a BMI between 35 and 39.9, randomly assigned to two year-long interventions. One intervention consisted of a physical activity and diet education program, while the other consisted of 6 months of exclusively diet education, followed by 6 months of diet and exercise. Participants were given a pedometer and a daily and weekly prescription of physical activity goals, it was not provided through classes or fitness facilities.

Although both groups lost weight at 6 months, the group with initial activity lost a significantly more weight when compared to the group with delayed activity. Although this pattern was also observed in measures of HDL cholesterol, no differences were observed in several other biometric markers measured (i.e. glucose levels and mean arterial pressure). Once both groups received the same intervention protocol (during the latter 6 months), at 12 months the weight loss of both groups was not significantly different. This indicates that the addition of physical activity was important to maximizing health improvement.

Often physical activity interventions are included as a component of a larger *lifestyle* intervention, which includes nutrition education, guidance and frequent meetings with a support group, etc. A group of researchers at Indiana University School of Medicine carried out a randomized control trial with 116 men and 119 women to evaluate the difference between a *lifestyle* intervention and a *structured* intervention in order to increase physical activity (Dunn et al., 1999). The former involved physical activity recommendations as well as goal setting and, cognitive and behavioral skill acquisition to improve adherence to the physical activity prescription. Motivational readiness was taken into account during the process and motivational messages were tailored appropriately. Participants in the *structured* intervention group were given membership to a fitness center and were asked to exercise 3 times per week, gradually increasing to 5 times per week. Although they did receive encouragement in the form of weekly

newsletters and verbal reinforcement, these were not tailored to the participants. Furthermore, after 3 weeks of instructional classes, each participant was able to choose which aerobic classes to attend within the facility. During the first 3 weeks, participants were also taught how to set realistic fitness goals and to monitor their physical activity appropriately. At the end of 6 months, both groups had statistically significant improvements in body fat percentage (no significant changes in weight were observed), blood pressure, heart rate, and increase oxygen consumption. No statistically significant differences were noted between groups either at 6 months or at 24 months (follow up), indicating that neither intervention structures demonstrate differences in increasing physical activity among sedentary adults.

2.3 LATINOS IN PENNSYLVANIA AND ALLEGHENY COUNTY

Pennsylvania's population in 2013 was 6.3% Hispanic, while Allegheny county's Hispanic population comprised 1.8% of the total, according to the U.S. Census Bureau (2014). Although the proportion of Hispanics or Latinos in the area is small, it is a rapidly growing population. In addition, in a study by the Pennsylvania Health Statistics Division, Hispanics reported the second lowest levels of recommended aerobic activity and the second highest levels of having performed no physical activity in the past month (2012).

According to the Pennsylvania Department of Health, the Hispanic population in the State grew 98.2% from the year 2000 to 2012, making it the most rapidly growing racial group in Pennsylvania (Pennsylvania Health Statistics Division, 2012). In Allegheny County the Hispanic population rose from 0.87% of the total population in 2000, to 1.8% (estimate) in 2013 (U.S. Census Bureau, 2014). This falls in line with Allegheny County's Latino population becoming a

new growth community (Documét et al., 2015). *New growth community* is a descriptive term for regions in the U.S. where the Latino population, though still small (<5%), has experienced rapid growth (Cunningham, Banker, Artiga, & Tolbert, 2006). Latinos in *new growth communities* tend to lack access to health care for reasons beyond their socioeconomic status, since they are often spread out and mostly made up of immigrants that have been in the country for less than 5 years, with low income and low English proficiency (Cunningham et al., 2006). These characteristics are present in the Hispanic population of Allegheny County, in which a combination of language barriers and a lack of strong social networks prevents Hispanics from, not only accessing health care, but carrying out healthy behaviors as well (Documét et al., 2015; Documét & Sharma, 2004).

As mentioned, language barriers are prominent among new immigrants in these communities, making communication with physicians and health care providers difficult. In addition, Medicaid is not available to immigrants until they have been in the country for 5 years, leaving many Hispanics dependent on state funded aid and safety net clinics (Cunningham et al., 2006). An example of these issues coming together in the Allegheny County is the Birmingham Free Clinic. This clinic provides free basic medical care to those who cannot otherwise afford care. However, due to a lack of Spanish-speaking physicians, in 2002 a group of students from the University of Pittsburgh organized a Spanish interpreters system 3 days per week to serve the Latino population. In the same location, once a month, Dr. Diego Chaves-Gnecco, has been able to organize a free Clinic visits and vaccination drives for children in Spanish. In the face of this *new growth community*, the Squirrel Hill Health Center has also become a prominent place for Latinos in the community to access medical care, hiring Spanish-speaking staff to better serve the Community ("Interpretation Services," 2015). These are just a few examples of the limited

but growing resources available to the Hispanic population in Allegheny County and the great window of opportunity for professionals in the health care field to address the needs of the changing demographics of the region (LACU, 2014, 2015).

Laura Macia-Vergara, in her study of the Latino experience in Pittsburgh, observed that there is a divide between highly educated Latinos and new Latino immigrants with low levels of education. This divide is exemplified in the kinds of organizations that exist and have emerged throughout the years. While the Hispanic Chamber of Commerce tailors to highly educated Latinos, there has been an emergence of organizations like Students and Latinos United Against Disparities (SALUD), that focuses on providing services to these new immigrants, which are often isolated (Macia-Vergara, 2012). This indicates that the demographics of the participants will be largely dependent on the organizations through which the program is promoted. Furthermore, Dr. Macia-Vergara's work insinuates that the identity of community is complicated among Latinos in the region. Who is hired for the program, although from the community will likely have an effect on which Latino groups identify with the program.

2.4 PHYSICAL ACTIVITY INTERVENTIONS FOR LATINOS

In 2001 the NIH published new policy and guidelines requiring researchers receiving their funding to include women and minority populations in their work (U.S. Congress, 1993). This increased the research on best practices for recruitment and retention of Latino populations in physical activity interventions (Eakin et al., 2007). Researchers have observed that physical activity interventions for Latinos need to be culturally-sensitive and focused on community and family (Carvajal et al., 2013; Eakin et al., 2007; Im et al., 2013; Martyn-Nemeth et al., 2010).

Community exercise programs have been utilized in combination with culturally appropriate activities such as dancing in order to effectively appeal to Latinos and increase participation (Im et al., 2013; Marquez, Bustamante, Aguinaga, & Hernandez, 2014). This was the case for a program targeting sedentary Hispanics with Type-2 diabetes (Martyn-Nemeth et al., 2010). The intervention for this study was community-based, with participation from key community members. It involved a combination of one hour dance classes with maracas once a week and an exercise log kept by participants.

Another community-oriented intervention was implemented by the Healthy Environment Partnership in Detroit, Michigan in 2008 (Schulz et al., 2015). The Partnership's physical activity intervention was a component of a larger healthy living program. The physical activity component consisted of lay community health promoter-led walking groups targeted at low to moderate income Hispanics and non-Hispanic blacks. 36% of the participants recruited were Hispanic. This intervention statistically significantly increased average steps per day in an 8 week period and demonstrated a positive association between attendance and physical activity increase during the intervention as well as the maintenance period. Reductions in cardiovascular risk were also observed, through lower blood pressure, cholesterol levels, waist circumference and BMI.

Similarly, the physical activity intervention "*Pasos Adelante*" in Arizona aimed to develop self sustaining community walking groups for the Hispanic population (Carvajal et al., 2013). Positive long-term results were observed, related to disease risk reduction, which will be discussed later in this thesis. This program also utilized a model involving community health workers, *promotoras*, to deliver the intervention (lead walking groups and distribute health

education), further confirming the effectiveness of programs involving community members in the Hispanic population.

In a study observing the characteristics of perceptions toward physical activity along racial and ethnic lines, women belonging to racial/ethnic minorities tended to view physical activity as a luxury, not a priority. They also reported to place more value on family needs over the individual ones and further confirmed that racial and ethnic minorities prefer physical activity that was family-focused and natural (instead of using equipment at a fitness facility). This lends credence to the idea that community and family focused physical activity interventions involving dancing or walking would be an appealing and effective option in the Hispanic population (Im et al., 2013).

Although healthy living programs designed for Latinos have taken advantage of strong family bonds by involving parents, there are few programs incorporating this concept into physical activity interventions. However, one example is the physical activity program BOUNCE, targeting low income Hispanic mother-daughter dyads (Olvera et al., 2010). This program increased physical fitness among the daughters but it lacked structure and did not build sufficient capacity for it to continue past the intervention. Although it is effective to organize interventions for Hispanics in a community setting, in a randomized control trial, Marcus et al. demonstrated that educational materials tailored to the behavior change preparedness level of individual Latinas, is more effective than the distribution of Spanish generalized information produced for the mass population (Marcus et al., 2013).

It is also important to note that, in general, all the programs tailored for Latinos described in this section consistently delivered their intervention in both Spanish and English (based on participants' individual preference) which is important when targeting an emerging community

with low levels of acculturation and English proficiency, like the Latino population in Allegheny County.

2.5 CULTURALLY-COMPETENT PROGRAMS

Physical activity interventions for Latinos have been shown to be effective in recruiting and retaining participants when they had certain components of cultural competency. One of those components that are necessary for any program trying to target the Latino population is the ability for the program to be delivered in Spanish as well as in English, adapting to the level of acculturation of the participants. Although many Latinos speak Spanish, there are members of the Hispanic population who prefer programs to be delivered in English due to their language proficiency (Krogstad, 2014).

Community participation in the planning, outreach or implementation of the program is essential to ensure the program is appropriate for the audience. This may be done by working in collaboration with key members of the community during the planning phase of the intervention. Employing *promotores* or *promotoras* during the implementation of the program is also an effective way to involve the community. *Promotores* and *promotoras* are the Spanish terms for lay people from the Latino community that are hired and trained to work in a community intervention, carrying out different aspects of the program. This allows for the community to feel more comfortable with the intervention and leads to a program that is better tailored to the community (Carvajal et al., 2013). In the community-based physical activity and health education program, “*Pasos Adelante*”, implemented between 2010 and 2011 in Arizona, the authors expressed gratitude toward the *promotoras*, stating that “...[their] participation made this

project a success” (Carvajal et al., 2013). This structure allows for a certain level of trust to develop between the community and the program, making it possible for the intervention to reach more people within the Hispanic community (Butterfoss, 2007; Documét et al., 2015). In addition to the use of *promotores* and *promotoras*, culturally competent programs tend to leverage their relationships with organizations and community leaders, such as religious figures and medical staff. In a exercise intervention developed for Hispanics with type 2 diabetes, the design of the program was informed by the knowledge of community nurses and a diabetic nurse educator familiar with the Hispanic community, among other professionals (Martyn-Nemeth et al., 2010).

Lastly, it is crucial for physical activity programs to provide participants with activities that are appealing. While there are many options for physical activities that would be appealing to this audience, this paper is focusing on group dance classes, since that was the request of the sponsoring organization. Dancing is a viable option since it is an activity that is performed throughout Latin-America at all stages of life (Marquez et al., 2014; Martyn-Nemeth et al., 2010).

2.6 MARKETTING AND OUTREACH

Careful marketing can greatly influence a program’s effectiveness in reaching its target population. Generally, programs resort to a combination of flyers, in-person community outreach (in churches, community centers, fairs, etc), Spanish mass media (TV, radio, news paper and social media) and referrals (through physicians or word of mouth) in order to reach their target audience (Marcus et al., 2013; Marquez et al., 2014; Martyn-Nemeth et al., 2010; Staten, Scheu,

Bronson, Pena, & Elenes, 2005). According to the CDC, although social media can be useful to recruit participants for an intervention or program, it must be used in conjunction with a broader marketing strategy (CDC, 2011).

When research groups have studied the cost-effectiveness of different recruiting strategies for clinical trials and health interventions, they consistently found that referrals were the most cost effective strategy and the most effective forms of recruitment. For example, Reynor et al. carried out an evaluation to assess the cost-effectiveness and efficiency of different recruiting strategies for a family obesity intervention. The results demonstrated that physician referrals recruited more than half of all participating families and cost \$96.94 per family (Raynor et al., 2009). In 2008 a study looking at recruitment strategies for irritable bowel syndrome clinical trials had similar findings. While the use of fliers produced the largest number of enrolled participants (120 out of 289), referrals enrolled the second largest number (43) and were the most cost effective at \$12 per enrollment (Chin Feman et al., 2008).

Transit advertisements are an additional form of marketing that researchers at Northwestern University identified as effective in recruiting minority groups for a breast cancer prevention trial. The research team found that 57% of minority contacts were due to public transportation advertisement. However, when it came to actually enrolling in the study, the largest amount of total recruitment came from referrals from within the university and its hospital (Dew et al., 2013).

Given the research in this area, it is clear that it is necessary for health interventions to utilize several forms of advertisement for their recruitment strategy (Chin Feman et al., 2008; Dew et al., 2013; Raynor et al., 2009). A logical mix of recruitment strategies might include referrals from physicians and other key figures and organizations of the community, as well as

through community email chains and social media. In addition, transit advertisement and flyers in locations frequented by the Hispanic Community (i.e. churches and community centers) will allow for a broader reach. However, since these studies were not carried out in *new growth communities*, further efforts may be needed in order to effectively recruit a variety of Latinos in the Allegheny County.

2.7 THEORIES AND MODELS

Interventions and programs tailored to the Hispanic population have used several different theories of behavior change. Social cognitive theory has been used in order to guide interventions focused on increasing physical activity among Latinos of various age groups (Marcus et al., 2013; Marquez et al., 2014; Olvera et al., 2010). A focus of two particular physical activity interventions, BOUNCE and BAILAMOS was to build behavioral capability by teaching participants to dance, giving them a skill and technique through which to perform physical activity, promoting their self efficacy. The program BOUNCE, applied the constructs of Social Cognitive Theory as follows “... (1) skill-based sessions to develop ability to perform the behavior when desired (...) (2) self efficacy [building through the confidence to perform the learned behaviors] (3) [increasing] expectations [of] positive outcome; and (4) self-control by setting behavioral change gals, monitoring one’s own behavior [and rewarding accomplishments], and engaging in problem solving. [In addition] social and environmental variables included positive role modeling” (Olvera et al., 2008) The mothers and daughters participated together as a team, allowing for the mothers to model healthy behaviors for their daughters (Olvera et al., 2010). In the program BAILAMOS, Social Cognitive Theory was used

as follows: self-efficacy was achieved by teaching the dance curriculum in a gradual manner from simple to more difficult, allowing participants to gradually build their skill level; social modeling was done by having group classes in which people with similar demographic characteristics were participating; and the instructor informed them of what physiological changes to expect which targeted the concept of positive expectations of outcomes.

The program *Seamos Saludables* also incorporated the stages of change from the transtheoretical model in order to assess individual level readiness for physical activity among participants and tailor promotional information accordingly (Marcus et al., 2013).

The social ecological model was utilized as a framework by Martyn-Nemeth et al, in their intervention to increase physical activity among Latinos with type-2 diabetes (2010). The framework guided the intervention, creating a community-based program that provided participants with culturally appropriate dance classes, while measuring individual health characteristics and perceptions of participants. Specifically, they considered “intrapersonal factors (self-reported health, metabolic parameters, and psychological well-being) and interpersonal factors (family structure and network)....” (Martyn-Nemeth et al., 2010; Schulz et al., 1998).

Other models such as the theoretical foundation of social support and the feminist perspective have been utilized to guide other physical activity interventions (Im et al., 2013; Staten et al., 2005). The latter had to do with taking into account the idea that women’s physical activity is shaped by cultural norms related to gender, women’s identity and “...their interactions with their psycho-socio-cultural environment” (Im et al., 2013). The former is simply based on the idea of physical activity done in an “organized group environment” (Staten et al., 2005).

The program Dancing4Health was not theoretically based, although based on its components it could be said that it followed the social ecological model which provides the guidance for the development of the new program curriculum developed in this paper. The intervention is being guided by the assumptions that “(1) health behavior is influenced by physical environments, social environments, and personal attributes; (2) environments are multidimensional, such as social or physical, actual or perceived, discrete attributes or constructs; (3) human-environment interactions occur at varying levels of aggregation; and (4) people influence their settings, and the changed settings then influence health behaviors” (Glanz, Rimer, & Viswanath, 2008). The social ecological model will influence the curriculum development by creating a program that is grounded in providing an actual means for exercise in a way that incorporates cultural preferences both for physical activity and social interactions. The belief is that by having a space for fun physical activity, it will change the habits of the participants, ideally changing the program in a positive way by expanding it to other sectors of the community and creating a legacy for the future generations.

3.0 METHODS

The curriculum for this thesis was developed through the results of the physical activity intervention Dancing 4 Health and a thorough literature review of physical activity programs targeted at Latino adults. Much of the background research was done through the resources provided by the Centers for Disease Control and Prevention, the National Institute of Health, the Allegheny and Pennsylvania Health departments, and the National Diabetes Association.

The relevant literature for this project was obtained through a series of searches in Pub Med and Scopus using the following criteria: Interventions targeted exclusively at children, adolescents or non-humans were excluded, as well as those developed in other countries and to a non Hispanic population. Inclusion terms included adults, Hispanic, Latino/a, and Latin American, physical activity and exercise, dance, obesity, chronic disease, diabetes, and cardiovascular disease.

The data of the program Dancing 4 Health was collected in several different ways. The biometric data that was originally part of the program was collected by the program coordinator and me, the health coordinator intern during the first day of class for each class. The pedometer and attendance data was initially collected by the program coordinator and me in order to teach the dance instructors the procedure. Once they were shown what data to collect and how, they became responsible for collecting it. The log-in sheets were created and provided to the dance instructors by me. The data collected was then submitted by them at the end of the program in

order to get paid. A satisfaction survey created by me and the dance coordinator intern was carried out through email (Gmail forms) but no responses were obtained.

4.0 RESULTS-LATINO BASED PHYSICAL ACTIVITY IN ADULTS

There are three studies with theoretical frameworks that focused on physical activity in healthy Latino adults, BAILAMOS, BOUNCE and “*Pasos Adelante*”. All three will be discussed in detail below. A general comparison of key components of the programs can be seen in Table 1.

4.1 BAILAMOS

In 2014, David X. Marquez et al. from the University of Illinois published an article in the *Journal of Health Education and Behavior* on the Latin dance program BAILAMOS[®] that was designed to increase physical activity among older Latinos (Marquez et al., 2014). The study was divided into two parts, two focus groups and a pilot intervention, for which participants were recruited through convenience sampling.

The focus groups lasted 65 to 75 minutes and included a total of 12 Latino participants (6 males and 6 females) in their 70s who spoke English, had mobility limitations, and engaged in aerobic exercise less than twice a week. On average the participants were overweight, 75% had achieved less than a high school degree and 58% had household incomes below \$30,000. According to Pew Research Center, 20% of Latinos 65 and older live in poverty (10% more than the general population) (Krogstad, 2014). The purpose of the focus groups was to explore the concepts of physical activity and dancing among older Latinos. The discussions brought about

the fact that dancing is an integral part of Latino culture and it was preferred among these participants over other forms of physical activity. In fact it was perceived as a more comprehensive form as exercise than other age-appropriate options like walking or swimming. Barriers to dancing also emerged in the focus groups, mostly related to physical and financial accessibility to dance programs. It was noted that dancing took place too late for participants to attend and dance programs tended to be too expensive or far away. A concern for personal safety was voiced as well. It is important to note that despite the low levels of education among participants, they were aware of the physical and cognitive health benefits of being physically active.

The pilot intervention lasted 12 weeks and included Spanish speakers in addition to the characteristics determined for the focus groups. Participants had to demonstrate a minimum level of physical and cognitive health assessed through a series of exams and medical assessments. In addition, participants had to have danced less than 2 times per month over the previous 12 months. Though it is difficult to deem whether this population would be able to reliably recall such specifics over the course of a year, the purpose of this criterion was to recruit sedentary participants with similar dancing skills. Materials utilized during the pilot intervention were available in English and Spanish. 13 participants enrolled in the study, of which 9 completed the program with 85% attendance. There were no statistically significant differences between those who completed the program and those who did not. The program's dance curriculum was created by a bilingual dance instructor, who began with easier dances to then move on to more complex ones like Salsa. At the end of the program, a post-intervention focus group was carried out, which showed that the participants enjoyed the program due to its cultural relevance. The post

program examinations demonstrated greater mobility among participants and some cognitive improvements. However, post-program physical activity decreased.

This pilot intervention emphasized the necessity and importance of a culturally-appropriate physical activity program in order to target the Latino population. Furthermore, it highlighted the interest of Latinos toward dancing as a form of physical activity

4.2 BOUNCE

The community study BOUNCE (Behavior Opportunities Uniting Nutrition, Counseling and Exercise) sought to explore the benefits a physical activity focused intervention targeted at low-income mother-daughter dyads (Olvera et al., 2010; Olvera et al., 2008). The study was carried out between February and May of 2006. It was comprised of two groups, an experimental and a control one, each school was either in the control or the experimental group, in order to prevent contamination between groups. The two schools chosen were in an urban setting and were matched for Latino student population, percent of students receiving governmentally supported free or reduced lunches. In order to recruit participants, presentations were done in both schools and flyers were mailed to Latino families, though there is no mention of how these families were identified (Olvera et al., 2008). The intervention was delivered in community and school settings, in the form of 1.5 hour weekly classes (45 minutes of physical activity and 45 minutes of nutritional education and counseling. The experimental group met three times a week, while the control group only met once a week.

Forty-six mother-daughter pairs were recruited to the study, of which 24% dropped out for various reasons that will be discussed later. A total of 18 pairs in the experimental group and

17 in the control group completed the program. The daughters in both groups had similar ages (average ranging from 8.8 to 11.5 years old) and 82% of them had been born in the United States. The mothers in the experimental group were statistically younger, mothers in both groups had been born in Mexico, 68% of the mothers had less than 8 years of education and 75% were unemployed. This last characteristic is very relevant considering that 6 of the 11 pairs that dropped out of the program did so due to conflicts with work schedules. On average the daughters of both groups had statistically similar BMIs (66% overweight), as did the mothers (88% overweight). It is inappropriate to classify children's weight (<18 years old) with the same body mass index calculation as adults. The appropriate instrument for this age group is an age and gender specific growth chart. It is not clear what kind of BMI calculation was utilized.

At the end of the study, physical fitness improved among the daughters of the experimental group, but not nutrition. Physical activity and physical fitness, and nutrition among the mothers showed no statistical difference. Physical fitness among the daughters was measured through a 20-meter Shuttle Run Test and a daily count per minute of moderate to vigorous physical activity. Among the mothers, physical fitness was based on measures of exercise heart rate and peak oxygen consumption at the end of a one mile walk.

4.3 PASOS ADELANTE

The Arizona College of Public Health carried out a comprehensive diabetes prevention and control program in 2001 in the Santa Cruz and Yuma counties of Arizona (Staten et al., 2005). These two counties have low income populations, mostly of Mexican descent with low education. The program was called "The Border Health Strategic Initiative." This comprehensive

program had many different components, one of them targeting the community. The community component was called “*Pasos Adelante*” (Steps Forward). The curriculum was an adaptation from the program “Su Corazon, Su Vida” from the National Heart, Lung and Blood Institute, with additional diabetes education. “*Pasos Adelante*” involved nutrition and health education along with community walking clubs. The entire program was delivered through *promotoras* and one *promotor* (community health workers), who were in charge of leading the community walks. These walks were done at hours of the day that would accommodate the participants’ schedules as well as the hot weather of the region, and public community places were utilized as meeting locations. Initially the walks were once a week for 20 minutes, building up to 3 times a week for 20 minutes. In addition, *promotoras* began withdrawing from the walks after 7 weeks in order to promote independence in the community.

The Program “*Pasos Adelante*” was 12 weeks long, although the hope was for it to have built capacity in the community that would allow for the walking clubs to continue past the end of the intervention. Overall, 87% of people completed the program. The participants were mostly female and averaged 49.5 years of age. The results of the study showed a statistically significant increase in the minutes of fast and moderate walking per week among participants ($P=.002$ and $P<.001$ respectively). Dietary habits significantly improved as well (Staten et al., 2005).

4.4 STUDIES SUMMARY

The programs BAILAMOS, “*Pasos Adelante*” and BOUNCE are very informative in order to create an effective physical activity promotion curriculum. All three programs were offered in

either English or Spanish and lasted a total of 12 weeks. The Program BAILAMOS, focused on providing dance classes to older Latinos. This intervention emphasized the benefits of providing an accessible and safe environment for Latinos to exercise through an activity that is culturally appealing, dancing. “*Pasos Adelante*” was a program focused in building capacity in the Latino population in order to create sustainable, community walking clubs. This program emphasized the effectiveness of working around a community focus with the Latino population. Finally, the program BOUNCE, involving physical activity with mother-daughter dyads, underscores the appeal of a family focused intervention for Latinos. In addition, the results indicate that children may benefit from physical activity with family.

4.5 EXISTING CURRICULA: DANCING 4 HEALTH

As mentioned above, the curriculum developed in this thesis is based on the lessons learned from the program Dancing 4 Health. This program was developed with the idea of targeting the low income Latino population in Allegheny County and had a curriculum based on a combination of traditional Hispanic dancing classes and health education presentations. The type of music chosen for the curriculum spanned music from around Latin America, making it culturally relevant to different nationalities within the community. Dancing4Health initially included 6 hour-long dance classes (two of the classes were eventually cancelled), one to two times a week, depending on the class. For two weeks, each class began with a 10 minute health education or health promotion presentation in either Spanish or English depending on Participant’s preference. After the first two weeks the health presentations were eliminated from the program upon the coordinator’s request. During the first day of each class, biometric measures of

participants were recorded (age, BMI, heart rate and blood pressure). This was to be done once more at the end of the program. In addition, to the pre and post program measures, participants used pedometers to measure their step count during each class (attendance was recorded as well). The program was promoted through participation in community events (i.e. The Center for Latin American Studies Latin American and Caribbean Festival at the University of Pittsburgh), word-of-mouth referrals, social media, LACU email chains, and minimal print media (posters and fliers).

The LACU initially decided to charge participants for the classes with the idea that a free program would not be taken seriously by the population. Costs actually turned out to be a major barrier to participation, and the class reverted to being free within two weeks of the program beginning. However, it still affected its ability to recruit the amount of participants expected (~10 per class). Participation data were obtained for the Afro-Peruvian and Mexican dance, and the Latin Aerobics class. Attendance averaged 4.19, 4.13, and 2.75 students per class respectively. The overall mean class attendance per student was low (40%). The classes Malambo and Yoruba were cancelled because 1 or less than 1 person was recruited to each. Another class, called BOMBA (an Afro-Puerto Rican dance class) had less than one student per class on average. In general, the classes that did have participants were carried out for the full 12 weeks as planned.

A lack of volunteers to aid with attendance logs and measures, and the low participation rates is what led to the elimination of health education presentations and biometric data collection. Although pedometer step counts were to be collected from participants, only the Mexican dance class and Latin aerobics class provided pedometer data records. The former reported a mean of 3312.7 ± 153 steps and the latter, 3950 ± 56 steps per participant per class. The age of the participants in the Mexican dance class was significantly lower than that of the rest.

All the students in this class were between the ages of 12 to 15. On the other hand, the rest of the classes had participants that ranged in age from 38 to 73 years old (age data was not effectively collected from all participants). Based on the data obtained, there was no relation between a participant's age and the number of classes attended.

Table 1. Intervention comparisons

	Interventions		
	BAILAMOS	BOUNCE	<i>Pasos Adelante</i>
Year	2014-2015	2006	2000-2003
Length of intervention	12 weeks	12 weeks	12 weeks
Location	Chicago, Illinois	Houston, Texas	Santa Cruz and Yuma, Arizona
# Participants recruited	13	46 mother-daughter pairs 92 total people	248
# Participants completed	9	35 mother-daughter pairs 70 total people	216
Participants age range (in years)	70s	Daughters: 7-13 Mothers: 27-48	49.5 Avg.
Type of exercise	Latin American dance classes	Structured group aerobics or sports sessions or free play. Control group: 45 minutes, 1 time per week Experimental group: 45 minutes, 3 times per week	Walking for 20 minutes 3 times per week
Physical activity related outcomes	Increased reported minutes of physical activity	Daughters in experimental group exhibited higher levels of physical fitness.	Increase in minutes of moderate and vigorous walking minutes per week.
Recruitment Strategies	Presentations at the study site, senior housing facilities, a church, and coalition meetings, and through a health center and clinic, flyers in mailboxes of senior housing facilities, referrals, and an ad in the neighborhood newspaper.	Flyers mailed directly to Latino families identified by school administrators and physical education teachers.	Presentations at schools, church groups, internal agency programs and health fairs, and by going door-to-door.
Theoretical framework	Social Cognitive Theory	Social Cognitive Theory	Theoretical foundation of social support

4.6 NEW PROGRAM PLAN

The program developed for this project is called “DanSa: Danza, Salud y Familia”, which is a word play, combining the word dance and health, since dance is spelled *danza* and health is spelled *salud* in Spanish. The program’s name translates to “DanSa: Dance, Health and Family”. The program is designed to provide a fun, family-friendly environment to exercise through Latin American dance. The program’s schedule and location will provide flexibility and accessibility, in order to overcome barriers of participation.

DanSa will be carried out in *Casa San Jose*, a community resource associated with the Catholic Church that aims to provide resources and services to the Latino community in Pittsburgh (Casa San Jose, 2015). The program aims to recruit 30 adults and their children, however if recruitment exceeded this number, another location may be sought out, such as YMCA centers, which provided spaces for classes during Dancing 4 Health. The program will last a total of 12 weeks, during which dance classes will be offered three times a week. On Saturdays they will be offered from 9:00 a.m. to 10:00 a.m., on Mondays and Wednesdays from 6:00 p.m. to 7:00 p.m. The times are subject to change if the necessity arises, in order to optimize the program’s accessibility to the target population. The classes will last one hour each. Offering the classes three times a week will allow participants flexibility as well as the possibility to complete 180 minutes of exercise per week by attending all three days – which they will be encouraged to do. The classes alone will allow for the adults to have exceeded the recommended amount of weekly moderate aerobic physical activity (Office of Disease Prevention and Health Promotion, 2008). This amount of physical activity is insufficient for children. However, it will promote good habits and potentially develop new interests and examples of a model of physical activity that is culturally relevant and can be carried on throughout a lifetime.

The target population is self-identifying Latinos and Latinas living in Allegheny County. Since this population tends to have limitations related to child care and work hours, the classes will be offered on both weekdays and weekends, during non-business hours during the week and will welcome children. The caveat is that children must come with an adult; they may not come alone due to liability issues.

Due to the target population's generally low income level, in order to assure participation, the classes will be provided for free. With this said, the class will be limited to a maximum of 30 adults (18+ years old). Children will be welcome but biometric data will not be obtained from them. This is in order to promote a family activity that is healthy and culturally relevant. In order to sign up, interested participants will provide on paper their name, date of birth, age, sex, preferred mode of contact, whether or not they identify as Latino/a and from what country, occupation, highest education level achieved and their zip code. This will allow for an assessment of the demographics of participants. The program coordinator, dance instructor, and program coordinator assistant will have the ability to sign up interested people by having sign up papers readily available

4.6.1 Program promotion and outreach

The program's promotional strategy will be an opportunity to gain buy-in into the community. In order to create a brand that is relatable to the target population, a young local artist from the Latin-American community who belonged to the youth group *Jovenes Sin Nombre* will be commissioned to create the logo design. *Jovenes Sin Nombre* was a group of first generation Latino youths from Pittsburgh and the surrounding area focused on the exploration of identities through the arts. This choice is deliberate because it may create within the community a sense of

ownership towards the program allowing for the word to spread and grow from within. In order to further this, the program positions will be advertised through organizations that interact with and for Latinos in Pittsburgh. Since DanSa intends to target Latinos of low socioeconomic status (high school education or less, income at or below poverty level (Burwell, 2015), they need to see themselves represented in the program's team (Minkler, 2000). This means that the selection of organizations through which to recruit employees is as important as where the program will be promoted.

The program as well as the staff positions for the program will be advertised through crucial organizations, such as San Regis Parish and St. Catherine of Sienna Church, Latino stores, restaurants and bars, pizza shops (not necessarily Latino-owned), the Birmingham Free Clinic and *Salud Para Niños*, the Latino Family Center, the Squirrel Hill Health Center, the Graduate School of Public Health, the Latin American Cultural Union (LACU), LEGS, and commercial establishments around the program's location. The means through which information will be delivered are posters, flyers, community email chains, social media, and referrals (i.e. LACU's email chain and Casa San Jose's Facebook page).

There is an additional barrier that the program's marketing strategy must overcome in order to successfully reach a large portion of the Latino population in Allegheny County. That is, the dispersion of the Latino population throughout the county. Unlike other cities where Latinos are mostly concentrated in one region, in Allegheny County they are spread out throughout the 13 districts (U.S. Census Bureau, 2000). In order to overcome this challenge, the program will be promoted through print media on public transportation. Port Authority has packages that allow for promotional posters to be displayed on several bus lines. In order to have 10 bulkhead posters for a month would cost a total of \$420.

4.6.2 Staff

The program staff will include a program coordinator, a dance instructor, a program coordinator assistant and an artist from the youth group, *Jovenes Sin Nombres*. It is crucial for all staff members to be bilingual (Fluent in English and Spanish) in order to have better communication and rapport with participants.

The program coordinator will oversee the general planning and implementation of the program. With that said, it is important for all staff members to feel invested in the program. This will be attained through regular communication with other staff through biweekly meetings (see Table 3).

The program coordinator assistant will not only assist the dance instructor with the attendance log (among other things), but will also substitute the dance instructor when necessary. This will allow for continuity in the program in the face of adversity. The program coordinator assistant will also aid the program coordinator during the weeks when biometric screenings will be carried out. In addition, he or she will email data of each class and meeting minutes to the program coordinator. In order to ensure a consistent structure during the meetings and the notes, a template will be followed (see Figure 1).

activity gradually in order to prevent musculoskeletal injuries among others (Powell, Paluch, & Blair, 2011).

The program coordinator will be in charge of collecting biometric data, and inputting and analyzing all the data obtained from the program. In addition, the program coordinator will need to maintain the program’s website up to date, and carry out the marketing and outreach. The evaluation of the program will be performed by the program coordinator as well.

4.7 CURRICULUM PROPOSAL

Table 2. Weekly curriculum

WEEK	Activity
Week 1	<ul style="list-style-type: none"> • Staff presented to participants • Participants given wellness passports • Participants given pedometers, record book, pen, instructions, and recommendations for 10,000 steps daily • Collect biometric measures (age, height, sex, weight, body fat %, resting blood pressure, heart rate) and personal data (income, educational level, nationality) • Attendance prize announcement (<6 missed classes) • Baseline Survey to assess physical activity • 60 minute dance class three times per week
Week 2-5	<ul style="list-style-type: none"> • Collect attendance and pedometer data • 60 minute dance class three times per week
Week 6	<ul style="list-style-type: none"> • Collect attendance and pedometer data • Collect biometric data • 60 minute dance class three times per week
Week 7-11	<ul style="list-style-type: none"> • Collect attendance and pedometer data • 60 minute dance class three times per week
Week 12	<ul style="list-style-type: none"> • Reward participants with <6 missed classes. • Collect biometric data • Collect attendance and pedometer data • Exit survey: satisfaction with program and physical activity. • 60 minute dance class three times per week

4.7.1 Week 1

The program's team will be formally introduced to participants and will be present during the classes to build rapport with participants, increasing retention rates. It will be encouraged that the team members join the dance class (this proved effective at building rapport between the participants and instructors, and I during Dancing4Health). Each participant will be given two identical wellness passports that will be used to record their attendance and biometric information. One will be kept by the participant and the other by the program coordinator assistant to have on hand. Attendance will be marked with a stamp to both wellness passport copies (see figures 2 and 3). Participants will receive a pedometer to use every day along with a small notebook to record steps. They will be given instructions on how to record their steps and a recommendation to strive for 10,000 steps daily. The pedometers' steps will be recorded before and after the dance class to separate physical activity during the dance class and outside of the program. The program coordinator assistant will collect the pedometer data from participants during each class and report it to the program coordinator along with attendance.

Biometric measures and personal data will be collected during the first week of classes to ensure that most participants' baseline data are obtained, along with a survey to measure baseline physical activity levels. The biometric measures will involve age, height, sex, weight, blood pressure, heart rate, body fat percent, and BMI. These data will be recorded in both the participant's personal card and in the one kept by the assistant. The personal data will include education, income, and nationality.

Name (First & Last): _____
 DOB: ____/____/____

Classes Attended

1	2	3	4	5	6	7	8	9
10	11	12	13	14	15	16	17	18
19	20	21	22	23	24	25	26	27
28	29	30	31	32	33	34	35	36

	Week 1	Week 6	Week 12
Age			
Height			
Blood Pressure			
Heart Rate			
Weight			
Body fat %			
BMI			
Survey			

Figure 2. Staff attendance card

1	2	3	4	5
LATINOS PITTSBURGH				
12	Tarjeta de Participacion Participation Card			6
PARTICIPANT				
11	10	9	8	7

	Week 1	Week 6	Week 12
Age			
Height			
Blood pressure			
Heart rate			
Weight			
Body fat %			
BMI			
Survey			

Figure 3. Participants' attendance card

During the first week, the dance coordinator will announce that those with less than 6 missed classes will receive a prize at the end of the program (this means that they will have participated in at least 83% of the classes).

The dance classes will last 60 minutes, at the end of which participants will be offered a water bottle and a healthy snack.

4.7.2 Week 2 through 5

Attendance and pedometer readings will be logged by the program coordinator assistant. There will be a 60 minute dance class at the end of which participants will be offered a water bottle and a healthy snack. Classes will be offered 3 times a week.

The program coordinator assistant will also take notes of the program's progress. These notes will be sent to the program coordinator in the form of an email at the end of each class. The program coordinator will see to resolve any immediate issues. Challenges will also be discussed and resolved during weekly meetings of the program's staff.

4.7.3 Week 6

Biometric measures will be collected by the program coordinator and program coordinator assistant. Attendance and pedometer data will be logged, followed by a 60 minute dance class at the end of which participants will be offered a water bottle and a healthy snack.

4.7.4 Week 7 through 11

Attendance and pedometer data will be logged by the program coordinator assistant. There will be a 60 minute dance class at the end of which participants will be offered a water bottle and a healthy snack. Classes will be offered 3 times a week.

4.7.5 Week 12

Biometric measures will be collected by the program coordinator and program coordinator assistant. Participants will be asked to complete an anonymous survey measuring satisfaction and one measuring levels of physical activity. Attendance and pedometer data will be logged, followed by a 60 minute dance class. At the end of the class, participants will be given the pedometers to keep and those who missed less than 6 classes will be given a prize by the program coordinator. Water and healthy snacks will be available.

4.8 BUDGET

The total budget for DanSa is \$8,766.03 (see appendix). This assumes that the pedometers, sphygmomanometers, the snacks and the water would be donated by the funding organization, Highmark. This is based on their donation of pedometers, sphygmomanometers and educational material during Dancing 4 Health. The new budget is approximately \$1200 less than that of Dancing 4 Health due to the elimination of a kick-off health fair organized in the previous program to recruit participants. This strategy was ineffective in attracting the Latino population and in recruiting participants, largely due to a lack of planning time. Considering that a successful health fair would require additional resources, DanSa recruitment will focus on other effective and less demanding strategies.

The salary for the dance instructors was reduced, assuming 60 hours of work (classes, travel and meetings) at \$20 per hour. This is based on the upper limit of the mean salary for dance instructors in the U.S. (Bureau of Labor Statistics, 2014). The program coordinator assistant position would be a paid internship. The salary, again, is more than for Dancing 4 Health since the responsibilities were shared by two interns in the original program. Finally, the program coordinator position has more responsibilities than the intern position. In the original program this position was unpaid. Therefore, the salary was determined based on duties when compared to the program coordinator assistant.

4.9 EVALUATION

The program will be evaluated in two different ways, through a process evaluation and an outcomes evaluation. Both will utilize the logic model (Table 4) as a guide. The biometric information collected pre mid and post intervention along with the pedometer logs, will inform the outcomes evaluation. The biometric data will elucidate physiological changes (and risk factors) among participants that DanSa may have contributed to. However, the intended outcome of the program is for 20% of participants to maintain their BMI. The pedometer data will allow for an evaluation of the impact of the program on physical activity outside the classroom. The outcome, in this case is for 20% of participants to increase their daily steps (outside of the classroom) by 10% over the duration of the program. In addition, an anonymous satisfaction survey will be administered during the last week of classes in order to receive input from participants on the successes and shortcomings of the program through their eyes.

In order to carry out the process evaluation, attendance logs and staff meeting minutes will be utilized along with the logic model. One of the short term outcomes intended by the program is to have 85% attendance by 60% of participants.

Table 4. Logic model

Inputs	Outputs		Outcomes		
	Activities	Participants	Sort term	Mid term	Long term
26 weeks of planning and promotion followed by 12 weeks of program implementation and 5 weeks for data analysis and evaluative completion.	Hire staff. Program promotion. Biometric and personal data collection (pre, mid and post program). Data input. Evaluation. Lead staff meetings.	Program coordinator	85% attendance by 60% of participants.	Program continuity for one year.	For DanSa to become a permanent part of the Hispanic community in Allegheny County.
Financial resources will be needed for location, payroll, materials and equipment. Location: Casa San Jose Pay roll: program coordinator, local artist for logo design, dance instructor, and dance instructor assistant. Materials and Equipment: two sphygmomanometers, two scales (weight plus % body fat reader), printing promotional posters and magnets, port authority promotional campaign and office supplies.	Routine data collection (attendance and steps). Assist with biometric and personal data collection. Staff meeting minutes	Program coordinator assistant	20% of participants will increase their daily steps by 10% throughout program's duration.	Pedometer usage continuity among 20% of participants.	To improve disease risks in the population by 5%.
	Create dance curriculum. Attend staff meetings. Instruct dance classes three times a week for 60 minutes (12 weeks total)	Dance instructor	Maintain BMI throughout the program among 20% of participants.		
	Attend hour-long dance classes three times per week for 12 weeks. Use a pedometer daily and log steps.	30 adult Hispanics and their children living in Allegheny County			
Endorsement and involvement from community leaders will be necessary	Create program logo design	Local artist			
Transportation, computers, data collection and analysis software and common Gmail accounts.					

5.0 DISCUSSION

The studies described in the results, from the literature review were not implemented in new growth communities. This means that the forms of recruitment that were utilized in the studies may not be optimal for this program. However, all the studies targeted low income Latinos with low educational attainment (Marquez et al., 2014; Olvera et al., 2010; Staten et al., 2005). Although this is not the target population in DanSa, poverty among the Latino population in Allegheny County is higher than that of the general population, making this the population demographic that we may recruit (U.S. Census Bureau, 2013).

The sample of the study BAILAMOS was small and cannot be used to generalize to the greater Latino population. In addition, it is unclear how the language exclusion criterion of the focus groups affected the feedback and themes that emerged, though having equal gender distribution is highly advisable. When considering expanding a similar program design to other age groups that the age of the target population had different needs and barriers when compared to those of middle-aged Latinos, who may have a family with children to care for, in addition to a demanding work schedule. Therefore, a successful physical activity program for Latinos between the ages of 18 and 60 needs to take into account additional barriers due to child care and work schedules, among others.

The program BOUNCE, though not successful in increasing physical fitness among mothers, highlighted some aspects of physical activity intervention barriers that are important in

the development of a program. The intensity of exercise determines the gains in physical fitness that a person may achieve. Therefore, it is crucial for the physical activity instructor to maintain a moderate- -to-high level of intensity in order to have a positive impact on the participants' health. Considering the physical activity in the study was described of light intensity, it is not surprising that the mothers did not see changes. On a different note, one of the main barriers for physical activity among the study's participants was work schedules, reiterating once more the importance of time accessibility.

Although the program "*Pasos Adelante*" was a walking group, it has several components that were key to its success and are not related to the type of activity performed. This program was able to build community capacity at two levels. It involved community members through the concept of *promotores* in order to deliver the program, creating a sense of familiarity and potentially a community sentiment of ownership toward the program, though the latter was not discussed. This is however suggested in the article when discussing the high level of investment and effort put forth by the *promotores*. Additionally, the *promotores* slowly began to remove themselves as leaders during the walks once the participants had reached the desired length and frequency of physical activity, allowing for a natural structure to develop from within the community. This system allowed for the walking clubs to continue beyond the extent of the program. The latter part of the program's capacity building may prove a challenge for DanSa, due to the lack of strong social networks. However, incorporating community members in the planning, outreach and delivery of the program will likely prove valuable.

"*Pasos Adelante*", also addressed the populations' time barriers for leisure-time physical activity by providing the program during non-working hours when the climate was favorable

(morning). This, as has been addressed in the programs BOUNCE and BAILAMOS, is an important component of any physical activity program targeting adult Latinos.

The programs BOUNCE, BAILAMOS and “*Pasos Adelante*” were good guides to the development of DanSa, in order to serve the Latino community in Allegheny County. The need to increase physical activity is necessary in the entire country, not just in high density Latino communities (CDC, 2014b). In addition, Latinos’ values toward community and family, and their preference toward dancing and walking are unlikely to be different in Allegheny County. Therefore, a community and family focused dance program is a plausible way to increase physical activity among Latinos in the region.

With that said, outreach barriers still exist due to the nature of this *new growth community*. In order to overcome this, the outreach strategy for DanSa is broad and multilevel. It combines transportation advertisement, referrals through word of mouth, organizations and physicians, print media, and participation in community events like *La Feria* Pittsburgh (a Latino-focused health fair). Among the many organizations through which DanSa would be promoted, is *LEGS: Latino Engagement Group for Salud*. LEGS is made up of *promotores* and aims at connecting Latino men to healthcare and other services in order to improve their health. This group has been successful in reaching Latinos who are on the periphery of the community and are difficult to reach (Documét et al., 2015).

6.0 CONCLUSION

6.1 LIMITATIONS

One of the limitations of this program is its expected size. A program like DanSa, targeting 30 adults will not have a large impact on the county's population. In addition, although the program has an elaborate recruitment strategy, the dispersion of Latinos in the County along with the lack of strong social networks will pose a challenge for recruitment (Documét et al., 2015; Documét & Sharma, 2004). These challenges are reflected in the high cost of the program's promotional campaign. Also, it is beyond the scope of the program to do a long-term follow-up of participants' behavior change sustainability, with regards to physical activity and disease-prevention. However, the long term goal is for the program to grown and become part of the community's identity, making it a well-known and able to more easily overcome the outreach challenge currently experienced. In this case, the possibility for a greater and long-term impact on the population may be possible.

6.2 PUBLIC HEALTH SIGNIFICANCE

Inactivity increases the risk of obesity, chronic diseases and early death. All of these factors take a toll on the population as well as the economy. Furthermore, Latinos have the second greatest

rates of obesity and inactivity in the country. In Allegheny County Latinos are a rapidly emerging community with high rates of obesity, heart disease and cancer. The program *DanSa* will provide this community with a culturally tailored program to increase physical activity in the community, with the ultimate goal of lowering rates of obesity, disease and mortality among this population.

The Public Health significance of this thesis is to provide a curriculum for a culturally sensitive program to increase physical activity among Latinos in a new growth community.

APPENDIX: BUDGET

LINE ITEM	Salary	Level of Effort (FTE)	Funder Request
Personnel			
Program coordinator: Coordinate and manage program outreach and implementation, contact and meet with community, data collection, input and analysis	2,500.00	1.0	\$ 2,500.00
Program coordinator assistant: substitute dance instructor, take attendance, data collection	1,500.00	1.0	\$ 1,500.00
Dance Instructor: develop dance curriculum, teach dance classes 3 times per week	1,500.00	1.0	\$ 1,500.00
Local Artist: design program's logo	250.00	1.0	\$ 250.00
TOTAL PERSONNEL			\$ 5,750.00
Travel			
millage traveled: \$0.56 per mile x 60 miles per day (avg.) x 36 days			\$ 1,209.60
TOTAL TRAVEL			\$ 1,209.60
Supplies			
Office Supplies (\$30 x 3 personnel)			\$ 90.00
SUPPLIES			\$ 90.00
Program Location: Casa San Jose			\$ 1,000.00
LOCATION			\$ 1,000.00
Other			
Digital Scale with body fat%: 2 units			\$ 100.00
Sphygmomanometer: 2 units - donation			\$ -
Pedometers (40): (1 per participant) + extra units - donation			\$ -
Participant attendance card -100units business card size			\$ 20.00
staff attendance card - 50 units 8.52 x 5.47			\$ 17.00
port authority, 10 bulkhead posters for a month			\$ 420.00
posters 10 units 20 x 16			\$ 109.14
magnets 100 units 2 x 3.5			\$ 21.39
flyers- 100 units 5.5 x 4.25			\$ 28.90
snacks-donation			\$ -
water bottles-donation			\$ -
Total Other			\$ 716.43
TOTAL COSTS			\$ 8,766.03
Unit Cost Per Person (total cost/expected participants): 30 adults and 10 children			\$ 219

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