Tiempo Juntos
Por Nuestra Salud

Cost-effective and Safe Physical Activity Interventions for the Older Latinx Population

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Class of 2023

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Haverford College
Class of 2023

Mentor:
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Background

White men out-earn black and Hispanic men and all groups of women
Median hourly earnings as a percent of white men’s earnings

Note: Estimates are for all civilian, non-institutionalized, full- or part-time workers ages 16 and older with positive earnings. Self-employed workers are excluded. Hispanics are of any race. Whites, blacks and Asians include only non-Hispanics. Asians include Native Hawaiian and Pacific Islanders.


Sources
Significance

• According to the American Psychological Association (2021), CVDs are the number 2 cause of death for Hispanics/Latinos behind cancer.

• CDC presents that Hispanic/Latinos, at 17%, are more prevalent to develop type 2 diabetes (8%).

Sources


Aims and Methods

Aim One
To examine the immediate and longer-term effects of Tiempos Juntos on the primary outcome of physical activity and on secondary (distal health) outcomes of CV health, sleep, and cognitive function.

Assessment Method: Measured at each time interval, using both device-assessed and self-report approaches.

Tools used:
- Actigraph – physical activity.
- CV Health Outcomes – Automated BP device.
- Sleep Outcomes – Actigraphy monitoring
- Self-reporting tools based on 7-day Physical Activity Recall.

Aim Two
To identify theoretical mediators of Tiempos Juntos effects on physical activity.

Assessment methods: To be assessed at each time point.
Assessments:
- Social network support – measured using the Social Support and Exercise Survey.
- Community Resources – measured through the Neighborhood Environment Questionnaire.
- Self-knowledge – Possible Selves Questionnaire
- Motivation Appraisal – Index of Readiness
- Self Regulation – Index of Self-Regulation

Aim Three
(Exploratory) To evaluate the effect of changes in CV health and sleep quality on cognitive function.

Assessment Method: Health outcomes to be measured at each time interval.
Tools:
- Cognitive function – assess working memory, verbal and visual memory, generational and strategic search, visuospatial abilities, naming, and semantic knowledge, processing speed, and cognitive flexibility.
- CV Health Outcomes – Automated BP device.
- Sleep Outcomes – Actigraphy monitoring

Aim Four
To evaluate intervention costs.

Method: Calculate intervention costs, and compare healthcare utilization costs to intervention costs to assess potential cost offsets.
Aim Two

Figure 1. Multilevel Intervention Framework to promote community-based physical activity (adapted from Fleury, 1996)

**TIEMPO JUNTOS INTERVENTION STRATEGIES**

- CHW Leadership Development
- Neighborhood Safe Walking Trails
- Social Support for Physical Activity (Group Walking)
- Empowering Education
- Motivational Support

**THEORETICAL MEDIATING PROCESS**

- **Intrapersonal**
  - Self-knowledge (Possible Selves Questionnaire)
  - Motivation Appraisal (Index of Readiness)
  - Self-regulation (Index of Self-Regulation)

- **Interpersonal**
  - Social Network Support (Social Support & Exercise Survey)

- **Environmental**
  - Community Resources (Neighborhood Environment Questionnaire)

**PRIMARY BEHAVIORAL OUTCOME**

- Physical Activity (frequency, intensity, duration)

**SECONDARY/DISTAL HEALTH OUTCOMES**

- Cardiovascular Health Outcomes (SBP/DBP, HR)
- Cognitive Function Outcomes (executive function, episodic memory, working memory)
- Sleep Quality Outcomes (increased total sleep time, decreased nocturnal wake after sleep onset, and day/night sleep ratio)

* mHealth Strategies: Reinforced via calls/texts through booster sessions
Social Support for PA

Strong social networks, and social cohesion could have a positive effect on health when a person feels connected by cultural background (Marquez et al., 2020).

In a 2019 analysis of the results of “Health is Power” report, a sample for diverse latino population was taken. Those who felt that Neighborhood social cohesion was high, reported less barriers to walkability (Vasquez et al., 2019).

In another analysis of increasing PA activity in minority women, show that the presence of disadvantages in a neighborhood would negatively affect a resident’s perception of the area, and thus can lead to significant reductions in PA and social interaction (Soltero et al., 2015).
**Physical Environmental**

**Sidewalk**
2717 N 6th St
Philadelphia, PA 19133

**Major Physical Factors of Walkability in Areas**

- Condition of Sidewalks, Road Maintenance
- Weather Conditions
- Sign availability i.e “Seniors Present”
- Occurrence of violent crime
- Drug use in the area
- Safety Patrols, Social Groups
Specific Crime Details

Reported Crime in the month of July

<table>
<thead>
<tr>
<th>Violent Crime</th>
<th>Property Crime</th>
<th>Drug Crime</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 Homicides</td>
<td>0 Rapes</td>
<td>13 Robberies</td>
</tr>
<tr>
<td>31 Aggravated Assaults</td>
<td></td>
<td></td>
</tr>
<tr>
<td>15 Burglaries</td>
<td>36 Thefts</td>
<td></td>
</tr>
</tbody>
</table>

Approximate area of 19133
Reported Crime of July
phillypolice.com

<table>
<thead>
<tr>
<th>Neighborhood</th>
<th>Population</th>
<th>Violent Crime Rate</th>
<th>Property Crime</th>
<th>Drug Crime Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fairhill</td>
<td>117042</td>
<td>0.70</td>
<td>1.23</td>
<td>0.65</td>
</tr>
<tr>
<td>Kensington</td>
<td>52029</td>
<td>0.60</td>
<td>1.60</td>
<td>0.77</td>
</tr>
<tr>
<td>Port Richmond</td>
<td>24540</td>
<td>0.69</td>
<td>3.46</td>
<td>0.0</td>
</tr>
</tbody>
</table>
## Casa Indiana: 2935 N 2nd Street

<table>
<thead>
<tr>
<th>Disadvantages</th>
<th>Advantages</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image1.jpg" alt="2914 Palethorp St, Philadelphia, PA 19133" /></td>
<td><img src="image2.jpg" alt="Kendon Photography Senior Housing News February 16, 2021" /></td>
</tr>
<tr>
<td><img src="image3.jpg" alt="2930 N 2nd St Philadelphia, PA 19133" /></td>
<td><img src="image4.jpg" alt="Kendon Photography Senior Housing News February 16, 2021" /></td>
</tr>
</tbody>
</table>
### Casa Caribe / Caribe Towers: 173 W Allegheny Street

<table>
<thead>
<tr>
<th>Disadvantages</th>
<th>Advantages</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image1" alt="Disadvantage Image" /> 3082 N 2nd St Philadelphia, PA 19133</td>
<td><img src="image2" alt="Advantage Image" /> Gallery, Park Casa Caribe Hacecdc.org</td>
</tr>
<tr>
<td><img src="image3" alt="Disadvantage Image" /> 184 W Allegheny St Philadelphia, PA 19133</td>
<td><img src="image4" alt="Advantage Image" /> 173 W Westmoreland St Philadelphia, PA 19133</td>
</tr>
</tbody>
</table>
### Somerset Villas: 200 E Somerset Street, Philadelphia, PA

<table>
<thead>
<tr>
<th>Disadvantages</th>
<th>Advantages</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image1.png" alt="Disadvantages Image 1" /></td>
<td><img src="image2.png" alt="Advantages Image 1" /></td>
</tr>
<tr>
<td><img src="image3.png" alt="Disadvantages Image 2" /></td>
<td><img src="image4.png" alt="Advantages Image 2" /></td>
</tr>
</tbody>
</table>

**Somerset Villas:**
- **298 E Somerset St**
  - Philadelphia, PA 19134
- **77 E Somerset St**
  - Philadelphia, PA 19134
- **A St**
  - Philadelphia, PA 19134

**Gallery, Front**
- Somerset Villas
- HaceCDC.org
Aim Four

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*mHealth Strategies: Reinforced via calls/texts through booster sessions*
Effective Recruitment Strategies for Latinx Population

**Using Electronic Medical Records.**

In a September 2020 study about clinical trial recruitment for gout patients (Miller et al., 2021), from 294 potential participants, 51% of participants were recruited using medical record-based methods.

**In-person, community organization engagement.**

In the 2011 UCLA study (Mendez-Luck et al., 2011), focused on recruitment, 70% of participants recruited in the two studies of interest attended a recruitment event.

**Community-based mass media.**

In a 2017 study about strategies for recruiting Latinx people for research (Garcia et al., 2017), newspaper advertisements and radio broadcast may reach many potential participants and may be more affordable.

Sources


## Cost Comparison of Recruitment Strategies

<table>
<thead>
<tr>
<th>Type of Recruitment</th>
<th>Cost per Participant/Enrollee</th>
</tr>
</thead>
<tbody>
<tr>
<td>Online to general population</td>
<td>$794</td>
</tr>
<tr>
<td>Online to African Americans or men</td>
<td>$1426</td>
</tr>
<tr>
<td>In-person recruitment</td>
<td>$1081</td>
</tr>
<tr>
<td>Community fairs</td>
<td>$917</td>
</tr>
<tr>
<td>Direct mail</td>
<td>$799</td>
</tr>
<tr>
<td>Newspapers</td>
<td>$436</td>
</tr>
<tr>
<td>Flyers</td>
<td>$298</td>
</tr>
</tbody>
</table>

A 2018 study (Juraschek et al., 2018) on the cost-effective recruitment strategies for randomized trials for cancer patients.  

A 2011 study (Mendez-Luck et al., 2011) on the effective recruitment strategies in a Mexican-origin population.

Sources:

In a 2009 study called “Lifestyle Interventions and Independence for Elders Pilot Study,” physical activity and education costs were compared for older adults.
- Multisite, randomized-controlled trial.
- Population: Older adults who were sedentary and at risk for disability.
- Groups: Physical Activity or Education (Control)

**Cost of physical activity intervention:** $1134 per person per year.

**3.4% incremental reduced disability**

**Cost of education intervention:** $175 per person

In a 2017 study, a community-based, physical activity intervention and nutrition program for older adults called Texercise Select was reviewed.
- Participants over the age of 55 were targeted for recruitment, though people aged 45 and over were allowed to participate.
- No physical or cognitive exclusion criteria.

**Cost of interactive class:** $229 per person, 12-week program.

**Result:** Quality-adjusted life year gain for Hispanic participants was 0.160.
- Cost per QALY gain was $1433 – which indicated the estimated investment.

Sources
Summation: The “See-Saw” of Transformative Research

**Goal:** To see an increased effort to include Latinx populations in research to promote health outcomes through preventative action.

**Cost-efficient**
- Research process must be cost-effective to be able to help low- and middle-class families.
- Effective cost management may allow for more diverse/targeted recruitment.
- If cost is not balanced, recruitment will be affected. High overall spending = may decrease outreach/recruitment funds.

**Effective and Equitable Recruitment**
- Research cohorts must be representative and applicable to patient populations.
- Effective recruitment may decrease overall research cost.
- If recruitment is not balanced, costs will be affected. High recruitment = may outspend research budget.
Role in the Project

- Performed the literature review regarding social supports for the older population to engage in physical activity.
- Completed translations for a variety of study-related documents, ranging from IRB modifications to HRS survey questions.
- Performed a literature review regarding cost-effective recruitment, effective recruitment, and cost-effective physical activity interventions.
Our Lessons Learned

**Personal**
Throughout the research process, the answer that we find may be more useful than the answer we were originally looking for.

**Academic**
As a student, the research project has made us aware of the importance of research access for the Latinx community, as this is a medium for accessibility.

**Career**
We learned that we can contribute to making healthcare more accessible through the lens of targeted community outreach - a factor that we will consider in our future practice.
Acknowledgements!

Dr. Adriana Perez, PhD, CRNP, ANP-BC, FAAN, FGSA

Marianna Olave and Darlene Hodge Rodriguez

The Entire *Tiempos Juntos* Team

Joanne Levy, MBA

SUMR Scholars and Joanna Kim
References


Questions?