



Using interactive Internet technology to promote physical activity in Latinas: Rationale, design, and baseline findings of Pasos Hacia La Salud



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ABSTRACT

Internet-based interventions show promise as an effective channel for promoting physical activity. However, a paucity of research has been conducted among underserved groups despite recent increases in Internet access and physical activity-related health disparities in these communities. Thus, the current randomized controlled trial will test the efficacy of an individually tailored, Internet-based physical activity intervention for Latinas. This program was culturally and linguistically adapted for the target population through extensive formative research. Two hundred eighteen sedentary Latinas were randomly assigned to the Tailored Physical Activity Internet Intervention or the Wellness Contact Control Internet Group. The Physical Activity Internet Intervention, based on Social Cognitive Theory and the Transtheoretical Model, utilizes a website with features including self-monitoring, goal setting, discussion forum, links to online resources, individually tailored and motivation-matched physical activity feedback reports, and exercise tip sheets. Participants receive regular emails over the first 6 months with a tapered dose during the second 6 months (maintenance phase) to alert them to new content on the website. The main outcome is differences in minutes/week of moderate to vigorous physical activity at six months as measured by the 7-Day Physical Activity Recall and accelerometer data. High reach, low cost, culturally relevant Internet-based interventions that encourage physical activity among Latinas could help reduce health disparities and thus have a substantial positive impact on public health.

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1. Introduction

Physical activity plays a key role in the prevention and management of multiple chronic health conditions, including cardiovascular disease, type 2 diabetes, high blood pressure, and colon and breast cancer. Despite these benefits, most Americans are insufficiently active [1]. To combat this public health concern, a growing number of studies on Internet-based physical activity interventions have been conducted. Widely used by most Americans [2], Internet-based technology has the potential to reach a large number of people at a relatively low cost, and has demonstrated promising results when utilized for physical activity promotion [3–6].

In a recent review of Internet interventions promoting physical activity in adults [3], most (61.9%) of the 72 identified studies reported significant increases in physical activity, and these findings are consistent with results from previous reviews [4,5] and meta-analyses in this area [6]. However, little research on Internet-based physical activity interventions has been conducted among underserved populations [3]. In fact, the previously referenced review was unable to locate any Internet- and/or web-based physical activity intervention studies focused on racial/ethnic minority groups and identified only one study with a majority (78%) of Latino sample [7]. These findings are unfortunate given the calls for more research in this area [3], as Latino women (Latinas) report high rates of inactivity and related chronic diseases [8–10] and are in need of effective interventions.

Latinas often report barriers to physical activity related to childcare and household responsibilities [11–15] and thus might find Internet-based interventions particularly convenient and appealing. Such interventions can be accessed at the time and place most convenient for the participants (e.g., from the comfort of home while children nap), without disrupting family routines or even requiring transportation.

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Our past research has shown that individually tailored theory-based (Social Cognitive Theory and Transtheoretical Model [19,20]) feedback on their progress that is mail-delivered can produce significant increases in physical activity levels [16–18]. Internet technology allows for tailored intervention messages to be immediately delivered to participants without the delays inherent to other channels (e.g., print, telephone). This can provide increased interactivity and accountability, which were features requested by Latinas in our past physical activity intervention research studies [16–18]. While a slight digital divide remains in terms of Internet use between Whites (84%) and Latinos (74%), recent data indicate that Internet use among racial/ethnic minorities is rapidly nearing levels reported by Whites [2,21].

The current study capitalizes on this increased access to Internet technology and its likely appeal to address physical activity-related health disparities in this community. We are testing the efficacy of a 6-month culturally and linguistically adapted, individually-tailored Internet-based physical activity intervention for Latinas. This paper describes the design, rationale, and baseline findings from this randomized controlled trial.

2. Methods

2.1. Overall design

The Pasos Hacia La Salud study (N = 218) is a randomized controlled trial of a 6-month Spanish-language, culturally and linguistically adapted, individually tailored, Internet-based Physical Activity Intervention, compared to a Spanish-language Internet-based Wellness Contact Control condition. The primary dependent variable is minutes/week of moderate to vigorous physical activity (MVPA) as measured by self-report and accelerometer data. The hypothesis is that those in the Tailored Physical Activity Internet Intervention will demonstrate significantly greater increases in physical activity participation from baseline to post-intervention (six months) than the Wellness Contact Control Internet Group. Secondary aims include examining maintenance of behavior change at 12 months post-randomization, exploring potential mediators (e.g., self-efficacy, cognitive and behavioral processes of change, theoretical constructs specifically targeted by the physical activity intervention) and moderators (baseline stage of change and environmental access to physical activity equipment) of treatment effects, and evaluating the cost effectiveness of delivering the intervention. See Fig. 1 for study schema.

2.2. Design considerations

Several considerations were made when designing the current study. We evaluated the feedback received from participants in previous studies and conducted focus groups with individuals from the target population to help us select the most ideal features and characteristics for the study arms [16–18]. We considered offering the study in both English and Spanish, however Latina participants in prior studies [16–18] showed little interest in receiving materials in English.

We also considered including both men and women in the study but chose to focus on women as cultural issues may contribute to the higher rates of inactivity found among Latinas [12,24–29]. Specifically, participants in our previous studies and focus groups frequently described having to fulfill multiple gender-specific roles and responsibilities, such as caregiving and home management, that interfere with their ability to be physically active [15]. Thus, we chose to limit our study to women and include content and support to specifically address these issues in our Internet-based intervention.

Given the rapid increase in the use of mobile technology, such as smartphones, and the benefits of these media channels (interactivity, immediate feedback), we also considered designing the intervention to be delivered via smartphone. However, while smartphone use has increased among Latinos in recent years, only 29% of Spanish-

dominant Latinos, and 40% of low-income Latinos own a smartphone device [22,23]. Furthermore, our formative research done with Spanish dominant Latinas in San Diego prior to this study revealed that this population preferred receiving Intervention content via the website and email rather than a mobile device. Therefore, for this particular population, the web-based media channel appeared to be most appropriate and allowed for inclusion of a high-risk population that may not have been eligible for an intervention requiring smartphones.

2.3. Participant recruitment

Several recruitment methods were used. The primary mode of recruiting participants was through paid ads on Craigslist.org, from which we were contacted by 473 people. Other methods included participant referrals (n = 102); advertising in local Spanish language newspapers (n = 125); mailed and emailed study information through primary care doctor offices (n = 30); advertisements posted around San Diego including churches, primary care offices, grocery stores, hair salons, and laundromats (n = 26); and attending local events including health fairs (n = 90). The total cost of recruitment for this study was \$8585. The cost per randomized participant based on the top three recruitment yields was as follows: paid ads via Craigslist.org (\$8.50/person); local Spanish language newspapers (\$34/person) and local events (\$4.44/person). Although many names were obtained through sign-up interest lists at community events, very few of these people responded when contacted later by staff regarding their potential interest in participating. Therefore, using an Internet-based method, such as Craigslist.org, was the most effective way to recruit for this Internet-based intervention study.

2.4. Eligibility requirements

Inclusion criteria included the following: self-identified as Hispanic or Latino according to the Census Bureau's list of racial/ethnic backgrounds; self-reported insufficient physical activity (defined as participating in MVPA less than 60 min/week); 18–65 years old; verified BMI <45 kg/m²; regular access to an Internet-connected computer through home, work, or the community (e.g., public library, community center, neighbor's house); and willingness to be randomly assigned to either of the two study conditions. The cutoff of 60 min of MVPA per week was used in order to target the most inactive individuals in greatest need of increasing their activity.

Exclusion criteria included the following: unable to read or speak Spanish fluently, history of coronary heart disease (history of myocardial infarction or symptoms of angina), diabetes, stroke, orthopedic conditions which limit mobility, or any other serious medical condition that would make physical activity unsafe, current or planned pregnancy, planning to move from the area within the next year, hospitalization due to a psychiatric disorder in the past 3 years, and/or taking medication that may impair physical activity tolerance or performance (e.g., beta blockers).

2.5. Efforts to reduce barriers to participation and increase retention

In our team's experience, cost, childcare, and transportation have been barriers to research participation, especially among Latinas. Although the intervention is delivered at no cost to the participant via the Internet, several research activities (e.g., measurement visits) are conducted in person. Therefore, we provide reimbursement for travel and childcare for those in need of these services. We also offer flexible scheduling (i.e., in the morning, afternoon, evening, weekend). We utilize bilingual/bicultural staff to aid in recruitment and retention as we have found that Latinas are more interested in participating in research when approached by staff they can identify with and are offered an intervention tailored to their particular needs and ethnic identity. Having bicultural/bilingual staff that can build rapport with

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