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Evaluation of a Statewide, Extension-Based, Email-Mediated Walking Intervention

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Purpose:

Despite a strong body of evidence of the physical, mental, and social health benefits of a physically active lifestyle, a majority of U.S. adults fail to meet physical activity guidelines [1]. These national guidelines recommend all adults avoid inactivity and also accumulate at least 150 minutes of moderate-intensity or 75 minutes of vigorous-intensity physical activity each week [2]. Unfortunately, only about 20% of U.S. adults met national physical activity guidelines in 2016 [1].

Walking is a particularly appropriate population-level physical activity promotion strategy because walking is the most popular form of aerobic physical activity. Walking is likely popular because it does not require special equipment or training, is low cost, has a low injury rate, and can be done year-round across settings [3]. Furthermore, walking is also an activity that is easily measurable so that targets or goals can be clearly defined.

From a public health perspective, changing physical activity behavior should focus on strategies that have the greatest reach, are effective, and sustainable. Community-based physical activity interventions which use informational approaches have shown promise in increasing population-levels of physical activity [4, 5]. Informational approaches include provision of information with the purpose of motivating and enabling people to change behavior. These approaches use education to build cognitive skills which precede behavior change. Community programs which deliver messages through a variety of media such as newspapers, radio, and email have also been shown to be effective in increasing physical activity among adults. Both informational and community-wide approaches to physical activity promotion can reach a large number of people with modest effort. Furthermore, self-instructional physical activity change programs are likely to reach more people than traditional face-to-face methods. Therefore, this study investigated the feasibility and effectiveness of a statewide e-mail based walking promotion program.

Methods:

The *Get WalkIN'* program is based from the interpersonal health behavior theory, social cognitive theory [6]. *Get WalkIN'* consists of a total of 16 e-mails designed to increase walking. Program e-mails to participants by Extension Educators were sent bi-weekly for the first four weeks and then weekly for the next eight weeks. These e-mails targeted principles of self-efficacy, social support, goal-setting, and benefits/barriers to walking.

Design

We conducted a preintervention-postintervention community-based trial to determine the effectiveness of Get *WalkIN'* across the state of Indiana. As this intervention has already been shown to be effective in a randomized design, a control group was not used in this study. The project was approved by the XYZ University Institutional Review Board.

Sample and Recruitment

In the fall of 2017, Get WalkIN' was launched across Indiana and made available to Extension Educators across all areas of Extension: agriculture and natural resources, health and human sciences,

economic and community development, and 4-H youth development. Recruitment materials were available on the intranet site and accessible by all Extension Educators. These materials included pre-made social media messages, news releases, newspaper articles and flyers. Extension Educators were also encouraged to utilize pre-existing email listservs and to recruit at current Extension programs. There were no limiting inclusion criteria for participating in the program.

Between August 2017 to May 2018, the Cooperative Extension program year, 414 participants were recruited from 22 county extension sites. It is important to note that survey completion was not required to participate in this community-based program. While 414 participants initially signed up for the walking program, 215 participants took the baseline survey. On average, these participants were mainly female (90%), middle aged (52±12 years), and non-Hispanic white (96%). Forty-five percent of participants had at least a 2-year college degree. Thirty percent of participants reported a household income of less than $50,000 per year and 30.5% reported a household income of greater than $90,000 per year. For comparison, 79.6% of Indiana adults are non-Hispanic white, 87.8% are high school graduates, and the median household income is $49,255.

Measures and Analysis

Self-reported physical activity and walking was assessed using the Godin Leisure Time Physical Activity Questionnaire [7]. The theoretical constructs of self-efficacy and social support were measured using existing measures with demonstrated reliability and validity and adapted to be specific to walking [8, 9].

Descriptive statistics were used to summarize participant characteristics and outcome measures. Chi-square and two-sample t-tests were used to assess differences between baseline and post-intervention assessments. Data were analyzed using SAS 9.4 with statistical significance was set at $p < 0.05$.

Results:

Physical Activity

At baseline, participants reported walking an average of 119±8.6 minutes per week. This significantly increased post-program to 183.9±16.7 minutes per week and this increase was maintained 3-months post program with participants reporting an average of 195.7±19.0 minutes of walking per week ($p<0.01$). Participants also reported significantly increased in moderate and vigorous physical activity. At baseline, participants reported an average of 73.1±7.3 minutes of moderate intensity activity per week. This significantly increased post-program to 133.6±14.2 minutes per week and this increase was maintained 3-months post program with participants reporting an average of 128.1±16.3minutes of moderate physical activity per week ($p<0.01$). Vigorous physical activity increased to a lesser extent. At baseline, participants reported an average of 57.7±5.4 minutes per week of vigorous physical activity. This significantly increased post-program to 89.5±10.6 minutes per week ($p<0.05$) but decreased to 68.3±12.3 minutes per week at the maintenance assessment.

Theoretical Constructs

While there was a slight increase in the making time subscale of self-efficacy pre-post, changes were not statistically significant (see table 2). On average, there was significant decrease in the resisting relapse subscale of self-efficacy from baseline to post-intervention. However, resisting relapse increased to near baseline levels in the maintenance period. Participants did report a significant increase in perceptions of social support from baseline to-post intervention however this decreased to baseline levels in the maintenance period.

When examining the relationship between changes in theoretical constructs with changes in weekly walking minutes, no significant changes were seen for making time or resisting relapse self-efficacy at

either time points. However, social support was significantly associated with increased walking minutes (β=31.7±22.5; p<0.05) immediately post-program.

Conclusion:

The findings from the evaluation of *Get WalkIN'* suggest that after the program, Indiana adults increased their walking and overall physical activity behavior and maintain this behavior change over the course of 3-months post-program maintenance phase. Approaches are needed that effectively support both increasing physical activity behavior and maintaining physical activity behavior change. Use of the Cooperative Extension System is a valuable option for health promotion program delivery.

Title:
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Keywords:
community, intervention and walking

References:

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Abstract Summary:
Get WalkIN' is an 12 week, theory-driven, email-based intervention shown effective in increasing physical activity among adults. In addition outcome data, participants will engage in understanding theoretical constructs to develop health messages and promote physical activity behavior change.

Content Outline:

1. *Introduction*
2. Importance of physical activity
3. Prevalence of physical activity

4. *Body*
5. Main Point #1: Role of health behavior theory in physical activity promotion
6. Main Point #2: Importance of walking in physical activity promotion
7. *a)* Walking is a particularly appropriate population-level physical activity promotion strategy because walking is the most popular form of aerobic physical activity.
8. *b)* Walking is likely popular because it does not require special equipment or training, is low cost, has a low injury rate, and can be done year-round across settings.
9. *c)* Walking is also an activity that is easily measurable so that targets or goals can be clearly defined.
10. Main Point #3: Role of community-based organizations and informational approaches in physical activity promotion
11. *a)* Community-based physical activity interventions which use informational approaches have shown promise in increasing population-levels of physical activity
12. *b)* Community programs which deliver messages through a variety of media such as newspapers, radio, and email have also been shown to be effective in increasing physical activity among adults.
13. *c)* Both informational and community-wide approaches to physical activity promotion can reach a large number of people with modest effort.
14. Main Point #4: Findings
15. *a)* At baseline, participants reported walking an average of 119±8.6 minutes per week. This significantly increased post-program to 183.9±16.7 minutes per week and this increase was maintained 3-months post program with participants reporting an average of 195.7±19.0 minutes of walking per week ($p<0.01$).
16. *b)* On average, there was significant decrease in the resisting relapse subscale of self-efficacy from baseline to post-intervention. However, resisting relapse increased to near baseline levels in the maintenance period.
17. *c)* Participants did report a significant increase in perceptions of social support from baseline to-post intervention however this decreased to baseline levels in the maintenance period.

III. Conclusion

1. Indiana adults increased their walking and overall physical activity behavior and maintain this behavior change over the course of 3-months post-program maintenance phase.
2. Approaches are needed that effectively support both increasing physical activity behavior and maintaining physical activity behavior change.
3. Use of the Cooperative Extension System is a valuable option for health promotion program delivery.

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