

Research Papers

# Longitudinal changes in psychosocial constructs and physical activity among adults with physical disabilities

Maria Kosma, Ph.D.<sup>a,\*</sup>, Rebecca Ellis, Ph.D.<sup>b</sup>, and Jeremy J. Bauer, Ph.D.<sup>c</sup>

<sup>a</sup>Department of Kinesiology, Louisiana State University, Baton Rouge, LA 70803, USA

<sup>b</sup>Department of Kinesiology & Health, Georgia State University, Atlanta, GA 30303, USA

<sup>c</sup>Hayes + Associates, Inc. Corvallis, OR 97333, USA

## Abstract

**Background:** Given the importance of physical activity (PA) and the low activity levels among adults with physical disabilities, it is important to understand how temporal changes in psychosocial constructs affect PA changes over time.

**Objective/Hypothesis:** Examine if changes in the transtheoretical model (TTM) constructs affected changes in PA levels over time.

**Methods:** One hundred thirty-two adults with physical disabilities, such as multiple sclerosis and spinal cord injuries, completed a web-based survey once every 4 months, for a total of 3 time points, to assess the TTM constructs and PA. Six latent growth curve analyses were conducted using Mplus<sub>5</sub> to examine if longitudinal changes in the TTM constructs affected temporal changes in PA levels.

**Results:** All six hypothesized models fit the sample data well (e.g.,  $\chi^2 = \text{NS}$ ;  $RMSEA = <.001-.06$ ). In a descending order of significance, the best predictors of the initial levels of PA were the stages of change, the behavioral processes of change, the cognitive processes of change, self-efficacy, and perceived pros. The meaningful predictors of PA changes over time were the initial levels and the slopes of the cognitive processes of change, perceived pros, and the behavioral processes of change. Although the slopes of the stages of change and perceived pros did not have a statistically significant effect on PA changes, their effects approached a medium size (.33 and .38, respectively).

**Conclusions:** In order to reassure the maintenance of an exercise program, interventionists need to first emphasize cognitive, motivational strategies (cognitive processes of change), such as the importance of PA and positive thoughts about exercise participation as well as exercise benefits (pros) before they implement behavioral strategies (behavioral processes of change), such as social support, goal setting, and self-rewarding. © 2012 Elsevier Inc. All rights reserved.

**Keywords:** Longitudinal study; Transtheoretical model; Physical activity; Latent growth curve analysis; Physical disabilities

Physical activity participation has numerous physiological and psychological benefits for all individuals and especially for people with physical disabilities, who tend to be less active than people without disabilities [1]. Only 18% of adults with disabilities participate in physical activity of moderate or higher intensity compared with 33% of adults without disabilities [1]. One of the goals of *Healthy People 2020* is to increase physical activity participation among adults [1]. One way to achieve this goal is to rely on motivational theories of physical activity behavior change, such as the transtheoretical model (TTM) [2,3].

The authors have no conflicts of interest to declare. The authors would like to thank the funding agency of the project, the National Multiple Sclerosis Society (Grant PP1463). Additionally, we would like to acknowledge Dr. Alan Acock, Distinguished Professor of Human Development and Family Sciences at Oregon State University, for his assistance with identifying resources about latent growth curve analyses.

\* Corresponding author: 112 H.P. Long Field House.

E-mail address: mkosma@lsu.edu (M. Kosma).

The TTM encompasses 4 constructs: the stages of change, the processes of change, self-efficacy, and decisional balance [4]. The stages of change reflect physical activity intention and behavior within each stage [2]. Although 5 popular stages of change have been broadly used (i.e., precontemplation, contemplation, preparation, action, and maintenance), a recent study among adults with physical disabilities validated a modified, stages-of-change scale that includes 4 well-distinguished stages of change with improved conceptual and operational definitions [2]. Specifically, people designated as “precontemplators” are inactive or they do not meet the recommended activity levels and they do not intend to be regularly active in the next 6 months. Although they may engage in some types of activities, they do not exercise sufficiently to reap the health benefits of exercise. Similarly, people designated as “contemplators” may be inactive or insufficiently active and they intend to be regularly active in the next 6 months. Although people in preparation may engage in the same activity levels as

those in the previous 2 stages, they intend to be regularly active in the immediate future (i.e., within 1 month). Instead of using 2 poorly distinguished active stages of change (action and maintenance), the improved and validated stages-of-change algorithm uses one active stage (action) that reflects the combination of action and maintenance. Specifically, people in the action stage are regularly active and they intend to continue being regularly active in the future [2]. The reason the 2 active stages of change (action and maintenance) are not well-distinguished among both people with and without disabilities may be because the only conceptual difference between the 2 stages of change is the 6-month time frame. In other words, people in action are expected to be active for 6 months or less, whereas people in maintenance are expected to be active for more than 6 months. Therefore, regularly active people tend to place themselves in maintenance and not in the action stage [2]. In this paper, the aforementioned, improved stages-of-change scale will be used.

The processes of change represent cognitive, emotional, and behavioral strategies people use to initiate and maintain active lifestyles. Such processes of change include being aware of ways to safely engage in different types of activities, thinking of oneself as an active and healthy role model for significant others, seeking social support to better enjoy physical activity participation, and rewarding oneself for meeting activity goals. Self-efficacy reflects one's perceived confidence to overcome activity barriers and be active. Finally, decisional balance is the perceived pros (advantages) and cons (disadvantages) of physical activity participation. Based on the TTM, people will be motivated to be active if they (1) use positive strategies toward physical activity participation; (2) are confident in initiating and maintaining active lifestyles; and (3) perceive more physical activity pros than cons [4].

Few recent studies have used the TTM in relation to physical activity among adults with physical disabilities. Based on their findings, in a descending order of significance the most important predictors of physical activity tend to be the behavioral processes of change, the cognitive processes of change, and self-efficacy. Decisional balance does not tend to be an important contributor to physical activity behavior change [3]. Additionally, physical activity tends to increase across the stages of change [2]. Although the aforementioned studies contribute to our understanding of important motivational factors associated with physical activity participation for adults with physical disabilities, they are cross-sectional in nature. Longitudinal studies are required to most appropriately examine if changes in the TTM constructs affect changes in physical activity levels [2].

Based on our knowledge, the only longitudinal study that used certain TTM constructs and was applied to people with disabilities (i.e., women with fibromyalgia) was the study by Oliver and Cronan (2005) [5]. Specifically, in their study a regression analysis was used to determine if the impact of fibromyalgia and changes in self-efficacy

affected physical activity changes within a 2 time assessment period among females with fibromyalgia [5]. Based on their findings, self-efficacy was the most important predictor of physical activity. However, in their study there were only 2 assessment periods and physical activity was treated as an ordinal variable (sedentary, adopters, maintainers, and quitters) with unclear procedures for group creation. Additionally, beyond fibromyalgia, only self-efficacy was used from the TTM as a longitudinal predictor.

## Purpose and Research Question

To our knowledge, there are no longitudinal studies that have examined temporal changes in the TTM constructs in relation to changes in physical activity levels over time among adults with physical disabilities. Additionally, there are no studies that have used advanced statistical and methodological procedures, such as latent growth curve analyses, to examine such relations. Therefore, the purpose of this longitudinal study was to use latent growth curve analyses to determine whether changes in the TTM constructs (self-efficacy, the cognitive and behavioral processes of change, perceived pros and cons, and the stages of change) affected changes in physical activity levels across 3 assessment periods.

## Methods

### Design

TTM constructs and physical activity levels were measured longitudinally, every 4 months, among adults with physical disabilities, such as spinal cord injuries and multiple sclerosis, using a web-based survey. Each study participant completed the survey 3 times. The cross-sectional data of the first time period were used to validate a modified, stages-of-change scale among 271 adults with physical disabilities [2].

Before the initiation of data collection, participants were screened for the study. Qualified participants were adults (over 18 years old) with physical disabilities (mobility impairment) who had Internet access and were willing to complete survey questionnaires online. Study participants received the study's consent form via e-mail and, after checking the "I agree to participate" box, they were automatically directed to the online survey. To maximize response rates during each wave of data collection, participants received 3 prompts via e-mail to remind them to complete the survey.

### Participants

The study was approved by the first 2 authors' Institutional Review Boards and informed consent was obtained from the participants. The study participants were adults with physical disabilities, and mainly people with multiple

Download English Version:

<https://daneshyari.com/en/article/4197330>

Download Persian Version:

<https://daneshyari.com/article/4197330>

[Daneshyari.com](https://daneshyari.com)