

Application of the transtheoretical model to identify psychological constructs influencing exercise behavior: A questionnaire survey

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Abstract

Background: Current research on exercise behavior has largely been attempted to identify the relationship between psychological attributes and the initiation or adherence of exercise behavior based on psychological theories. A limited data are available on the psychological predictors of exercise behavior in public health.

Objectives: The present study examined the theorized association of TTM of behavior change constructs by stage of change for exercise behavior.

Methods: A total of 228 college students selected from 2 universities in Seoul were surveyed. Four Korean-version questionnaires were used to identify the stage of exercise behavior and psychological attributes of adolescents. Data were analyzed by frequency analysis, MANOVA, correlation analysis, and discriminant function analysis.

Results: Multivariate *F*-test indicated that behavioral and cognitive processes of change, exercise efficacy, and pros differentiated participants across the stages of exercise behavior. Furthermore, exercise behavior was significantly correlated with the TTM constructs, and that overall classification accuracy across the stages of change was 61.0%.

Conclusions: The present study supports the internal and external validity of the Transtheoretical Model for explaining exercise behavior. As this study highlights, dissemination must increase awareness but also influences perceptions regarding theoretically based and practically important exercise strategies for public health professionals.

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Keywords: Transtheoretical model; Stage of change; Processes of change; Self-efficacy; Decision balance; Exercise behavior

What is already known about the topic?

- Most of nursing research on exercise behavior has been atheoretical, with a number of studies identifying or prioritizing study participants' socio-economic characteristics associated with exercise involvement.

- Others have written about the benefits of exercise, and provided “how to avoid physical inactivity” information.

What this paper adds

- This study provides the theoretically based behavioral and cognitive strategies that might be useful for promoting and maintaining physical activity.

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- This study provides a starting point for practical interventions aimed at increasing physical activity levels in healthcare settings, and also encourages and supports nurses to increase their knowledge of exercise and its related psychological attributes

1. Introduction

It has been well documented that exercise is an effective health behavior not only to prevent various health problems, but also to promote healthy lifestyles (US Department of Health and Human Services, 1996; Blair and Brodney, 1999). In addition, in many health related areas the physical and psychological benefits from regular physical activity in reducing mortality and morbidity in both general and clinical populations are sufficient justification for the inclusion of exercise in healthcare programs (Faulkner and Biddle, 2002).

In this regard, it has been widely acknowledged that nursing as a key academic discipline of the healthcare areas has a potent opportunity to promote a physically active lifestyle (Speck, 2002). This means that nurses can be an important resource for encouraging physical activity and essential in supporting the inclusion of exercise within healthcare packages (Department of Health, 2001). This is a role within behavioral medicine long regarded as needing a higher priority in assisting people develop lifestyles more congruent with good, long range health (Stachnik, 1980).

Traditionally, in many areas of nursing most research aimed at understanding why the majority of people do not exercise has been atheoretical, with a number of studies identifying or prioritizing study participants' socioeconomic characteristics associated with exercise involvement (Ford et al., 1991; Wilbur et al., 1993). Others have written about the benefits of exercise for individuals, and provided "how to exercise" information (Dishman and Buckworth, 1996; Dunn et al., 1998). As a result, it is time to rethink about the mechanism of exercise behavior and consider it in a comprehensive approach of health promotion.

Recently, concerted efforts have been directed towards behavioral and cognitive strategies that might be useful for encouraging and supporting exercise initiation and/or maintenance among people. In addition to this approach, there has been a shift towards theoretically based studies that concentrate on exercise adherence focusing on the broad range of interactions with psychological variables.

To improve our limited understanding of physical activity behavior, health professionals have been encouraged to examine the exercise behavior of individuals using contemporary psychosocial theories (Glanz et al., 1997). One of the more promising of these theories is the

Transtheoretical Model (TTM) of behavior change (Prochaska and DiClemente, 1983).

2. Transtheoretical Model

TTM is a contemporary psychological framework that attempts to explain intentional health behavior adoption and maintenance as a process that occurs over time as a function of behavioral history and motivation (Prochaska and DiClemente, 1983). The TTM accounts for the dynamic nature of health behavior change including exercise, and recognizes that individuals often must make several attempts at behavior change before they are successful. The TTM consists of five stages of exercise behavior change: (1) precontemplation (individuals are physically inactive and do not intend to initiate exercise within the next 6 months), (2) contemplation (individuals are physically inactive and intend to begin regular exercise within the next 6 months), (3) preparation (individuals are irregularly active below a criterion level-three or more times per week for at least 30 min each time), (4) action (individuals have been regularly active for less than 6 months), and (5) maintenance (individuals have sustained regular exercise for more than 6 months after initial exercise) (Marcus et al., 1992).

Several psychological constructs of the TTM have been associated with exercise behavior: (a) processes of change, (b) decision balance (perceived pros to exercise, perceived cons to exercise), and (c) self-efficacy (Prochaska and Marcus, 1993). Processes of change are overt and covert activities that individuals utilize to modify their behavior (Prochaska and DiClemente, 1983). The 10 processes are grouped into two high-order factors representing cognitive (i.e., consciousness raising, dramatic relief, self-reevaluation, environmental reevaluation, and self-liberation) and behavioral (i.e., social liberation, counter-conditioning, stimulus control, reinforcement management, and helping relationships) processes. Cognitive processes obtain information by an individual's own actions, meanwhile information in behavioral processes is obtained from environmental events. People at different stages of change are hypothesized to use distinct processes of change. In the exercise domain, cognitive processes have been found to peak in the contemplation stage and behavioral processes have been shown to steadily increase from precontemplation to action, at which point they level off (Marcus et al., 1994b; Nigg and Courneya, 1998).

The decision balance construct is based on the conflict model of decision making (Janis and Mann, 1977), and focuses on the importance of perceived positive (pros) and negative (cons) outcomes of a behavior change. It is assumed that an individual will not change her/his behavior unless he/she perceives the positives of change

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