



## Viewing exercise goal content through a person-oriented lens: A self-determination perspective



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### ARTICLE INFO

#### Article history:

Received 13 November 2015

Received in revised form

23 June 2016

Accepted 24 June 2016

Available online 27 June 2016

#### Keywords:

Goal content

Exercise

Latent profiles

Need satisfaction

Self-determination

### ABSTRACT

The present study examined profiles of exercise goal content and the associations with need satisfaction, motivation regulation and exercise behavior, combining variable-centered and person-centered analytical approaches. The participants were 1084 (279 men and 805 women) Swedish adults, aged between 18 and 78 years, that were all active members of an Internet-based exercise program. Latent profile analysis (LPA) and structural equation modeling (SEM) were used to analyze the data. In SEM analysis intrinsic goals were related to need satisfaction and autonomous motivation, whereas extrinsic goals were most strongly associated with controlled motivation. LPA revealed five unique latent classes of goal content. These five classes differed in need satisfaction, motivation regulation and exercise behavior, with classes being characterized by more intrinsic goal profiles reporting higher need satisfaction and autonomous motivation. The results are discussed from a self-determination theory perspective and the benefits of using both variable and person-centered analytical approaches are highlighted.

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Leading a physically active lifestyle during adulthood is associated with reduced risk of a number of chronic diseases (Lee et al., 2012) and benefits to health-related quality of life (Bize, Johnson, & Plotnikoff, 2007). However, many adults are insufficiently active to confer such health benefits (Hallal et al., 2012). As such, promoting physical activity has become a global public health priority (World Health Organization; WHO., 2010). Physical activity recommendations commonly focus on increasing time spent in physical activity of at least moderate intensity, which for many people will involve purposeful or planned activities. One approach to understanding how best to promote such behaviors is to study people's exercise motivation. One theoretical framework that has been used extensively to study motivation and self-regulation in the physical activity context is self-determination theory (SDT; Deci & Ryan, 2000) (cf. Teixeira, Carraca, Markland, Silva, & Ryan, 2012).

Self-determination theory provides a theoretical lens through

which to conceptualize, understand, and define motivation from a quality perspective (see Standage & Ryan, 2012 for an exercise-related review). That is, within SDT, a person's motivation (i.e., the reasons 'why' they are moved to act) is characterized as being high in quality if it is autonomously driven, as opposed to 'controlled' (Deci & Ryan, 2012). Autonomous motivation is underpinned by *intrinsic motivation* (i.e., when engagement in a behavior is guided by the inherent interest, challenge and satisfaction that it brings), *integrated regulation* (i.e., engaging in the activity because it is concordant with an individual's other personal goals and values), and *identified regulation* (i.e., when behavior is volitionally engaged in for the identified value and benefit accrued from taking part). Controlled forms of motivation comprise *introjected regulation* (i.e., when behavior is underpinned and directed by intrapersonal sanctions such as shame, guilt, and pride) and *external regulation* (i.e., when behaviors are controlled by external contingencies such as tangible rewards and punishments). Lastly, whereas autonomous and controlled motivations represent types of motivation, SDT also considers a state of lacking intention to act (or passive engagement with activities) that is labeled *amotivation*. Within the exercise settings, empirical research has shown more autonomous forms of motivation toward exercise to be positively

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associated with adaptive outcomes such as better psychological well-being and increased exercise behavior (Sebire, Standage, & Vansteenkiste, 2009; Standage, Sebire, & Loney, 2008; Teixeira et al., 2012).

Three basic and innate psychological needs are posited within SDT as being nutrients to people experiencing high quality, or autonomous forms of motivation, effective functioning, and psychological well-being (Deci & Ryan, 2000). These needs are for *autonomy* (i.e., the need to experience activities as self-endorsed and volitionally enacted), *competence* (i.e., the need to interact effectively within one's environment), and *relatedness* (i.e., the need to feel cared for, connected, and close with others). When applied to the exercise context, a growing body of empirical research has shown exercise-related need satisfaction to be positively related to autonomous forms of exercise motivation, relative intrinsic exercise goal content, positive indices of well-being, and self-reported, and objectively-assessed exercise behavior (e.g. Edmunds, Ntoumanis & Duda, 2007; Standage & Ryan, 2012).

A more recent addition to the broader SDT framework is 'Goal Contents Theory' (GCT), a mini-theory that focuses on differentiating between the content of the goals that people pursue and how such pursuits are differentially associated with well-being, motivation, and effective functioning (see Vansteenkiste, Niemiec, & Soenens, 2010 for an overview). This distinction stems from previous work (Kasser & Ryan, 1993, 1996) labelling internally focused life goals or aspirations (i.e., growth, affiliation, community contribution, and maintenance of physical health) as *intrinsic* and those with an external orientation as *extrinsic* (financial success, social recognition, and image/attractiveness). It is hypothesized that intrinsic goals are satisfying of basic psychological needs whereas extrinsic goals are hypothesized to be less supportive, or even undermining, of the basic psychological needs (Kasser, 2002). Empirical studies have provided support for using the "intrinsic-extrinsic" goal content distinction when differentially predicting a number of well-being and adjustment outcomes (see Vansteenkiste et al., 2010).

To enable researchers to examine how holding exercise goals with diverse content may differentially predict cognitive, affective, and behavioral outcomes, Sebire, Standage, and Vansteenkiste (2008) developed the *Goal Content for Exercise Questionnaire* (GCEQ), which distinguishes between intrinsic (i.e., health management, skill development and social affiliation) and extrinsic (i.e., image and social recognition) exercise goals. Relative intrinsic exercise goal content (indexed by subtracting the mean of GCEQ intrinsic goals from the mean of extrinsic goal subscales) is positively associated with basic psychological need satisfaction, autonomous motivation toward exercise and various indices of well-being (via direct effects and indirectly through need satisfaction) (e.g. Gunnell, Crocker, Mack, Wilson, & Zumbo, 2014; Sebire et al., 2009).

Although support for GCT has emerged, previous research of exercise goal content has typically taken a variable-centered approach (Laursen & Hoff, 2006) which is primarily concerned with the examination of associations between people's endorsement of intrinsic and extrinsic exercise goals and cognitive, affective and behavioral outcomes (Gunnell et al., 2014; Sebire, Standage, & Vansteenkiste, 2011; Sebire et al., 2009, 2008). Variable-centered approaches are underpinned by the assumption that these associations are similar across the population of interest (Laursen & Hoff, 2006), and studies have typically investigated associations using statistical techniques such as correlation, hierarchical regression and structural equation modeling (e.g. Gunnell et al., 2014; Sebire et al., 2008, 2009, 2011). Few studies of exercise goal content have taken a person-centered approach, which assumes that the associations between people's goals and

outcomes are not necessarily the same for everyone in the population (Bergman & Andersson, 2010; Laursen & Hoff, 2006). The person-centered approach allows types or profiles of people to be identified based on the patterning of their intrinsic and extrinsic goal endorsement. A person-centered approach is of potential relevance to the study of people's exercise goals because it is likely that people endorse and are motivated by multiple goals and there may be consistencies among individuals with regards to the pattern of goal endorsement. Therefore, such an approach may yield a more holistic account of exercise goal pursuit. Also, a person-oriented approach may be better suited to examine theoretical frameworks and hypotheses that involve sophisticated interactions among more than two variables at the same time (Bergman & Andersson, 2010), in particular if these interactions exist on a within-person as well as between-person level. As highlighted in previous work (e.g. Sebire et al., 2009), there are theoretical arguments for the assumption that individuals pursue different goals, and different goal contents, simultaneously, and that these contents interact at the within-person level. Hence, adopting a person-centered analytical approach may help to identify unique patterns of interactions among goals; patterns that may be very hard to detect using more traditional variable-centered approaches. Identifying goal content profiles may also facilitate the targeting of interventions (Biddle, Markland, Gilbourne, Chatzisarantis, & Sparkes, 2001) towards individuals who may be at particular "motivational risk", in particular if certain profiles are associated with deleterious motivational or behavioral outcomes.

In the present study we use Latent Profile Analyses (LPA) to identify different profiles. Compared to more traditional methods of person-centered analysis, such as cluster analysis, LPA offer several benefits (Marsh, Lüdtke, Trautwein, & Morin, 2009; Pastor, Barron, Miller, & Davis, 2007). For example, although LPA, like cluster analyses is exploratory in its nature, LPA is a model-based technique that offers more flexibility in terms of model specification. In fact, cluster analysis may be viewed as a very restricted form of LPA (Pastor et al., 2007). Further, LPA offers several fit indices, providing researchers with an important tool when comparing different models, ultimately resulting in a stronger platform for making less arbitrary and potentially biased choices in terms of determining the number of profiles.

In the present study, we used a combined variable-centered and person-centered analytical approach. The first aim was to examine if different latent profiles existed in the sample in terms of goal content and, if so, to look at possible differences in exercise-related need satisfaction, motivational regulation toward exercise and exercise behavior across these goal content profiles. The secondary aim was to examine associations of the latent variables of exercise goal content with exercise-related need satisfaction, motivational regulations toward exercise and exercise behavior using a traditional variable-centered approach.

## 1. Method

### 1.1. Participants

The participants (N = 1084, 279 men, 805 women), aged between 18 and 78 years, were all active Swedish members of an Internet-based exercise program offering web-based health-care services (e.g. pedometer step contests, weight-loss programs, etc.) mainly in the private sector.

### 1.2. Measures

#### 1.2.1. Goal Content for Exercise Questionnaire (GCEQ)

The Goal Content for Exercise Questionnaire (GCEQ; Sebire et al.,

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