Goal contents, motivation, psychological need satisfaction, well-being and physical activity: A test of self-determination theory over 6 months

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Objectives: This investigation examined how Goal Contents Theory, Organismic Integration Theory, and Basic Psychological Needs Theory collectively explain well-being and behavioral outcomes related to physical activity over 6 months. Specifically we examined a model whereby changes in relative intrinsic goal contents → changes in motivation → changes in psychological need satisfaction → well-being and physical activity.

Methods and design: Participants were 203 adults from the general population (68.00% female; M age = 32.57 years, SD = 15.73). Two identical questionnaire packages containing assessments of goal contents, motivational regulations, basic psychological need satisfaction, indicators of well-being and physical activity behavior, separated by six months were given to participants. Residualized change scores were analyzed with path analysis.

Results: Results supported the hypothesized sequence of SDT. Changes in psychological need satisfaction mediated the relationship between changes in autonomous motivation and well-being. A more complex pattern of results emerged for the indirect effects of motivation and psychological need satisfaction between relative intrinsic goals / well-being. Changes in competence satisfaction mediated the relationship between autonomous motivation and physical activity behavior. Moreover, changes in autonomous motivation through competence satisfaction mediated the relationship between relative intrinsic goals and physical activity.

Conclusions: Findings support a model based on 3 mini-theories of SDT and suggest that psychological need fulfillment during physical activity could be a key mechanism that facilitates increased well-being and behavior. Findings also highlight the importance of examining competence, autonomy, and relatedness independently (rather than as a composite).

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Introduction

With mounting evidence supporting the link between physical activity and well-being (Fox, 1999), researchers have now turned their attention towards understanding the mechanisms that facilitate participation in physical activity and increased well-being (e.g., Sebire, Standage, & Vansteenkiste, 2009; Sebire, Standage, & Vansteenkiste, 2011). Based on results of their meta-analysis, Ng et al. (2012) suggest that Self-Determination Theory (SDT; Ryan & Deci, 2002) holds promise for understanding health behaviors and motivational processes related to well-being and health outcomes. SDT is a macro-level framework consisting of 5 mini-theories that explain select aspects of human motivation, behavior, and personal well-being (Ryan & Deci, 2002; Vansteenkiste, Niemiec, & Soenens, 2010). While the majority of researchers using SDT to study physical activity have focused almost exclusively on Organismic Integration Theory (OIT) and/or Basic Psychological Needs Theory (BPNT), emerging research has examined the utility of a third mini-theory in physical activity settings, namely Goal Contents Theory (GCT; Sebire et al., 2009, 2011). The purpose of this investigation is to test a model using 3 of SDT’s mini-theories. More
specifically, GCT, OIT, and BPNT were used to understand if changes in relative intrinsic goals → changes in motivation → changes in psychological need satisfaction → changes in well-being and physical activity behavior. Indirect effects through motivation and psychological need satisfaction were also examined.

**Basic psychological needs theory**

Within BPNT, Ryan and Deci (2002) postulate that humans have three fundamental psychological needs for competence, autonomy, and relatedness that when fulfilled, lead to increased well-being. Competence is characterized by feelings of effectiveness while engaging in optimally challenging tasks (Ryan & Deci). Autonomy is characterized by feelings of personal agency and volition (or self-governance), and relatedness is characterized by feelings of a meaningful connection or belonging with important others (Ryan & Deci). Finally, Deci and Ryan (2011) hypothesize that psychological need satisfaction predicts behavioral engagement because their satisfaction provides energy and direction to continue engaging in the behavior. Using BPNT, researchers (Adie, Duda, & Ntoumanis, 2012; Gunnell, Mack, Wilson, & Adachi, 2011; Mack et al., 2012; Reinboth & Duda, 2006; Sylvester, Mack, Busseri, Wilson, & Beauchamp, 2000) have demonstrated that psychological need satisfaction links with well-being outcomes in physical activity contexts in a manner largely consistent with Deci and Ryan's (2002) contentions.

**Organismic integration theory**

Ryan and Deci (2002) theorize that motivation ranges along a continuum from extrinsic to intrinsic motivation. Motivation can be classified as autonomous or controlled based on the degree of self-determination that is present. Controlled motivation reflects motivation that is less self-determined in nature and consists of External regulation (i.e., activities controlled by external prompts or cues to action) and Introjected regulation (i.e., activities controlled by self-imposed contingencies or intrapsychic pressure). Autonomous motivation is more self-determined than controlled motivation and is comprised of the following regulations: (a) Identified (i.e., activity is personally valued), (b) Integrated (i.e., activities assimilated with self), and (c) Intrinsic (i.e., activity that is engaged in for no separable consequences other than behavioral engagement itself). To the extent that the behavior is regulated by autonomous motivation, the individual will experience optimal outcomes such as persistent behavior, health, and well-being (Deci & Ryan, 2000). Psychological needs are differentiated from motivational regulations because they represent a universal and innate requirement, rather than a desire (Ryan & Deci, 2002). Researchers using OIT have demonstrated that more self-determined motivational regulations are positively associated with physical activity (McDonough & Crocker, 2007; Wilson, Rodgers, Fraser, & Murray, 2004; Wilson, Sabiston, Mack, & Blanchard, 2012), well-being (McDonough & Crocker, 2007), and psychological need satisfaction (McDonough & Crocker, 2007; Wilson & Rogers, 2008).

**Goal contents theory**

GCT was developed to understand how the content of a goal can lead to differential outcomes affecting well-being and behavior (Deci & Ryan, 2000). In an effort to differentiate goal contents from motivational regulations proposed within OIT, Deci and Ryan (2000) proposed that a goal focuses on ‘what’ a person is expecting to obtain as a function of behavioral participation (e.g., I exercise to improve my health) whereas a motivational regulation focuses on the reason ‘why’ a person undertakes the behavior (e.g., because my doctor told me to). Intrinsic goal contents such as for health and personal growth are more likely to lead an individual to satisfy psychological needs (Deci & Ryan, 2000; Vansteenkiste et al., 2010). Conversely, extrinsic goal contents such as image and recognition are pursued for external contingencies such as self-worth, and are less likely to lead to psychological need fulfillment (Deci & Ryan, 2000). The content of goals is also important for predicting behavior and well-being; with intrinsic goal contents being associated with positive outcomes such as self-determined motivation (Gillison, Standage, & Skevington, 2006; Ingledeew & Markland, 2009; Sebire et al., 2011), psychological need fulfillment (Sebire et al., 2009; Thøgersen-Ntoumani, Ntoumanis, & Nikitaras, 2010), well-being (Gillison et al., 2006; Sebire et al., 2009), and exercise (Sebire et al., 2011).

**Putting the mini-theories together: justification for the research**

Although support for SDT’s mini-theories has been found in physical activity contexts, evidence is limited based on the use of only 1 or 2 mini-theories being considered simultaneously (Gillison et al., 2006; Sebire et al., 2011). Examining each mini-theory independently precludes conclusions regarding how all variables combine together to produce effects on well-being and behavior. Therefore, the justification for this research is threefold. First, Ingledeew and Markland (2008) articulated an argument for the role that goal contents have on facilitating either autonomous or controlled motivation, and in turn, the differential impact these constructs have on behavior and cognitive outcomes. With the accumulation of evidence supporting the sequence of goal contents → motivation → well-being and behavior (Gillison et al., 2006; Ingledeew & Markland, 2009; Sebire et al., 2009), Sebire et al. (2011) called for researchers to directly examine psychological need satisfaction within the complex model of SDT rather than assume their role (Ingledeew & Markland, 2009). Although Sebire et al. (2009) found that psychological need satisfaction serves as a mediator between relative intrinsic goals and well-being outcomes, motivation was not included in the model. Moreover, Sebire et al.’s (2009) examined a composite need satisfaction variable despite the hypothesized unique contribution of each psychological need (Deci & Ryan, 2000). This investigation extends previous research because it will systematically examine where psychological need satisfaction fits as an explanatory process within the framework of SDT.

A second justification for the study is that researchers examining BPNT and OIT have typically examined a sequence in which psychological need satisfaction predicts motivation. Yet, to date, we are unaware of published research that has examined motivation as a potential antecedent to psychological need satisfaction. Using SDT (Deci & Ryan, 2002), and based on contentions outlined by Vallerand (1997) in the Hierarchical Model of Intrinsic and Extrinsic Motivation, several investigators have tested a model whereby motivational regulations mediate the relationship between psychological needs and behavioral or affective outcomes (Edmunds, Ntoumanis, & Duda, 2006; McDonough & Crocker, 2007; Milyavskaya & Koestner, 2011; Ng et al., 2012). Across multiple domains, Milyavskaya and Koestner (2011) found only partial support for the mediating role of motivational regulations and these authors acknowledged that psychological need satisfaction may not require a mechanism to increase well-being. This speculation was consistent with assertions made by Deci and Ryan (2000) who stated that “fluctuations in need fulfillment will directly predict fluctuations in well-being” (p. 243). Specifying psychological needs as an antecedent of motivational regulations (e.g., Ng et al., 2012) implies that psychological needs have an
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