



Original article

# Extraversion, emotional instability, and self-reported exercise: The mediating effects of approach-avoidance achievement goals

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Received 7 April 2012; revised 27 June 2012; accepted 2 August 2012

## Abstract

**Background:** Understanding leisure time physical inactivity is a priority in Westernized nations where participation rates are low. The present study sought to address this priority by examining whether the extraversion and emotional instability to leisure time exercise relationships were mediated through Elliot's (1999) 2 × 2 achievement goals.

**Methods:** Participants were 116 female and 97 male volunteers from a Southwestern community (mean age = 37.21 years, range 24–69) who completed measures of extraversion, emotional instability, approach-avoidance achievement goals, and 7-day recall of leisure-time exercise. Multiple mediation models (Preacher and Hayes, 2008) were run to specifically examine our hypotheses.

**Results:** The mastery-approach goal mediated the relationship from extraversion to overall exercise and strenuous intensity exercise. Results indicated emotional instability had direct effects on overall and strenuous leisure time exercise while also having significant ( $p < 0.05$ ) indirect mediation paths through the performance-approach and avoidance goals. The extraversion and emotional instability models accounted from 15.89% to 29.82% of variance in the various self-reported exercise measures.

**Conclusion:** The results suggest the promotion of leisure-time exercise would be improved in the studied personalities by manipulation of achievement goals.

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**Keywords:** Achievement goals; Big five; Mediation; Physical activity

## 1. Introduction

Consequences of physical inactivity range from conditions such as cancers, depression, cardiovascular disease, and

obesity.<sup>1</sup> Consequently, an understanding of leisure time physical activity (PA) determinants is of great importance. Personality is one such determinant. For instance Kern et al.<sup>2</sup> using data from the Terman Life Cycle Study reported that lower neuroticism and higher extraversion measured in childhood ( $n = 1325$ ) and early adulthood ( $n = 1214$ ) were independently related to higher levels of self-reported PA over 40 years. Likewise, in a large sample of 6158 Urban Chicago community adults aged 65 and older, higher extraversion and lower neuroticism were associated with a reduced risk of mortality.<sup>3</sup> This risk was mediated by personality-related patterns of PA (e.g., higher extraverts were more physically active). Last, Rhodes and Smith<sup>4</sup> summarized the contemporary personality and PA literature using meta-analytic

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Peer review under responsibility of Shanghai University of Sport



techniques and reported positive—albeit small in magnitude—relationships between extraversion and exercise, and a negative relationship between neuroticism and PA. Hence, personality is a determinant of PA.

Given the distal nature of personality to actual behavior, researchers have included personality traits within a number of frameworks as some intervening or mediating variables are necessary to explain the personality/exercise relationship. A number of possible mediating variables exist. For instance, using the theory of planned behavior, Hoyt et al.<sup>5</sup> demonstrated that the relationship between extraversion and exercise was mediated by one's affective and instrumental attitude toward PA. Similarly, Courneya et al.<sup>6</sup> also reported that neuroticism's negative impact on exercise was mediated by PA related attitudes. As with the aforementioned mediating variables found within the theory of planned behavior, achievement goals articulated within Elliot's hierarchical model of approach and avoidance motivation<sup>7,8</sup> are also viable mediating variables, and are the focus of the present investigation.

### *1.1. Elliot's goals and hierarchical model of approach and avoidance achievement motivation*

The achievement goal approach<sup>9</sup> has demonstrated efficacy in predicting salient sport and exercise outcomes such as emotions, intrinsic motivation, and self-regulation of behaviors.<sup>10</sup> The dichotomous achievement goal approach is concerned with an individual's subjective interpretation of success corresponding to the mastery and performance oriented achievement goals. A mastery oriented individual's action is primarily motivated by personal improvement, and as such, reflects a self-referenced standard of personal achievement. Conversely, a performance oriented person is motivated to attain high normative standards of ability. These individuals judge success and failure on other-referenced standards and are motivationally "fragile" when they doubt their own competence.<sup>11</sup>

Adding to the dichotomous achievement goal approach postulated separately by Dweck<sup>12</sup> and Nicholls,<sup>13</sup> Elliot and his colleagues<sup>7,14–16</sup> proposed that an approach-avoidance goal dimension should be included based on the historic achievement motivation approach.<sup>17,18</sup> While the mastery/performance distinction relates to how competence is defined, the approach-avoidance dimension relates to how competence is valenced. An approach valence indicates a behavior that is initiated by a positive or desirable event or possibility. In contrast, an avoidance valence indicates a behavior which is initiated by a negative or undesirable event or possibility.<sup>7,15</sup> Thus, approach goals focus on attaining competence, whereas avoidance goals focus on avoiding incompetence. Based on the valence and definition of achievement goals, Elliot and colleagues<sup>7,8,19,20</sup> established the following 2 × 2 achievement goal framework: the mastery-approach, mastery-avoidance, performance-approach, and performance-avoidance goals. Competence based on the mastery-approach goal is defined by a focus on task-based attainment, whereas competence based on the mastery-avoidance goal is defined by

a focus on avoiding a worsening of task-based attainment. From the performance goal perspective, the performance-approach goal defines competence based on normative achievements, whereas the performance-avoidance goal defines competence based on avoiding displays of normative incompetence.

Elliot's 2 × 2 achievement goals are structured within his hierarchical model of approach and avoidance motivation.<sup>7</sup> This hierarchical model places the four achievement goals as mediators of a series of antecedents to achievement motivation consequences. Pertinent to this study, Elliot<sup>7</sup> posits that extraversion and neuroticism are antecedents to achievement goals. Elliot and Thrash<sup>8</sup> provided the first theoretically testable set of hypotheses for the linkage of personality traits to achievement goals.<sup>21–25</sup> As indicated, the theoretical linkage is based on the idea that both personality and achievement goals are biologically based. Both extraversion and approach goals are linked with "behavioral predispositions"<sup>8</sup> toward positive stimuli with the general consensus that extraversion is defined by active, social, and optimistic characteristics. Therefore, extraversion is hypothesized to be an antecedent of both the mastery and performance-approach goals.

In contrast, avoidance goals and neuroticism are linked with behavioral predispositions toward negative stimuli with neurotics typically being insecure, emotionally unstable, and worry prone. Therefore, Elliot and Thrash<sup>8</sup> hypothesized neuroticism to be an antecedent of the performance-avoidance goal. It is important to note that at the time of this research, Elliot only tested what was termed the "trichotomous achievement goal framework" which excluded the mastery-avoidance goal. In addition to the performance-avoidance hypothesis, the authors predicted that neuroticism would be positively associated with a performance-approach goal as researchers have indicated and supported that dispositional level avoidance motivation may lead to context-specific approach behavior.<sup>15,18</sup> The general characteristics of a neurotic suggest that a relationship to performance defined goals in general is a logical prediction given that the tendency to be worry prone and insecure would manifest itself in the need to compare oneself to others (e.g., exercising in a group setting). Elliot and Thrash<sup>8</sup> provided empirical support for hypothesized relationships between extraversion and neuroticism and achievement goals.

Researchers have examined the relationships between the two personality traits and the four goals, with varying levels of support found.<sup>26–29</sup> For consistency with the studies using a trait marker of emotional stability (as opposed to neuroticism), emotional instability will be the term used from this point forward to represent the relationship between achievement goals, and exercise among neurotic personalities. For instance, in keeping with Elliot and Thrash's theoretical predictions,<sup>8</sup> a positive correlation between emotional instability and the performance-avoidance goal is the same as indicating a positive correlation between neuroticism and the performance-avoidance goal.

Payne et al.<sup>29</sup> completed a meta-analysis of a number of goal orientation (i.e., learning, prove performance, and

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