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Conscientiousness facets and health behaviors: A latent variable modeling approach

Gareth E. Hagger-Johnson *, Martha C. Whiteman

*Department of Psychology, School of Philosophy, Psychology and Language Sciences,
University of Edinburgh, 7 George Square, Edinburgh EH8 9JZ, UK*

Abstract

Conscientiousness is a predictor of several health behaviors, but the contribution of its facets is not yet known. Partial correlation and multiple regression have been utilized in previous studies, but a third approach is possible. Latent variable modeling combines the advantages of both these methods. Data from 345 healthy adults living in the UK enrolled in a longitudinal study of Internet users were used to illustrate this. Conscientiousness was extracted as a latent variable defined by its six facets. Health behaviors were modeled as a latent variable, defined by the Wellness Behaviors, Accident Control and Traffic Risk sub-scales of the Health Behavior Marker Scales (HBMS, Vickers, Conway & Hervig, 1990). Given that the Self-discipline facet has been previously shown to contribute uniquely to health criteria, a direct pathway was modeled from Self-discipline to the HBMS (ß = .27). In addition to illustrating a 'third approach' to modeling facets, this study replicates and extends prior research by examining the associations between Conscientiousness and the HBMS in an Internet sample. The results strengthen claims by several commentators that measuring and modeling personality facets can help increase our understanding of how personality traits influence health behaviors.
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* Corresponding author. Tel.: +44 7967 157 241; fax: +44 131 650 3461.
  E-mail addresses: G.E.Hagger-Johnson@ed.ac.uk (G.E. Hagger-Johnson), M.Whiteman@ed.ac.uk (M.C. Whiteman).

1. Introduction

A challenge for personality and health researchers is to find the appropriate level of inclusiveness and breadth with which to conceptualize both personality and health. Associations have been reported between personality traits and several health behaviors and health outcomes (Bogg & Roberts, 2004; Roberts & Bogg, 2004; Weiss & Costa, 2005; Wilson, Mendes de Leon, Bienias, Evans, & Bennett, 2004). Conscientiousness is strongly associated with many health behaviors and has been the focus of recent factor analytic (Roberts, Chernyshenko, Stark, & Goldberg, 2005a) and meta analytic (Bogg & Roberts, 2004) studies.

1.1. Personality facets

Personality trait researchers generally agree that five personality dimensions adequately catch the major differences between individuals and collectively these are called the 'Five-Factor Model': Neuroticism, Extraversion, Openness to Experience, Conscientiousness and Agreeableness (Costa & McCrae, 1992; Goldberg, 1999). Below the broad Big Five factors, narrower lower level traits are posited to exist which are called facets. Facets are correlated with each other and also with their broader trait in a hierarchy (Paunonen, 1998; Paunonen & Ashton, 2001). For example, six narrow facet scales of Self-efficacy, Orderliness, Dutifulness, Achievement-striving, Self-discipline and Cautiousness are summed to form the broad-bandwidth Conscientiousness trait (Goldberg, 1999). Facets do not correlate perfectly with one another nor with their corresponding personality factor. Instead, as has been observed by many researchers (e.g. Ashton, Jackson, Paunonen, Helmes, & Rothstein, 1995; Costa & McCrae, 1992; Goldberg, 1999; Jang, McCrae, Angleitner, Riemann, & Livesley, 1998; Paunonen, 1998; Paunonen, Rothstein, & Jackson, 1999; Paunonen & Ashton, 2001; Paunonen, Haddock, Forsterling, & Keinonen, 2003), each has some amount of specificity or reliable (non-random) variance that is independent of the Big Five. The facets of Self-Control and Responsibility, for example, correlate at .41 and correlate with the higher order trait of C at .64 and .54 respectively (Roberts et al., 2005a, Roberts, Walton, & Bogg, 2005b). Responsibility is a measure of Conscientiousness, but a particular kind of Conscientiousness, which distinguishes it from other facets such as Self-Control (Bogg & Roberts, 2004). Paunonen has repeatedly argued that facet variance should be exploited for assessment, prediction and theoretical purposes (Paunonen, 1998; Paunonen et al., 1999, 2003; Paunonen & Ashton, 2001).

1.2. Health behaviors

Health behaviors are defined as (a) behaviors that reduce the risk of overtaxing the body's adaptive capacity; (b) behaviors that involve reducing risk-taking; (c) behaviors that should help prevent the onset of illness; (d) behaviors that could improve health rather than merely prevent illness (Vickers, Conway, & Hervig, 1990). Self-reported health behaviors are interrelated, leading several researchers to approach them with factor analytic techniques (Booth-Kewley & Vickers, 1994; Vickers et al., 1990; Wasylkiw & Fekken, 2002). Using factor analysis, Vickers et al. (1990) developed the Health Behavior Marker Scales (HBMS): Wellness Maintenance and Enhancement (e.g. 'I exercise to stay healthy'), Accident Control (e.g. 'I keep emergency numbers near the phone'), Traffic Risks (e.g. 'I cross busy streets in the middle of the block') and Substance