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Measuring the validity and psychometric properties of a short form of the Hypomanic Personality Scale

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ABSTRACT

The Hypomanic Personality Scale (HPS) is used to investigate hypomanic traits and risk for bipolar spectrum disorders; however, the length of the HPS (48 items) may be prohibitive for clinical research and screening purposes. Meads and Bentall (2008) developed a promising 20-item version of the HPS; however, the psychometric properties and validity of the short form have not been thoroughly examined. The present study investigated the construct validity and psychometric properties of the short HPS. A sample of 2713 non-clinically ascertained young adults was used to assess psychometric properties of the short form relative to the original scale. Two non-overlapping subsamples ($n = 522$; $n = 145$) were used to investigate the validity of the short HPS using personality and temperament questionnaires and clinical interviews of bipolar psychopathology and diagnoses. The short and original HPS generally had comparable correlations with measures of temperament, personality, impulsivity, borderline personality, grandiosity, psychosocial functioning, and alcohol use, and comparably predicted DSM bipolar and bipolar spectrum diagnoses. Overall, the short HPS was found to be both reliable and valid. However, the short HPS tended to be more strongly correlated with pathological components of hypomanic personality and less strongly correlated with exuberant and potentially adaptive aspects of the construct.

1. Introduction

Current research suggests that there is a broad spectrum of bipolar psychopathology that extends beyond traditional diagnostic classifications such as the DSM-5 (American Psychiatric Association, 2013). Akiskal (2004) expanded bipolar diagnoses by proposing additional classifications such as bipolar II½, III, and IV diagnoses. More recently, research suggests that the spectrum is a continuum of pathological and non-pathological experiences rather than discrete diagnoses (Akiskal et al., 2000; Angst et al., 2003; Walsh, DeGeorge, Barrantes-Vidal, & Kwapil, in press). This spectrum includes subclinical symptoms of dysregulated mood, cognition, behavior, and sense of self (Angst et al., 2003; Walsh, Royal, Brown, Barrantes-Vidal, & Kwapil, 2012). For example, Kwapil et al. (2011) assessed the expression of subclinical bipolar spectrum traits in daily life and found associations with elevated energy-enthusiasm, irritability, dysphoria, flight of ideas, mild grandiose beliefs, risky behavior, and variability in affect. Those who experience subclinical symptoms may suffer impairment and distress (Angst et al., 2003) and are at heightened risk for the development of clinical bipolar disorders (Kwapil et al., 2000). The study of bipolar spectrum psychopathology would be enhanced by the availability of brief, non-invasive assessment tools.

The Hypomanic Personality Scale (HPS; Eckblad & Chapman, 1986) is widely used to investigate bipolar spectrum psychopathology. The measure includes 48 self-report items designed to assess hypomanic personality traits and risk for bipolar disorder. Eckblad and Chapman's initial validation study found that 77% of high HPS scorers experienced a hypomanic episode and a 13-year follow-up of the sample found that the HPS predicted the onset of bipolar disorders (Kwapil et al., 2000). HPS scores are associated with impulsivity (Johnson, Carver, Mulé, & Joorman, 2013), increased positive affect and irritability (Gruber, Oveis, Keltner, & Johnson, 2008), sensitivity to positive stimuli (Trevisani, Johnson, & Carver, 2008), and greater cognitive flexibility when in a positive mood (Fulford, Feldman, Tabak, McGillicuddy, & Johnson, 2013). Walsh, Royal, Brown et al. (2012) found an association between high HPS scores and bipolar diagnoses, Akiskal's spectrum disorders, and a range of subclinical and associated traits (hypomania,

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hyperthymic temperament, borderline traits, irritability, and depressive symptoms), providing further evidence of its validity as a measure of the broader bipolar spectrum.

Although the HPS has been widely used, its length may be prohibitive, especially in clinical research and studies needing a brief screening measure. In addition, certain items of the original 48-item scale may be inefficient or redundant. Meads and Bentall (2008) derived a 20-item short form of the HPS using one-parameter item response theory or Rasch analysis in a sample of approximately 300 undergraduate students. Items were removed if they exhibited significant misfit, excessive residual values, or significant differential item functioning by gender. The coefficient alpha of the shortened form was .80. This was less than the reported reliability of the original measure (.87), although the reliability was greater than the predicted reliability using the Spearman-Brown Prophecy formula (.74) suggesting that the authors removed relatively inefficient items. However, their reliability value should be interpreted cautiously because it was computed from the same data that was used to derive the short form (which could overestimate the reliability), rather than from an independent sample. The short HPS and original HPS correlated $r = .94$. Of the 35 people scoring in the top decile of the original HPS, 30 remained in the top decile as measured by the short HPS. The authors also provided a limited assessment of the validity of the short HPS. Specifically, they reported that the original and short HPS had comparable correlations with the Beck Depression Inventory (Beck, Ward, Mendelson, Mock, & Erbaugh, 1961), and the Response Style Questionnaire (Nolen-Hoeksema, 1991). However, neither of these measures tap core aspects of bipolar spectrum psychopathology.

We identified four studies that either derived or administered the short HPS to examine bipolar spectrum psychopathology. Participants identified by elevated scores on the short measure made significantly more impulsive decisions on the Two-Choice Impulsivity Paradigm (Mason, O'Sullivan, Blackburn, Bentall, & El-Deredy, 2012) and had increased sensitivity to the value of goal-related events (O'Sullivan, Szczepanowski, El-Deredy, Mason, & Bentall, 2011). Hawke, Provencher, and Arntz (2011) reported that the short HPS was associated with entitlement and grandiosity, insufficient self-control, unrelenting standards, and hypercriticalness. In addition, high HPS scorers were more likely to meet criteria for past psychiatric diagnoses, specifically anxiety and personality disorders, have a current disorder, and score higher than controls on most measures of early maladaptive schemas. McCarthy-Jones, Knowles, and Rowse (2012) reported that positive affect, intrusive visual imagery, and anxiety predicted short HPS scores. Coefficient alpha of the short HPS in this study was .68.

The development of a shortened version of the HPS is promising; however, there are several limitations to Meads and Bentall's (2008) study and the validation of the measure. Specifically, their study was based upon a relatively small sample size and used the same sample for measure derivation and validation. Most concerning, the validation measures did not provide good tests of the construct validity of hypomanic personality. Additional studies have used the short HPS; however, there have not been comprehensive examinations of the construct validity of the short HPS. Furthermore, studies have varied in terms of the cut-off scores used to identify high and low scorers on the short HPS.

1.1. Goals and hypotheses of the present study

The goals of the present study were to examine the psychometric properties and the construct validity of Meads and Bentall's (2008) short HPS in several large non-clinical samples of young adults. Specifically, the present study examined descriptive characteristics of the short measure relative to the original measure. We expected to replicate Meads and Bentall's findings of good reliability for the short measure and a high correlation between the two versions. We also examined the validity of the short measure relative to the original measure in terms of associations with questionnaire and interview measures of psychopathology, personality, and impairment. Note that we treated HPS scores as continuous variables and did not use a high-risk group approach, consistent with the view that bipolar spectrum psychopathology falls on a continuum. We hypothesized that the short HPS would replicate the associations with interview and questionnaire measures seen in the original measure. The present study offers the advantages of a large unselected sample to compare descriptive properties of the original and short HPS, a large subset of the original sample who completed questionnaire measures of personality and affective temperament, and an independent subset oversampled for high HPS scores that underwent structured diagnostic interviews assessing bipolar spectrum and related psychopathology. Thus, the study should provide the first comprehensive assessment of the validity of the short HPS as a predictor of bipolar spectrum psychopathology.

2. Method

2.1. Participants

The original HPS was completed in departmental mass screening sessions by 2713 undergraduates (76% female) enrolled at UNC-Greensboro. Short HPS scores were computed from the original measure. The mean age of the sample was 19.6 (SD = 3.1). This sample was used to examine descriptive statistics of the original and short measure. Two non-overlapping subsets of participants were used to examine the validity of the short measure in comparison to the original measure. A subset of 522 participants (described in Kwapil et al., 2013) was used to examine the associations of the original and short HPS with measures of personality and affective temperaments. A subset of 145 participants (described in Walsh, Royal, Barrantes-Vidal, & Kwapil, 2012; Walsh, Royal, Brown et al., 2012) was used to examine associations with interview measures. The original and subsamples were comparable in terms of sex and age. Data collection was approved by the UNCG Institutional Review Board and all participants provided informed consent.

2.2. Materials

2.2.1. Self-report questionnaires

The HPS is a 48-item self-report measure assessing hypomanic personality traits. Questions are dichotomous and scores range from 0 to 48. The HPS has good internal consistency (Cronbach's Alpha = 0.87) and test–retest reliability ($r = 0.81$) (Eckblad & Chapman, 1986). The HPS was intermixed with a 13-item infrequency measure to screen for invalid responders. Participants who endorsed more than 2 infrequency items were dropped from further study. The Temperament Evaluation of Memphis, Pisa, Paris, and San Diego Autoquestionnaire (TEMPS-A; Akiskal, Akiskal, Haykal, Manning, & Connor, 2005) was used to assess affective temperaments. The TEMPS is a 50-item self-report measure. Internal consistency (Cronbach's Alpha) for each subscale was as follows: .91 (cyclothymic), .81 (dysthymic), .77 (irritable), .76 (hyperthymic) (Akiskal, Mendlowicz et al., 2005). The NEO-PI-3 (Costa & McCrae, 2010) was used to assess the Five-Factor Model of personality. It is comprised of 240 items that measure Neuroticism, Extraversion, Openness to Experience, Agreeableness, and Conscientiousness. Internal consistency among the different subscales of the NEO range from .56 to .81 (Costa & McCrae, 2010). The UPPS Impulsivity Scale (Whiteside, Lynam, Miller, & Reynolds, 2005) is a 45-item scale designed to measure