Equivalence of Narcissistic Personality Inventory constructs and correlates across scoring approaches and response formats

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ABSTRACT

The prevalent scoring practice for the Narcissistic Personality Inventory (NPI) ignores the forced-choice nature of the items. The aim of this study was to investigate whether findings based on NPI scores reported in previous research can be confirmed when the forced-choice nature of the NPI's original response format is appropriately modeled, and when NPI items are presented in different response formats (true/false or rating scale). The relationships between NPI facets and various criteria were robust across scoring approaches (mean score vs. model-based), but were only partly robust across response formats. In addition, the scoring approaches and response formats achieved equivalent measurements of the vanity facet and in part of the leadership facet, but differed with respect to the entitlement facet.

1. Introduction

Narcissism is characterized by inflated and grandiose self-views, feelings of superiority, a sense of entitlement, fantasies of unlimited power, success, or beauty, exhibitionism, and a lack of empathy (e.g., Cain, Pincus, & Ansell, 2008). A considerable amount of research effort over the past decades has been invested into understanding narcissism – both from clinical and personality psychology perspectives. As a result of this research effort, many findings have been reported regarding the relationships of narcissism with a variety of traits, such as the Big Five and self-esteem, and sociodemographic variables, such as gender and age. The validity of these findings depends on the psychometric soundness of the instruments used to measure narcissism. The most widely used instrument is the Narcissistic Personality Inventory (NPI; Raskin & Hall, 1979; Raskin & Terry, 1988). According to Cain et al. (2008), 77% of the research on narcissism in social and personality psychology relies on the NPI. The NPI consists of 40 item pairs that are presented in a forced-choice format. Participants are presented with item pairs and are instructed to endorse the response option that is closest to their feelings and beliefs. Each item pair in the NPI consists of one narcissistic response option (Option A in the example) and one non-narcissistic response option (Option B in the example).

	Most like me
Example for the forced-choice format	
Option A I have a natural talent for influencing people	☐
Option B I am not good at influencing people	☐

Despite the popularity of the NPI, its psychometric integrity as a measure of narcissism has been questioned, especially with respect to its factor structure (e.g., Ackerman et al., 2011). Furthermore, the predominant procedure for scoring the responses to NPI items is to count the number of narcissistic response options a respondent endorsed, thereby disregarding the forced-choice nature of the items. It has been shown that the forced-choice format violates the assumption of independence (i.e., the options in the forced-choice pair are not independent; Brown & Maydeu-Olivares, 2011; Meade, 2004). This raises the question of whether the findings reported on narcissism, which are based mainly on total scores from the NPI, are robust to the problematic scoring procedure. The present research investigates whether this scoring procedure results in biased estimates of correlations with external variables. The present investigation uses data from several studies, including an online experiment in which response formats for the NPI are systematically varied and then related to external criteria that have been linked to narcissism in past research.

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We first summarize some of the important findings from research on narcissism based on NPI scores. Second, we describe psychometric issues related to the NPI in detail. Third, we describe the study we conducted to investigate whether previous findings on narcissism are confirmed when the forced-choice format is modeled appropriately and when the response format is varied. Finally, we report the results of these analyses and discuss their implications for the use of the NPI in psychological research.

2. Findings on narcissism as a personality trait

Narcissism has fascinated researchers, in part, because of its complex nature. Narcissism can be salubrious or deleterious. For example, trait narcissism as assessed by the NPI is positively related to extraversion and emotional stability, but negatively related to agreeableness (Ackerman et al., 2011; Emmons, 1984; Rhodewalt & Morf, 1995; Trzesniewski, Donnellan, & Robins, 2008). Furthermore, people higher on narcissism also tend to report higher self-esteem (Rhodewalt & Morf, 1995; Trzesniewski et al., 2008). However, studies that distinguish between the adaptive (e.g., grandiosity, leadership, vanity) and maladaptive (entitlement, exploitativeness) components of narcissism find that these two components show differential relationships to other traits. For example, neuroticism is positively related to the entitlement/exploitativeness facet of the NPI, but negatively or not related to adaptive NPI facets (Ackerman et al., 2011; Emmons, 1984). Extraversion shows the opposite pattern: positive correlations with adaptive narcissism and no correlations with maladaptive narcissism (Ackerman et al., 2011; Emmons, 1984). Both components of narcissism are negatively associated with agreeableness (Ackerman et al., 2011; Rhodewalt & Morf, 1995).

Narcissism has also been studied in relation to sociodemographic variables. Several studies have reported that NPI scores decline with age (Foster, Campbell, & Twenge, 2003; Hill & Roberts, 2012; Roberts, Edmonds, & Grijalva, 2010). A recent meta-analysis on gender differences in narcissism found that men tend to report higher levels of narcissism than women (overall $d = .25$; Grijalva et al., 2015). Other research has linked narcissism to higher socioeconomic status (Piff, 2014).

Thus, research on narcissism as assessed by the NPI has revealed relationships between narcissism and other personality traits and external variables. These findings have been important for a number of reasons. Understanding the association between NPI scores and personality traits, for example, has been crucial for illuminating both the adaptive and maladaptive sides of narcissism. Considering that these findings use, as their foundation, an instrument that has potentially questionable scoring practices, it seems important to verify the validity of these findings.

3. Psychometric issues with the NPI

3.1. Dimensionality and factorial structure

The validity of the external correlations of the NPI rests on the assumption that the scale is both reliable and valid. Unfortunately, the NPI has a somewhat inconsistent record regarding its factor structure. The most persistent inconsistency of the NPI is the varying number of factors reported in exploratory factor analyses of the measure. The original study by Raskin and Terry (1988), from which the 40-item version in use today originated, identified seven subscales (authority, exhibitionism, superiority, vanity, exploitativeness, entitlement, self-sufficiency). Other studies found fewer factors. The studies by Corry, Merritt, Mrug, and Pamp (2008) and Kubarych, Deary, and Austin (2004) reported two factors (leadership/authority, exhibitionism/entitlement in Corry et al. and

power, exhibitionism in Kubarych et al.), although Kubarych et al. (2004) suggested that a third factor (being a special person) might exist. Ackerman et al. (2011) also identified three factors (leadership/authority, grandiose exhibitionism, entitlement/exploitativeness) while Emmons (1984) identified four factors (leadership/authority, superiority/arrogance, self-absorption/self-admiration, exploitativeness/entitlement). Leadership/authority factors tend to be measured by a larger number of items and are related to more adaptive traits and outcomes such as high self-esteem and extraversion. In contrast, exhibitionism/entitlement/exploitativeness factors tend to be measured by fewer items and are related to rather maladaptive traits and outcomes such as high neuroticism and low relationship quality (Ackerman et al., 2011).

Of particular importance to the present study, Ackerman, Donnellan, Roberts, and Fraley (2015) investigated the impact of changing the response format from the original forced-choice format to a dichotomous true/false or polytomous rating scale format on the resulting factor structure. They found that the factor solutions differed across response formats with three factors (leadership, vanity, exhibitionism) being sufficient in the forced-choice format whereas two additional factors (manipulativeness, superiority) were found in the true/false and rating scale format. Furthermore, Ackerman et al. (2015) found that several item pairs assessing manipulativeness and superiority consisted of statements that did not reflect the same trait (i.e., unidimensional forced-choice) but rather different traits (i.e., multidimensional forced-choice). To summarize, despite finding differing factor structures, previous research is consistent with two conclusions: (1) the NPI is not a unidimensional scale and (2) items describing adaptive content (e.g., leadership, authority, vanity) are more prevalent than items describing maladaptive content (e.g., exploitativeness, entitlement).

3.2. Scoring of the NPI

Another important psychometric issue that appears to have been neglected in previous research is related to the scoring of the NPI items. In most applications the number of narcissistic responses endorsed by a participant are counted to form the NPI total score. This scoring practice essentially treats responses to the NPI's forced-choice items as responses to single-stimulus items where each item is rated separately. The forced-choice nature of the NPI items is ignored. For unidimensional item pairs, where the two response options reflect different levels of the same trait, this might not distort the validity of the scores. This is because the latent response tendency for such an item pair is simply the difference of the item utilities, which represent the similarity between the behavior described in the item and the respondent's own behavior (Maydeu-Olivares & Brown, 2010). With the utilities of items i and k described by the linear factor analysis model, the latent response tendency has a simple form:

$$y_{ik}^* = (\text{mean}_i - \text{mean}_k) + (\text{loading}_i - \text{loading}_k) \cdot \text{trait} + (\text{error}_i - \text{error}_k). \tag{1}$$

Assuming that the factor loading for the positively keyed narcissism item i is positive, and the factor loading for the negatively keyed narcissism item k is negative, the difference of the two factor loadings is positive. Therefore, selecting the positively keyed narcissism item will contribute positively to the measurement of the trait (narcissism). Assigning the score 1 in this case reflects the judgment for the whole pair, not for an individual item. Summing up such binary scores as in the classical scoring approach to derive the total score is an acceptable simplification that in most cases does not distort correlations with external variables (McDonald, 1999).