

Utility of the Response Bias Scale (RBS) and other MMPI-2 validity scales in predicting TOMM performance

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Abstract

The present study represents a replication and extension of the original Response Bias Scale (RBS) validation study. In addition to examining the relationship between the Test of Memory Malingering (TOMM), RBS, and several other well-researched Minnesota Multiphasic Personality Inventory 2 (MMPI-2) validity scales (i.e., F, Fb, Fp, and the Fake Bad Scale), the present study also included the recently developed Infrequency Post-Traumatic Stress Disorder Scale and the Henry–Heilbronner Index (HHI) of the MMPI-2. Findings from this retrospective data analysis ($N=46$) demonstrated the superiority of the RBS, and to a certain extent the HHI, over other MMPI-2 validity scales in predicting TOMM failure within the outpatient Veterans Affairs population. Results of the current study confirm the clinical utility of the RBS and suggest that, particularly if the MMPI-2 is an existing part of the neuropsychological assessment, examination of RBS scores is an efficient means of detecting negative response bias. Published by Elsevier Ltd on behalf of National Academy of Neuropsychology.

Keywords: Minnesota Multiphasic Personality Inventory; Test validity; Neuropsychology; Malingering; Military veterans; Memory

1. Introduction

Few studies have examined the relationship between Minnesota Multiphasic Personality Inventory 2 (MMPI-2; Butcher et al., 2001) validity scales and performance on cognitive symptom validity tests. One early study (McCaffrey, O'Bryant, Ashendorf, & Fisher, 2003) found that the traditional MMPI-2 validity scales (VRIN, TRIN, L, F, K, Fb) did not positively correlate with any trial on the Test of Memory Malingering (TOMM; Tombaugh, 1996) or the Rey-15-Item Test (Rey-15; Rey, 1964). Recognizing that many of these scales were originally designed to detect psychiatric malingering and were not particularly well-suited for detecting invalid performance on neuropsychological tests, Gervais, Ben-Porath, Wygant, and Green (2007) developed the Response Bias Scale (RBS), which is the only MMPI-2 scale developed specifically to detect negative response bias on cognitive testing.

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1.1. RBS

The RBS (Gervais et al., 2007) consists of 28 MMPI-2 items that, in a sample of 1212 non-head-injury disability claimants, were shown to discriminate between persons who passed or failed one of several symptom validity tests, including the Word Memory Test (WMT; Green, 2003; Green & Astner, 1995; Green, Allen, & Astner, 1996), the Computerized Assessment of Response Bias (CARB; Allen, Conder, Green, & Cox, 1997), and/or the TOMM. Initial testing by the scale developers showed that the RBS consistently outperformed other MMPI-2 validity scales, including F, Fp, and the Fake Bad Scale (FBS; Lees-Haley, English, & Glenn, 1991), in its ability to detect poor performance on symptom validity tests.

Three recent investigations lend further support to the demonstrated clinical utility of RBS. Nelson, Sweet, and Heilbronner (2007) showed that, of many MMPI-2 validity scales examined (e.g., L, F, K, Fb, Fp, and FBS), RBS yielded the largest effect size for differences between a group of study participants with secondary gain ($N=157$) and a group with no secondary gain ($N=54$). In addition, Larrabee (2008) found that, aside from RBS, FBS, and FBS-r (30-item form of the FBS to appear on the MMPI-2 Restructured Form; Ben-Porath & Tellegen, 2008), none of the other MMPI-2 validity scales examined added meaningfully to prediction of group membership in a sample of 54 non-malingering clinical patients and 41 malingering personal injury litigants who failed at least one symptom validity test. Other MMPI-2 validity tests examined by Larrabee included, but were not limited to, F, Fp, the Infrequency Post-Traumatic Stress Disorder scale (Fptsd; Elhai et al., 2002), and the Henry–Heilbronner Index (HHI; Henry, Heilbronner, Mittenberg, & Enders, 2006). Another recent study provided additional support for the RBS, finding it to be a better predictor of subjective memory complaints than the F, Fb, Fp, and FBS (Gervais, Ben-Porath, Wygant, and Green, 2008). In the latter study, higher RBS scores were associated with more *subjective* memory complaints but not with *objective* memory test scores in a sample of 1187 predominantly non-head-injury disability-related referrals, suggesting that RBS scores are associated with over-reporting.

The aim of the present study was to confirm the validity of the RBS by replicating a portion of the original RBS validation study conducted by its developers, Gervais and colleagues (2007). As in the original study, the current study employed a retrospective chart review of clinical patients who completed both the TOMM and the MMPI-2. A primary goal of this research was to investigate whether or not the observed relationships between the TOMM and the RBS would be upheld within a VA medical center outpatient clinical sample. The present study also extended that of the original investigation by not only looking at the relationship between the TOMM and RBS, F, Fb, Fp, and FBS of the MMPI-2, but also the recently developed Fptsd (Elhai et al., 2002) and HHI (Henry et al., 2006) validity scales of the MMPI-2. It was hypothesized that, of all validity scales included, the RBS would be the scale that demonstrated the largest difference between groups of individuals who passed the TOMM versus those who failed it. In addition, it was hypothesized that, as in the original study, the RBS would incrementally contribute to each validity scale in predicting TOMM performance (pass versus fail), while the reverse would not hold true. Specifically, it was anticipated that, in a regression model, the addition of RBS to each of the other validity scales would result in a significant improvement in the ability of each scale to predict TOMM scores, while the addition of each validity scale to RBS would not result in a significant change in the accuracy of RBS in predicting TOMM performance. Prior to proceeding to a more detailed discussion of the methods used in the current study, a brief discussion of the development and validation of each of the aforementioned validity scales is presented.

1.2. F, Fb, Fp, Fptsd, and HHI

The Infrequency (F) scale is one of the four original scales developed by the authors of the MMPI (Hathaway and McKinley, 1951) to detect deviant test-taking attitudes (for review, see Graham, 1990). F scale items (60 total) were selected by identifying statements that were endorsed by fewer than 10% of the original Minnesota normal group. Endorsement of a large number of these responses calls into question the extent to which a respondent complied with test instructions. Unlike the F scale items, all of which appear before item 362, the Infrequency-Back (Fb) items appear later in the booklet, all after item 280, and were included to detect deviant responding in the latter part of the test. The Fb scale was originally developed for the experimental booklet used in the normative data collection for the MMPI-2 (Butcher, Dahlstrom, Graham, Tellegen, & Kaemmer, 1989). Like the F scale, the 40-item Fb scale is composed of items that were endorsed less than 10% of the time by normal individuals in the sample.

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