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The Personality Assessment Inventory in individuals with Traumatic Brain Injury

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Abstract

This study examined the Personality Assessment Inventory (PAI) in 95 individuals who had suffered a traumatic brain injury (TBI). Participants were recruited from a rehabilitation hospital ($n = 60$) and a military hospital ($n = 35$); despite differences in demographics and injury characteristics groups did not differ on any of the clinical scales and were thus combined. In the combined group, the highest mean clinical scale elevations were on Somatic Complaints, Depression, and Borderline Features and the most common configural profiles, based on cluster analysis, were Cluster 1 (no prominent elevations), Cluster 6 (social isolation and confused thinking), and Cluster 2 (depression and withdrawal). Factor analysis indicated a robust three-factor solution that accounted for 74.86 percent of the variance and was similar to findings from the psychiatric and non-psychiatric populations in the standardization sample. The above findings are compared with the previous literature on psychopathology in TBI, particularly in regards to the Minnesota Multiphasic Personality Inventory-2 (MMPI-2), as well as previous psychometric research on the PAI.

Keywords: Personality Assessment Inventory; Traumatic Brain Injury; Psychometric research

The Personality Assessment Inventory (PAI) is self-report measure of personality and psychopathology that is comprised of multiple clinical (for example, Depression, Schizophrenia, Drug Problems), interpersonal (for example, Warmth, Dominance), and treatment consideration (for example, Aggression, Suicidal Ideation) scales that can be grouped into profiles or clusters (Morey, 1991). Initial findings on the PAI presented in the test manual indicate that a common profile in psychiatric patients is Cluster 2, which is marked by prominent elevations on the depression and suicidal ideation scales with lower elevations on scales such as Somatic Complaints, Anxiety, and Borderline Features. The PAI also includes several validity scales, such as Inconsistency and Negative Impression, which assist in determining whether an individual responded honestly. These indicators have demonstrated the PAIs ability to discriminate between honest and feigned responding participants in simulating studies (Morey & Lanier, 1998). Practically speaking, the PAI is now widely administered for general clinical purposes (Piotrowski, 2000) and a recent survey of forensic psychologists

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considered it "acceptable" for use in a wide range of forensic issues such as malingering and competency to stand trial evaluations (Lally, 2003).

Using a variety of methods and participants, Morey (1991), in the test manual accompanying the commercially available PAI, demonstrated that the PAI has adequate reliability and validity. In addition, factor-analytic studies presented in the PAI manual found a three-factor solution for the eleven clinical scales using exploratory factor analyses in a general psychiatric sample. The clinical scales had factors tapping (a) severe psychopathology and acute psychiatric syndrome, (b) acting out and substance/drug abuse, and (c) egocentricity and exploitativeness. Morey's three-factor solution was confirmed by Deisinger (1995) in a group of non-psychiatric individuals, many of them students, whereas Tasca, Wood, Demidenko, and Bissada (2002) obtained slightly different findings and a five-factor solution in a sample of individuals with eating disorders. Though this latter study performed factor analysis using both clinical and validity scales and is not directly comparable, some of the factor loadings were very similar.

In addition to basic psychometric data, the PAI has now been studied in several different psychiatric populations, particularly in individuals with substance abuse problems. Parker, Daleiden, and Simpson (1999) compared PAI findings with those obtained from the Addiction Severity Index (ASI), a well-established and psychometrically sound measure of substance abuse, in a sample of veterans enrolled in a chemical dependency treatment program. The PAI Alcohol scale was significantly correlated with the Alcohol composite of the ASI ($r = .49$, $p < .01$), but not other measures such as the Drug, Legal, or Psychiatric scales. Though the PAI Drug scale demonstrated adequate convergent validity through a strong positive correlation with the ASI composite measure, it was also related to the Psychiatric and Family/Social scales. Ruiz, Dickinson, and Pincus (2002) and Kellogg et al. (2002) have also supported the convergent validity of the Alcohol and Drug Problems scales, respectively, in different populations. In addition to substance dependent populations, Caperton, Edens, and Johnson (2004) found that the Antisocial Features, Aggression, and Violence Potential scales of the PAI were positively correlated with institutional misconduct in a sample of male sex offenders, as measured by a review of documented infractions in prison records.

Despite its appealing psychometric basis and increasing use in psychiatric populations, the PAI has yet to be formally studied in individuals with traumatic brain injury (TBI). Given the high likelihood of psychological difficulties subsequent to TBI (see Prigatano, 1992), this appears to be a gap in the existing research. As such, the purpose of this preliminary investigation was to study the PAI in individuals who had sustained a TBI to (a) provide descriptive data on mean scale elevations, (b) provide descriptive data on common personality profiles or clusters, and (c) determine the factor structure of this measure. Additionally, the current study examined variations in PAI profiles across differing severities of injury.

1. Methods

1.1. Participants

A total of 113 individuals with documented TBI were evaluated in one of two settings: a rehabilitation hospital in a large urban southeastern city and a regional military medical center in the southwest. Participants in the former location were enrolled in the federally funded TBI Model Systems project and were evaluated 1 year post-injury (±2 months). Enrolled participants from this site met the following inclusion criteria: incurred a brain injury requiring inpatient rehabilitation primarily for treatment of TBI, were 16 or older at the time of injury, were able to read or speak English well enough to respond to the questionnaires, presented to a Model System acute care hospital within 72 hr of injury, received acute hospital care and comprehensive care and rehabilitation in a designated brain injury inpatient program within the Model System, and were able to understand and provide informed consent. Participants from the military hospital were injured while on active duty and were referred for clinical evaluation 9.43 months (S.D. = 10.5) post-injury. Of the 113 total participants, 95 meet inclusion criteria (see below) and were included in the final analyses. Demographic data on the included participants, separated by location and then aggregated, are presented in Table 1. As is evident, there was no difference in education between groups ($t(93) = -0.125$, $p = .901$), but participants from the rehabilitation hospital were significantly older ($t(93) = 3.1$, $p = .003$), had a significantly higher percentage of woman ($X^2(1) = 8.5$, $p = .003$), and were significantly more likely to be Caucasian than any other racial category ($X^2(5) = 12.7$, $p = .03$). In terms of etiology, the three most common types of injury for the rehabilitation group were as follows: motor vehicle accidents (55 percent), motorcycle accidents (18 percent), and falls (15 percent).