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Cognitive status and profile validity on the Personality Assessment Inventory (PAI) in offenders with serious mental illness

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ABSTRACT

Cognitive impairment among seriously mentally ill offenders has implications for legal matters (e.g., competency to stand trial), as well as clinical treatment and care. Thus, being able to identify potential cognitive concerns early in the adjudication process can be important when deciding on further interventions. In this study, we examined the validity scales of the Personality Assessment Inventory (PAI), scores on the Wechsler Adult Intelligence Scale-IV (WAIS-IV), and competency findings in male inmates ($n = 61$) diagnosed with a serious mental illness. Lower scores on the WAIS-IV significantly ($p = 0.001$) predicted invalid, versus valid, PAI profiles, with working memory impairment being the most significant ($p = 0.004$) predictor of an invalid profile. Ancillary analyses on a smaller sample ($n = 18$) indicate that those with invalid PAI profiles were more likely to be deemed legally incompetent ($p = 0.03$). These findings suggest that the PAI validity scales may be informative in detecting cognitive concerns and help clinicians make determinations about competency restoration and treatment.

1. Introduction

When addressing legal questions about individuals who have come into contact with the criminal justice system, it is critical to consider their level of cognitive functioning. Cognitive functioning is a broad term which refers to the most vital areas of brain function such as memory, language, reasoning, attention, orientation, and executive functioning. An individual's cognitive state may influence readiness for adjudication (i.e., competency to stand trial) or decisions of criminal responsibility (i.e., the individual's state of mind at the time of the offense). An individual's level of cognitive functioning can also have significant implications for length of incarceration, type of defense, and severity of sentencing (e.g., Endicott, 1991). Given the breadth of legal implications, the ability to use standard clinical measures to identify potential cognitive concerns can be an important first step when deciding on the need for further cognitive assessment and intervention (including treatment of psychiatric symptoms or restoration of legal competency) in forensic settings.

One such clinical measure is the Personality Assessment Inventory (PAI; Morey, 1991), an objective, psychometrically sound assessment of personality and psychopathology (Morey, 1996, 2007b). The PAI has shown to be a useful and reliable tool in a variety of clinical settings (e.g., Aikman & Souheaver, 2008; Deisinger, 1995; Morey, 1991, 2007b; Sinclair et al., 2015), including forensic and correctional settings (e.g., Archer, Buffington-Vollum, Stredny, & Handel, 2006; Douglas, Hart, & Kropp, 2001; Edens, Cruise, & Buffington-Vollum, 2001; Morey & Quigley, 2002; Wang et al., 1997; White, 1996). The PAI can yield information that assists in determining diagnosis, symptom severity, level of risk, and treatment planning, and due to its utility to assess factors salient to psycholegal decision making, the PAI has gained popularity in forensic settings. For example, the PAI can be used to assess for potential risk of aggression towards self and others, to classify offenders, and even to predict the likelihood of disciplinary action being taken against an inmate during incarceration or recidivism once an inmate is released from custody (Edens et al., 2001; Gardner, Boccaccini, Bitting, & Edens, 2015; Morey & Quigley, 2002; Reidy, Sorensen, & Davidson, 2015; Sinclair et al., 2009; Walters & Duncan, 2005; Walters, Duncan, & Geyer, 2003; Wang et al., 1997). Furthermore, the assessment typically only takes about an hour to complete, most items are written at about a 4th grade reading level (Morey,

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2007b)—though some are at a 5th or a 6th grade reading level (Schinka & Borum, 1993)—and are answered on a four point Likert scale, making it a particularly attractive measure in forensic and correctional settings where the respondent's educational level may be lower than that of the general population (Godfrey, 1971; Morey, 2003; Morey & Quigley, 2002). Additionally, an adolescent version of the assessment (PAI-A; Morey, 2007a) has been developed, and a shortened version (PAI-SF)—consisting of the first 160 items of the full version—is in existence, which further contribute to its clinical utility in criminal justice settings (e.g., Archer et al., 2006). The PAI-A is both reliable and valid, and the functionality of the validity scales on the adolescent version compared to the adult version is supported (e.g., Meyer, Hong, & Morey, 2014; Morey, 2007a). The psychometric properties of the PAI-SF have also been validated, and its efficacy in moderating the effects of fatigue on back random responding is supported, including in forensic samples (Sinclair et al., 2009, 2010).

The standard adult version of the PAI consists of 22 non-overlapping scales: 11 clinical, 5 treatment consideration, 2 interpersonal, and 4 validity scales. The validity scales have been shown to pick up on distorted or invalid response styles (Morey & Hopwood, 2004; Morey & Quigley, 2002; Sellbom & Bagby, 2008), and include Positive Impression (PIM), Negative Impression (NIM), Infrequency (INF), and Inconsistency (ICN). An elevated PIM scale might indicate defensiveness, or "faking-good," or it may suggest a lack of insight. An elevated NIM scale oftentimes suggests malingering, or exaggeration of symptoms, by an individual who wishes to portray a greater severity of mental illness or an overall unfavorable impression. However, the NIM scale was not designed as a measure specifically for malingering and elevated scores on this scale may also indicate an exceedingly negative evaluative style that is associated with mental disorders such as severe depression or borderline personality. The INF scale helps determine if the test-taker is responding randomly or carelessly, and the ICN scale determines if the test-taker is responding consistently and properly attending to item content (Morey, 1991). Although the validity scales ultimately tell the clinician whether or not a PAI profile should be interpreted as valid, these scales can also provide an additional depth of understanding of the client's psychiatric symptoms, and may also provide insight into the client's cognitive functioning (Sinclair et al., 2015).

In his explanation of the validity scales of the PAI, Morey (1991, 2007b) recognizes that one possible explanation for elevations in the validity scales may be cognitive disruptions. Specifically, he states that individuals with intellectual disability or language difficulties are likely to produce elevated INF or ICN scales. Extant research has begun to investigate this possibility, finding an association between PAI validity scales and cognitive functioning in psychiatric populations. For example, Aikman and Souheaver (2008) sought to find if any scales on the PAI were related to performance on neuropsychological tests involving higher cortical brain functioning. They found that when including the validity scales of invalid PAI profiles in analyses, the validity scales were significantly related to scores on intelligence quotient (IQ), motor functioning tests, visual–spatial measures, and attention. Specifically, poor attention, as measured by the Attention Index of the Repeatable Battery for the Assessment of Neurocognitive Status (RBANS; Randolph, 1998), was related to an elevation in PAI INF scores (which assesses an individual's ability to appropriately read and rate items) in psychiatric patients with one or more psychiatric diagnoses.

More recently, Sinclair et al. (2015) examined the relationship between neurocognitive functioning and the validity of PAI profiles. After classifying PAI profiles as valid or invalid, they found an association between cognitive deficits across several domains and increased risk for an invalid PAI profile in psychiatric outpatients, such that those with valid profile had neurocognitive functioning scores within the average range, whereas those with invalid profiles scored within the low average and borderline ranges for neurocognitive functioning. The authors then controlled for overall intellectual functioning, and found that attentional impairment specifically (lower scores on the Trail Making Test-A and the Wechsler Adult Intelligence Scale-III Digit Span and Digit Symbol Coding), was a significant predictor of PAI profile invalidity. They also found that among inpatients, gross cognitive impairment (assessed with the Wechsler Memory Scale-IV Brief Cognitive Status Examination) was meaningfully associated with PAI profile validity, such that over 40% of the patients in the low to very low score category, or those with the greatest level of cognitive impairment, had invalid profiles. The results of both of these studies suggest that problems with attention and concentration may influence one's ability to complete the PAI in a valid way. The findings also suggest that interpreting invalid PAI profiles may be a helpful starting point when screening and identifying cognitive deficits, specifically attentional and working memory impairments.

Research has also begun supporting the use of the PAI in populations with cognitive impairment, such as Traumatic Brain Injury (TBI; Aikman & Souheaver, 2008; Armistead-Jehle, 2010; Keiski, Shore, Hamilton, & Malec, 2015). For example, one study (Armistead-Jehle, 2010) looking at the veracity of TBI symptoms using the Medical Symptom Validity Test (MSVT), found no significant differences between patients who passed and failed the MSVT on the PAI's NIM validity scale. In a similar study, Keiski et al. (2015) compared scores on the PAI validity scales of participants with true TBI symptoms and participants simulating TBI symptoms, such as emotional instability and physical fatigue, as well as cognitive impairments in memory and attention. Results indicated an elevation of validity scales for both the simulated TBI group and the true TBI group, though those simulating TBI had significantly higher scores on the validity scales than those with true TBI. The findings of both of these studies suggest that the validity scales of the PAI are successful in detecting malingering of symptoms, but are also capable of detecting authentic cognitive impairment.

In forensic evaluations, it is important to consider cognitive ability, discrete from psychiatric illness, as many times impaired cognitive ability co-occurs with a mental health diagnosis (e.g., Roesch, Zapf, Golding, & Skeem, 1999; Ryba & Zapf, 2011). This is particularly salient when determining legal competency, one of the most frequently required mental health evaluations in forensic settings (e.g., Hoge et al., 1997; Nestor, Daggett, Haycock, & Price, 1999). At present, forensic psychologists evaluate competency following the legal theory of competency demarcated by the *Dusky* standard (*Dusky v. United States*, 1960). Competence to stand trial, by this standard, requires assessment to determine if the criminal process may move forward at all for adjudication or trial, as well as the offender's ability to participate meaningfully in the process. The *Dusky* standard prioritizes the evaluation of one's *capacity* rather than the wealth of one's preexisting knowledge of the legal system and court processes. In the evaluation of capacity, several cognitive processes must be assessed. These include processes involved in decision-making and information processing, such as reasoning and comprehension, attention, working memory, the ability to encode and retrieve relevant factual information, and processing speed. Many measures have been developed over the past few decades to address the various aspects of competency and the cognitive processes implicated in one's capacity to be deemed competent. One of the most frequently referenced and widely used measures, the MacArthur Structured Assessment of the Competencies of Criminal Defendants (MacSAC-CD), identifies and defines three distinct competency-related abilities that taken together embody the *Dusky* standard: understanding, appreciation, and reasoning (Hoge et al., 1997). Understanding generally refers to the client's ability to factually comprehend legally relevant information, such as the charges brought against the client, the roles of the different members of the court, and court proceedings. Appreciation refers to the client's ability to rationally understand legal information and how it applies to his or her case, such as the severity of the charges and what the outcome might be if convicted of the charges. Reasoning refers to the client's ability to use relevant information to participate and assist in his or her defense (Hoge et al., 1997). In demonstrating these three abilities, one is demonstrating a variety of cognitive abilities,