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Suspected Malingering and the Digit Memory Test: A Replication and Extension

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This study replicated a previous finding that suspected malingerers often perform at a level worse than patients with unequivocal brain dysfunction on the Digit Memory Test (DMT). In addition, it was demonstrated that patients suffering from aphasia as well as temporal and "frontal lobe" damage perform at a level higher than suspected malingerers. DMT performance of patients with true dementia, however, may be difficult to distinguish from suspected malingerers. If an individual is not demented (as judged by such tests as the BNI Screen for Higher Cerebral Functions) and performs at a level less than 95% across three trials of the DMT, the question of noncooperation with testing procedures or "malingering" should be considered. © 1997 National Academy of Neuropsychology. Published by Elsevier Science Ltd

INTRODUCTION

The clinical utility of any test depends upon its ability to classify patients into correct diagnostic categories. Toward that end, sensitivity and specificity values for neuropsychological tests are important in evaluating a measure's ability to correctly classify persons with brain injury versus those without (Parsons & Prigatano, 1978; Prigatano, & Redner, 1993; Prigatano, Parsons, & Bortz, 1995). The converse question of identifying people without brain dysfunction as "neuropsychologically normal" is particularly important in the evaluation of people with a psychiatric illness who present with signs and symptoms of a neurological disorder (e.g., separating depression from dementia (Storandt & VandenBos, 1994) or nonepileptic seizures from epileptic seizures (Bortz, Prigatano, Blum, & Fisher, 1995).

In addition, clinical neuropsychologists are increasingly asked to evaluate patients whose neuropsychological complaints seem exaggerated, given their medical histories. In cases where there exists financial or other incentives to "fake bad" on neuropsychological tests, issues regarding reliable identification of suspected malingerers are a major concern. Frederick, Sarfaty, Johnston, and Powel (1994) and Binder, Villanueva, Howieson, and Moore (1993) suggest that up to 25% of individuals who stand to gain economically from positive findings on neuropsychological tests may be responding in a biased fashion. This implies that up to one fourth of individuals seen for medical/legal purposes, insurance reasons, and so on may not be performing to maximum capacity. It is, therefore, important to develop methods to detect these individuals.

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A growing number of empirical and review papers have addressed this problem (e.g., Binder, 1990, 1992; Binder, Villanueva, Howieson, & Moore, 1993; Binder & Willis, 1991; Franzen, Iverson, & McCracken, 1990; Hiscock & Hiscock, 1989; Miller & Miller, 1992; Pankratz, 1983, 1988; Rogers, 1988; Trueblood & Schmidt, 1993). One method used to detect level of motivation is symptom validity testing, originally proposed by Pankratz (1979) to address suspected feigning of sensory deficits. In this paradigm, a person considered to be feigning a neurological deficit, such as deafness, would be instructed to indicate whether an audible tone was heard over a series of multiple trials in which the stimulus was randomly presented on 50% of the trials. Based upon probability theory, someone who was truly unable to hear the stimulus should still produce correct responses purely by chance on approximately 50% of the trials. The binomial distribution permits the calculation of performances that are statistically unlikely to have occurred due to chance. The examiner may therefore assume that scores falling significantly above or below chance result from purposeful responding. Based on this model, Hiscock and Hiscock (1989) developed the *Digit Memory Test* (DMT) and documented its clinical utility in identifying an individual thought to be purposely feigning or simulating memory impairment.

Prigatano and Amir (1993) noted that suspected malingerers may be identified on the DMT even if their level of performance was not below chance. Twenty-seven (27) patients with unequivocal brain dysfunction and 10 normal controls showed a mean level of performance between 94% to 100% correct on the DMT. In contrast, while suspected malingerers were not below the 50% correct level expected from chance, they did perform at a mean level of only 74% correct. It was argued, therefore, that even performance above the 50% correct level might still detect patients suspected of malingering.

A potential problem in utilizing measures such as the DMT is that some neurological patients may perform poorly on this test as a result of brain dysfunction. Hiscock and Hiscock anticipated this problem when they suggested that patients with generalized brain dysfunction such as those with dementia of the Alzheimer's type (DAT) might perform poorly on the DMT. Prigatano and Amin (1993) noted the same concern regarding other patient populations. For example, aphasic patients might have difficulty due to an inability to effectively encode and rehearse the stimuli during the delay period. Individuals with frontal lobe dysfunction also may perform poorly due to deficits in directing and sustaining attention. Because this type of test is increasingly utilized in cases of medical/legal testimony, it is imperative to empirically determine how such neurologically impaired groups perform on the DMT.

This study examined patients with DAT, residual language disturbance secondary to brain injury, frontal lobe dysfunction, and temporal lobe dysfunction. First, an attempt was made to replicate the previous findings (Prigatano & Amin, 1993) that suspected malingerers can be distinguished from documented brain-impaired patients with DMT performances that are significantly below chance. Also, the study was extended to empirically evaluate further how additional patient groups and a new group of suspected malingerers perform on this test.

METHOD

Study 1. Replication Phase

Subjects. Twenty-one patients referred for neuropsychological evaluation at the Barrow Neurologic Institute, St. Joseph's Hospital and Medical Center participated in a replication study. Ten of these patients had a history of unequivocal moderate-to-severe traumatic brain injury (TBI). Their medical records documented emergency room Glasgow Coma Scale scores between 9 to 12 or 3 to 8 and/or space-occupying lesions on computed tomography

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