

Test of Memory Malingering Performance is unaffected by laboratory-induced pain: implications for clinical use

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Abstract

The Test of Memory Malingering (TOMM) is a well-validated and widely used forced-choice symptom validity test. However, little is known about how TOMM performance is affected by pain. The present study evaluated the sensitivity of the TOMM to pain induced in healthy participants via the cold-presser test. Participants ($n = 20$ per group) were administered the TOMM under one of three conditions: (1) standard instructions; (2) instructions to simulate pain-related memory deficit in pursuit of personal injury litigation; (3) while experiencing cold-induced pain. Results indicate that TOMM performance was unaffected by laboratory-induced moderate to severe pain and support the TOMM's use in evaluating clinical patients with pain.

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Clinicians have used forced-choice symptom validity tests (SVTs) for decades to detect exaggeration of cognitive and perceptual symptoms in neuropsychological evaluations (for a review, see Bianchini, Mathias, & Greve, 2001). Most SVTs are two-alternative forced-choice tests that serve ostensibly as measures of cognitive or perceptual ability. Cognitive SVTs work because they look very cognitively demanding but actually are very easy to perform. Research has demonstrated that SVTs are relatively insensitive to memory impairment caused by

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brain damage (e.g., Bianchini, Mathias, Greve, Houston, & Crouch, 2001; Tombaugh, 1996, 1997). Moreover, performance on several commonly used SVTs is insensitive to the effects of depression and anxiety (e.g., Test of Memory Malingering (TOMM); Ashendorf, Constantinou, & McCaffrey, 2004; Rees, Tombaugh, & Boulay, 2001). In short, SVTs are insensitive to ability and instead are considered to measure test-taking effort. The results of SVTs allow clinicians to draw inferences about the validity of test performance and can contribute to a diagnosis of malingering (e.g., Bianchini et al., 2001). Therefore, SVTs are commonly included in psychological batteries when there is potential incentive to exaggerate symptoms or level of disability, such as personal injury litigation and worker's compensation claims.

Back and neck pain are common problems in modern America. The lifetime incidence of low back pain is 11–84% (Walker, 2000) while neck pain persists in 10–15% of the adult population (Hardin & Halla, 1995). It is currently well accepted that the pathophysiology is not entirely or clearly understood (Waddell, 1996) and physical/diagnostic characteristics of injuries associated with pain do not fully explain symptomatic or functional outcomes (Boden, Davis, Dina, Patronass, & Wiesel, 1990). This has led to the investigation of psychological factors in search of an explanation for some of this unexplained variance. Recent research has confirmed that certain psychosocial factors are related to outcome (see Linton, 2000, for a review). Moreover, the financial incentive associated with workers compensation claims and personal injury litigation also significantly impacts outcome (Rainville, Sobel, Hartigan, & Wright, 1997; Rohling, Binder, & Langhinrichsen-Rolling, 1995).

Patients with chronic pain may complain of or manifest cognitive symptoms such as impaired memory or concentration. Some cognitive symptoms may legitimately accompany the experience of pain, arising as a consequence of pain-related depression or as a side effect of sedating medications such as narcotic analgesics (Eccleston, 1994, 1995; Ravnkilde et al., 2002). However, cognitive complaints by litigating pain patients without head injury commonly exceed those reported by non-litigating patients with head injury (Iverson & McCracken, 1997; Iverson, King, Scott, & Adams, 2001). There is documentation of malingered cognitive impairment in patients whose primary complaint is pain (Bianchini, Etherton, & Greve, *in press*; Greve, Bianchini, & Ameduri, 2003; Larrabee, 2003). Moreover, the incidence of malingering in pain may be quite high. Kay and Morris-Jones (1998) reported that video surveillance identified potential malingering in 20% of pain patients pursuing compensation claims. Base rates of malingering may approach 40% in personal injury and workers compensation cases (Mittenberg, Patton, Canyock, & Condit, 2002). Thus, because malingered cognitive disability may be present in some patients with pain, chronic pain evaluations have increasingly included SVTs (Bianchini et al., *in press*; Gervais, Green, Allen, & Iverson, 2001; Meyers & Diep, 2000).

On a rational basis one can argue that pain and pain-related factors (e.g., use of analgesics known to affect cognition) should not affect performance on SVTs which are relatively insensitive to the effects of severe brain dysfunction. Therefore applying empirical cutoffs derived from patients with documented brain pathology to patients with pain is reasonable and likely conservative (i.e., will result in a low false positive error rate) for use in diagnosing malingering (Bianchini et al., *in press*). At the same time, some SVTs have empirically-demonstrated insensitivity to pain. For example, performance on the Word Memory Test (WMT; Green, Iverson, & Allen, 1999) and the Computer Assessment of Response Bias (CARB; Cinder, Allen, & Cox, 1992) is insensitive to pain itself and can be under volitional control in some

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