

LETTER TO THE EDITOR

Dear Editor:

In Response to: “Are Effort Measures Sensitive to Cognitive Impairment?” published in the December issue (*Mil Med* 2011; 176 (12): 1426–31).

I write this response to the recent publication by Willis et al. entitled, “Are Effort Measures Sensitive to Cognitive Impairment?” in the December 2011 issue of this journal. I would argue that the article should have been represented as an editorial and not peer-reviewed research given that it is a series of three case studies providing readers with the authors’ opinion about the sensitivity of the Word Memory Test (WMT) to cognitive impairment, but levels little objective evidence to support such a conclusion.

Willis et al. misrepresent the WMT data as a false positive, but they fail to use the test as designed and as indicated in the manual. In actuality, the data presented by Willis et al. elegantly demonstrates how well the WMT profile analysis works to identify cognitively impaired individuals. It detected the genuine memory impairment profile (GMIP) – rather than invalid data – in case 1 that was corroborated by colleagues and is plausible in dementia. Both cases 2 and 3 had mild, transient brain injuries not resulting in dementia and demonstrated profiles more consistent with suboptimal effort; yet, Willis et al. argue that low scores on the WMT were caused by genuine cognitive deficits. Both of these cases were seeking medical retirement and financial incentive for their claimed injuries, which is a major factor to consider given the dose-response relationship between invalid test performance and compensation in cases of traumatic brain injury (TBI) (Bianchini, Curtis, & Greve, 2006).

When one considers that effort has more of an effect on neuropsychological scores than severe TBI (Green et al., 2001), this would seem the more logical explanation for WMT failure in cases 2 and 3 than genuine impairment secondary to mild TBI as proposed by the authors. I know of no neurologic explanation for case 3 performing much worse than case 1 on WMT IR, while performing much better on FR, nor for both cases 2 and 3 performing better on more difficult aspects of the test than easier ones (e.g., PA > MC); Willis et al. fail to provide an explanation either. It is also difficult to fathom how mild TBI patients 6-20 months post-injury could have failed the WMT with good effort when a variety of patients with severe illness can pass, from children with severe TBI (Carone, 2008) to adults with active psychosis (Schroeder & Marshall, 2011). There are studies showing that symptom validity test (SVT) failure in veterans claiming concussion approaches 58% (Armistead-Jehle, 2010); others have found a lower, but still substantial 17% (Whitney et al., 2009). In the latter study, none of the failures had a GMIP, and they conclude that there is evidence of 100% specificity in that population. Singhal et al. (2009) also found no false positives on Green’s MSVT and NV-MSVT in a series of institutionalized dementia cases when using the profile analysis. For any convincing argument to be made, Willis et al. need to reconcile this with their mild concussion cases.

The more likely explanation for the results is a false negative with the TOMM. There are a number of studies showing that WMT and other Green’s tests are more sensitive than the TOMM (e.g., Grevais,

Rohling, Green, & Ford, 2004; Armistead-Jehle & Gervais, 2011). Greve, Bianchini, and Doane (2006) found equivalent sensitivity of the TOMM when analyzing all three trials and if we use that methodology in the present cases, we see that case 2 would be a failure on the TOMM as well. The TOMM has been shown to be more susceptible to coaching and can be passed by as many as 40% of coached simulators (DenBoer & Hall, 2007), a salient consideration given that soldiers in the MEB process can have legal representation. Additionally, Brennan et al. (2009) found that the TOMM was endorsed by subjects as the easiest test on which to fake a head injury, which could be relevant to cases 2 & 3. For a full discussion of the reasons for differences between SVTs, see Green (2001).

Willis et al. imply in their paper that all SVTs must be failed to conclude invalid test data. I will illuminate, however, a recent study by Fox (2011) on this very issue. From the article, “. . . failure of a single SVT can invalidate the expected brain-behavior relationship that underlies neuropsychological test interpretation.” Certainly the literature advocates for using multiple SVTs, but this increases sensitivity without decreasing specificity (Victor, Boone, Serpa, Buehler, & Ziegler, 2009). In other words, we can increase our ability to detect invalid performance on any one test without increasing false positives across tests. Therefore, psychometrics inform us that failing one SVT and passing one SVT is more likely to indicate invalid than valid performance and Willis et al. provide no data to dispute that.

Willis et al. present case studies in which the psychometric data is overturned with their clinical judgment about symptom validity. We cannot dismiss the psychometric data because as Faust et al. (1988) show, our clinical ability to detect non-credible presentations is very poor. Although relying solely on SVT data will yield false positive errors a small percentage of the time (defined by 1-specificity), the ability to increase this accuracy by clinical judgment alone is unsupported scientifically, and in fact many articles have expounded on the folly of relying on clinical judgment alone (Meehl, 1954; Grove, Zald, Lebow, Snitz, & Nelson, 2000). Willis et al. may argue that they hit upon the rare instance when an SVT provided a false positive, but base rates of non-credible presentations in disability evaluations, psychometrics of the tests, the obtained data and profile analysis, and an abundance of research on the insensitivity of SVTs to genuine cognitive impairment all argue that cases 2 and 3 provided suboptimal effort with invalid data, not genuine cognitive impairment. The false positive issue in SVTs is certainly a critical one and I appreciate Willis et al. further exploring this, but if one spends too much time attending to the exception to the rule, one often misses the rule.

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