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Letter to the Editor

Should FCE be used to identify validity of effort?

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Dear Editor,

Schapmire and colleagues have recently reported a study on 'consistency of effort' in this journal [9]. They conclude that pain does not reasonably explain the failure of a statistically based validity criteria for detecting sincerity of effort and that their protocol is appropriate for use in a client population. There are, however, some serious concerns surrounding this paper that we wish to bring forward. These concerns are related to 1) the determinants of variability in motor behavior, especially disability behaviors; 2) the scientific methods used; and 3) the overall tone of the paper. Although many arguments we will make are interrelated, we will explain each of these concerns separately and conclude with a different view on FCE that is, in our opinion, more balanced and supported by current literature.

Variability in disability behaviour

'*Nothing is as variable as a human being'* (anonymous quote). No human being can consistently behave consistently, and this holds true for people with and without pain. However, Schapmire and colleagues use a lack of variability in motor behavior when subjects are distracted as their implicit theoretical basis for determining validity of effort. In contrast, traditional measurement theory indicates that some variance in measurement is expected and may arise from either the subject, the observer or random error [13]. It has been demonstrated that of all potential sources of variance, during FCE the largest amount can be attributed to the subject or patient – *even when performing to maximum levels*. FCE test-retest reliability studies have reported acceptable reliability but wide ranges of within-individual variance [4]. This means that human performances during FCE do normally vary to some extent between occasions. At times this variance is quite substantial ($\sim$ 5–20 kg on maximum lifting in patients with chronic low back pain [5,6]), and exists even in subjects without pain when performing 'simple' tests such as isometric grip strength (up to 20%) and isometric pinch strength ($\sim$ 47%) [12]. Therefore, some variation on specific FCE items or across items is expected and clinicians should not automatically interpret this as indicating insincere effort. Attempts to explain the sources of variability are worthwhile, but require a broader conceptualization of FCE as a behavioural measure.

All measures involving effort or performance on motor tasks should be considered in part as measures of behavior [10]. This has been recognized in the FCE and work assessment field for at least 15 years [8]. Not only is this the case for FCE performance measures, but also for each of the distraction-based criterion measures used in Schapmire et al's paper. These measures

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should be considered measures of disability behavior, influenced by a complex array of biological, psychological, and social factors. Positive distraction tests are seen in a portion of patients presenting with pain and are interpreted as nonorganic signs of illness behaviour [3,11]. These signs have some prognostic value in patients with back pain [1], and have been shown to improve with treatment [2]. They should not be used to judge whether symptom reports are sincere or legitimate [2]. Interpreting the behaviours of individuals undergoing distraction-based FCE testing is no different, and must be done while considering the broader social and psychological context of testing. For example, clients undergoing FCE in settings where decisions regarding eligibility for compensation are made based on FCE results perform dramatically worse than clients in settings where such decisions are not made [7]. This is a natural outcome of the context in which the behaviour is being demonstrated as clients attempt to communicate the level of their disability and distress, and has not been shown indicative of insincerity. As such, inconsistent performance during FCE occurring within the context of a workers' compensation claim or litigation case should not be interpreted purely as evidence of lack of sincerity. In fact, therapists with this viewpoint are likely to overlook other important determinants of behaviour that could be amenable to intervention (either physical, psychological, or social). Interpreting distraction tests unidimensionally in terms of whether the patients' complaints are valid, equivocal, or invalid is not supported by current literature.

Methodological limitations

In addition to the inadequate interpretation given to behaviours demonstrated during FCE in the Schapmire article, there are also key methodological limitations. The principle flaw arises in interpretation of results shown in Table 4. One of the stated goals of the paper was to "determine if pain would indeed credibly explain a failure of the statistically-based validity criteria." Table 4 shows moderately sized and statistically significant differences between those who passed versus those who failed. The authors suggest that we ignore these differences and conclude that pain doesn't play a role. In the last paragraph on page 314 they actually state that a focus on "statistical significance" is not advised for this specific table, but in the rest of the paper they have a large focus on statistical significance. We interpret these results completely opposite to what the authors conclude in their paper. Their data shows that pain does play a role in explaining variable behavior during FCE distraction tests.

Other methodological limitations included the generalizing of data from 'normal' subjects (Table 1) to the chronic pain population, lack of blinding during the clinical assessment, merger of clinical data with clinical 'impressions' as well as insufficient definition of sincere and insincere effort. In fact nine subjects were dropped from the analysis because their performance fell within a 'grey zone', which was not quite sincere or insincere according to the authors' criteria. Clearly, based on this study the measure under investigation is not ready for use in clinical populations as the authors conclude.

Overall tone of the paper

Lastly, we do not agree with the overall tone or attitude of the paper. Throughout the paper, terms are used such as: (in-)validity of effort, sincerity of effort, low effort, non-cooperation, compliance, and excuse for failure to perform consistently. These terms imply that variability in FCE performance is interpreted in the framework of malingering, i.e. the conscious effort to perform submaximally [15]. As mentioned above, this is a unidimensional and inappropriate interpretation of a patient's behavior during an FCE. In fact, even if larger variability were indicative of submaximal effort, there are a host of other potential reasons why patients may display these behaviors. A conscious effort to alter FCE results cannot be excluded, but other factors include, but are not limited to psychosocial factors like depression, fear, non-native language, etc. [4,14].

FCE has been criticized because it has been used to 'catch malingerers' and 'prove' insincere effort. To our judgment, the FCE literature including this paper of Schapmire and colleagues has not provided evidence to support such claims. It is our personal opinion that FCEs should not be used for these purposes, because of the huge personal implications for the individuals being judged combined with unknown rates of false positives and false negatives within actual clinical samples. In fact, there is currently no widely accepted gold standard measure from which to determine false positive or negative rates in clinical samples.

Should FCE be used to identify validity of effort?

As FCE or rehabilitation professionals, we have an ethical responsibility to care for our patients' health and well being in a conscientious and diligent manner. It is

doubtful that this ethical obligation can be met when we place ourselves in a situation whereby we are asked by a third party payer to judge the sincerity and legitimacy of our patients' presenting problems for purposes of claims management decision-making. Ultimately, for patients, employers and insurers, it is much more constructive to conduct FCE with a neutral or therapeutic as opposed to litigious perspective, because it may then be used to assist with facilitating work participation. Thus, based on theoretical considerations, absence of quality validly evidence, and the broader ethical dilemma, we believe the answer to whether FCEs should be used in this way is clearly no.

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