



*This is an enhanced PDF from The Journal of Bone and Joint Surgery*

*The PDF of the article you requested follows this cover page.*

---

## **Clinical Impression Versus Standardized Questionnaire: The Spinal Surgeon's Ability to Assess Psychological Distress**

Michael D. Daubs, Alpesh A. Patel, Stuart E. Willick, Richard W. Kendall, Pamela Hansen, David J. Petron and Darrel S. Brodke

*J Bone Joint Surg Am.* 2010;92:2878-2883. published Nov 12, 2010; doi:10.2106/JBJS.I.01036

---

**This information is current as of February 2, 2011**

### **Commentary**

<http://www.ejbjs.org/cgi/content/full/92/18/2878/DC1>

### **Reprints and Permissions**

Click here to [order reprints or request permission](#) to use material from this article, or locate the article citation on [jbjs.org](http://jbjs.org) and click on the [Reprints and Permissions] link.

### **Publisher Information**

The Journal of Bone and Joint Surgery  
20 Pickering Street, Needham, MA 02492-3157  
[www.jbjs.org](http://www.jbjs.org)



A commentary by James D. Kang, MD, is available at [www.jbjs.org/commentary](http://www.jbjs.org/commentary) and is linked to the online version of this article.

# Clinical Impression Versus Standardized Questionnaire: The Spinal Surgeon's Ability to Assess Psychological Distress

By Michael D. Daubs, MD, Alpesh A. Patel, MD, Stuart E. Willick, MD, Richard W. Kendall, DO, Pamela Hansen, MD, David J. Petron, MD, and Darrel S. Brodke, MD

*Investigation performed at the Department of Orthopaedic Surgery, University of Utah, Salt Lake City, Utah*

**Background:** Psychological distress can affect spine surgery outcomes. A majority of spinal surgeons do not use standardized questionnaires to assess for psychological distress and instead rely on their clinical impressions. The ability of spinal surgeons to properly assess patients with psychological distress has not been adequately evaluated. Our hypothesis was that the clinical impressions of spinal surgeons were not as accurate as a standardized questionnaire in assessing for psychological distress.

**Methods:** A prospective study was performed with eight physicians, four spinal surgeons and four nonoperative spine specialists, who evaluated 400 patients. All patients completed the Distress and Risk Assessment Method (DRAM) questionnaire for the evaluation of psychological distress. The eight physician subjects, blinded to the results of this questionnaire, performed their routine clinical evaluation and categorized the patients' psychological distress level. The results of the Distress and Risk Assessment Method questionnaire and the surgeons' assessments were compared.

**Results:** In the study population of 400 patients, 64% (254 of 400) were found to have some level of psychological distress. Twenty-two percent (eighty-seven of 400) of the patients were found to have high levels of distress. Overall, the physicians' rate of sensitivity when assessing patients with high levels of distress was 28.7% (95% confidence interval: 19.5%, 39.4%) with a positive predictive value of 47.2% (95% confidence interval: 33.3%, 61.4%). Nonoperative spine specialists had a significantly higher sensitivity rate when assessing highly distressed patients (41.7% [95% confidence interval: 25.5%, 59.2%]) than surgeons (19.6% [95% confidence interval: 9.8%, 33.1%]) ( $p = 0.03$ ). The sensitivity rates between experienced (greater than ten years in practice) (14.7% [95% confidence interval: 5.0%, 31.1%]) and less experienced (less than two years in practice) (29.4% [95% confidence interval: 10.3%, 56.0%]) spinal surgeons was not significant ( $p = 0.27$ ).

**Conclusions:** A large percentage of patients (64%) presenting for spine evaluation have some level of psychological distress. When compared with a standardized questionnaire designed to screen for psychological distress, spinal surgeons had low sensitivity rates to detect this distress. The routine use of a standardized questionnaire to screen for psychological distress should be considered.

**Level of Evidence:** Diagnostic Level III. See Instructions to Authors for a complete description of levels of evidence.

The biopsychosocial model for medical care considers the interaction between the biological, psychological, and medicolegal factors involved in treating patients<sup>1-3</sup>. The evaluation of psychosocial factors is extremely important in the

treatment of spinal disorders, especially when assessing whether a patient is a candidate for spinal surgery<sup>1</sup>. Psychological distress of the patient has been shown to be a significant factor in both the evaluation<sup>4</sup> and treatment<sup>5,6</sup> of spinal disorders.

**Disclosure:** The authors did not receive any outside funding or grants in support of their research for or preparation of this work. Neither they nor a member of their immediate families received payments or other benefits or a commitment or agreement to provide such benefits from a commercial entity.

**TABLE I Results of Distress and Risk Assessment Method (DRAM) Questionnaire**

Category	Number of Patients (N = 400)	%
Normal	146	37
At risk	167	42
Distressed-depressive	51	13
Distressed-somatic	36	9

Despite the importance of these issues, a majority of spinal surgeons do not routinely utilize standardized patient questionnaires to evaluate patients for psychological distress<sup>7</sup>. Instead, many rely on their clinical impressions to determine if patients are experiencing psychological issues that could affect treatment outcomes. The Minnesota Multiphasic Personality Inventory (MMPI)

has been used for the psychological assessment of patients with spinal disorders, but the length and time requirements of the MMPI make it impractical as a clinical screening tool<sup>8</sup>.

The Distress and Risk Assessment Method (DRAM), as described by Main et al., is a validated, two-page, forty-five-item patient questionnaire that combines the Modified Somatic Perception Questionnaire (MSPQ) and the modified Zung Depression Index (ZDI)<sup>9</sup>. The DRAM was designed to offer a simple and efficient means to screen for psychological distress and to alert treating physicians of the potential need for additional comprehensive psychological evaluation. The questionnaire defines four descriptive categories that are based on the patients' psychological classification: Type N (normal; no evidence of distress or abnormal illness behavior); Type R (at risk; higher scores, predominantly in symptoms of depression); Type DD (distressed-depressive; higher scores on all variables, but very high on depressive symptomatology); and Type DS (distressed-

**TABLE II Physician Clinical Impression and DRAM Categorization\***

Classification According to DRAM	Classification by Physician				
	N	R	DD	DS	Total
N	<b>119 (81.5)</b>	19 (13.0)	6 (4.1)	2 (1.4)	146 (36.5)
R	106 (63.5)	<b>41 (24.6)</b>	16 (9.6)	4 (2.4)	167 (41.8)
DD	16 (31.4)	20 (39.2)	<b>11 (21.6)</b>	4 (7.8)	51 (12.8)
DS	18 (50.0)	8 (22.2)	4 (11.1)	<b>6 (16.7)</b>	36 (9.0)
Total	259 (64.8)	88 (22.0)	37 (9.3)	16 (4.0)	

\*Data are given as the number of patients, with the percentage of the total number in parentheses. Boldface text indicates areas of agreement. N = normal; R = at risk; DD = distressed-depressive; and DS = distressed-somatic. DRAM = Distress and Risk Assessment Method.

**TABLE III Sensitivity, Specificity, and Positive Predictive Value for All Physicians as Compared with DRAM Results\***

DRAM Categorization (Outcome Treated as Positive)	Sensitivity (pts/total pts [%])	95% CI	Specificity (pts/total pts [%])	95% CI	Positive Predictive Value (pts/total pts [%])	95% CI
N (vs. others)†	119/146 (81.5%)	(74.2%, 87.4%)	114/254 (44.9%)	(38.7%, 51.2%)	119/259 (45.9%)	(39.8%, 52.2%)
R (vs. others)‡	41/167 (24.6%)	(18.2%, 31.8%)	186/233 (79.8%)	(74.1%, 84.8%)	41/88 (46.6%)	(35.9%, 57.5%)
DD (vs. others)§	11/51 (21.6%)	(11.3%, 35.3%)	323/349 (92.6%)	(89.3%, 95.1%)	11/37 (29.7%)	(15.9%, 47.0%)
DS (vs. others)#	6/36 (16.7%)	(6.4%, 32.8%)	354/364 (97.3%)	(95.0%, 98.7%)	6/16 (37.5%)	(15.2%, 64.6%)
DD or DS (vs. N or R)**	25/87 (28.7%)	(19.5%, 39.4%)	285/313 (91.1%)	(87.3%, 94.0%)	25/53 (47.2%)	(33.3%, 61.4%)
DD or DS or R (vs. N)††	114/254 (44.9%)	(38.7%, 51.2%)	119/146 (81.5%)	(74.2%, 87.4%)	114/141 (80.9%)	(73.4%, 87.0%)

\*N = normal; R = at risk; DD = distressed-depressive; DS = distressed-somatic. DRAM = Distress and Risk Assessment Method. †Sensitivity, specificity, and positive predictive value for all physicians combined (surgeons and nonoperative specialists) compared with the DRAM when categorizing for N versus all other categories (R, DD, and DS). ‡Sensitivity, specificity, and positive predictive value for all physicians combined (surgeons and nonoperative specialists) compared with the DRAM when categorizing for R versus all other categories (N, DD, and DS). §Sensitivity, specificity, and positive predictive value for all physicians combined (surgeons and nonoperative specialists) compared with the DRAM when categorizing for DD versus all other categories (N, R, and DS). #Sensitivity, specificity, and positive predictive value for all physicians combined (surgeons and nonoperative specialists) compared with the DRAM when categorizing for DS versus all other categories (N, R, and DD). \*\*Sensitivity, specificity, and positive predictive value for all physicians combined (surgeons and nonoperative specialists) compared with the DRAM when categorizing for higher distress (DD and DS) versus less distressed (N and R) categories. ††Sensitivity, specificity, and positive predictive value for all physicians combined (surgeons and nonoperative specialists) compared with the DRAM when categorizing for R, DD, and DS versus the normal category.

**TABLE IV Sensitivity, Specificity, and Positive Predictive Value for Physician Subgroups: Surgeons vs. Nonoperative Specialists\***

DRAM Categorization (Outcome Treated as Positive)	Sensitivity (pts/total pts [%])	95% CI	P Value	Specificity (pts/total pts [%])
DD or DS (vs. N or R)†				
Surgeons	10/51 (19.6%)	(9.8%, 33.1%)	0.03§	157/170 (92.4%)
Nonoperative specialists	15/36 (41.7%)	(25.5%, 59.2%)		128/143 (89.5%)
DD or DS or R (vs. N)‡				
Surgeons	77/154 (50.0%)	(41.8%, 58.2%)	0.042§	50/67 (74.6%)
Nonoperative specialists	37/100 (37.0%)	(27.6%, 47.2%)		69/79 (87.3%)

\*N = normal; R = at risk; DD = distressed-depressive; and DS = distressed-somatic. DRAM = Distress and Risk Assessment Method. †DD or DS versus N or R indicates the sensitivity and specificity for the surgeons and nonoperative specialists compared with the DRAM for categorizing between the more distressed categories (DD and DS) and the N and R categories. ‡DD or DS or R versus N indicates the sensitivity and specificity for the surgeons and nonoperative specialists compared with the DRAM for categorizing between any level of distress (R, DD, DS) and the nondistressed N group. §The difference was significant.

somatic; high scores on all variables, particularly on somatic awareness). The DRAM has been validated and shown to correlate with worsening psychological distress on the more comprehensive psychological test, the MMPI<sup>9,10</sup>. Furthermore, DRAM results demonstrating greater psychological distress have been correlated to poor outcomes in the treatment of back pain<sup>9</sup>.

A prior study performed in the United Kingdom evaluated the ability of eight spinal surgeons to accurately assess the psychological distress of 125 patients through use of the DRAM and found that, 26% of the time, the surgeons accurately assessed patients who were distressed<sup>7</sup>. As the amount of data that support the importance of psychosocial factors on treatment outcomes grows<sup>9</sup>, it is becoming critically important that spinal surgeons have the ability to accurately assess psychological distress. Failure to detect patients with psychological distress prior to surgical intervention may be a factor related to poor outcomes after certain spinal surgery procedures.

The purpose of this study was to evaluate the ability of fellowship-trained spine physicians and surgeons to accurately assess psychological distress in patients with spinal problems. It was our hypothesis that the clinical instincts of fellowship-trained spinal surgeons would not be as accurate as a standardized questionnaire in assessing patients for psychological distress.

### Materials and Methods

This prospective study consisted of eight subjects (four fellowship-trained spinal surgeons and four fellowship-trained nonoperative spine specialists) who performed routine initial clinical evaluations on 400 patients presenting to a tertiary care, university-based spine center. The 400 patients had not been seen previously by the evaluating physicians. The patients were being evaluated for a multitude of spinal disorders (including degenerative disorders, deformity, trauma, and tumor) involving all anatomic regions of the spine. There were 212 women and 188 men with a mean age of forty-eight years (range, eighteen to eighty-seven years). All new patients presenting to the spine center were included. The only exclusion

criterion for the patients was the inability to complete the DRAM questionnaire. If patients failed to answer any aspect of the questionnaire, they were excluded from the study and the final data analysis. Four hundred and sixty patients were initially evaluated, but sixty patients were eliminated as a result of incomplete questionnaires. The study was approved by our institutional review board.

The eight participating physicians consisted of seven men and one woman, and their ages ranged from thirty-one to forty-five years (mean, forty-one years). All physicians fully consented to participate in the study. The four fellowship-trained spinal surgeons were orthopaedic surgeons. Two of the surgeons were board-certified and had more than ten years of clinical practice experience each, and two were board-eligible with two years or less of clinical practice each. The nonoperative spine specialists consisted of three board-certified physical medicine and rehabilitation physicians and one board-certified family practice physician who specialized in caring for patients with spinal and sports-medicine disorders.

Prior to being evaluated by the physicians, each patient completed the two-page DRAM questionnaire. Each patient was given a study number that matched the numbered DRAM questionnaire. Once completed, the DRAM forms were removed from the examination rooms by the medical assistants prior to the physician's entry and placed in a secured research folder. Physicians were blinded as to the results of the DRAM questionnaire.

The physicians performed their routine new patient history and physical examination. They were allowed to use all of their routine history forms and questions, including pain drawings and any other questionnaires except those that directly evaluated mental well-being or psychological stress. None of the physicians in this study routinely utilized a psychological screening tool. All components of the patient's past medical history were open to the study physicians, including that of any mental illness, depression, or anxiety. The physicians were allowed to use any and all physical examination tests

TABLE IV (continued)

95% CI	P Value	Positive Predictive Value (pts/total pts [%])	95% CI	P Value
(87.3%, 95.9%) (83.3%, 94.0%)	0.38	10/23 (43.5%) 15/30 (50.0%)	(23.2%, 65.5%) (31.3%, 68.7%)	0.64
(62.5%, 84.5%) (78.0%, 93.8%)	0.049§	77/94 (81.9%) 37/47 (78.7%)	(72.6%, 89.1%) (64.3%, 89.3%)	0.65

as believed to be appropriate, including Waddell's tests<sup>11</sup>. Prior to the start of the study, the participating physicians were given the article by Main et al.<sup>9</sup>, which described the DRAM questionnaire and the four categories, to familiarize themselves with how to use the questionnaire. No formal training, discussions, or testing of the use of the DRAM was performed with the physicians.

On completion of their clinical evaluation, the physicians determined the patient's level of psychological distress and categorized him or her into one of the four DRAM categories: (1) normal, (2) at risk, (3) distressed-depressive, or (4) distressed-somatic. The patient's responses to the DRAM questionnaire were scored by a research assistant, the patient was categorized, and the result was compared with the physician's assessment for that particular patient. To prevent bias, the physician participants were kept blinded to any of the results until the study was completed.

#### Statistical Methods

A chi-square test was applied to evaluate the significance of the comparison of rates of sensitivity, specificity, and positive pre-

dictive value between physician type (surgeon versus nonoperative specialist) and level of experience. Statistical significance was set at  $p < 0.05$ .

#### Source of Funding

There was no external funding source for this study.

#### Results

Four hundred patients completed the DRAM questionnaires and were included in the study. The spinal problems of the patients fell into three broad diagnostic categories: degenerative disorders (55%), trauma or tumor (25%), and deformity (20%). Sixty-four percent of the patients had some level of psychological distress (Table I). Twenty-two percent scored in the higher distressed categories of distressed-depressive (13%) or distressed-somatic (9%). Forty-two percent of the patients scored in the at-risk category, and only 37% of the patients fit into the normal category (i.e., without psychological distress). With regard to the diagnostic categories, there were no significant differences found on the DRAM categorical distribution. Of

TABLE V Sensitivity and Specificity for Surgeon Subgroups: More-Experienced vs. Less-Experienced Surgeons\*

DRAM Categorization (Outcome Treated as Positive)	Sensitivity (pts/total pts [%])	95% CI	P Value	Specificity (pts/total pts [%])	95% CI	P Value
Surgeons						
DD or DS (vs. N or R)†						
More experienced	5/34 (14.7%)	(5.0%, 31.1%)	0.27	113/118 (95.8%)	(90.4%, 98.6%)	0.02§
Less experienced	5/17 (29.4%)	(10.3%, 56.0%)		44/52 (84.6%)	(71.9%, 93.1%)	
DD or DS or R (vs. N)‡						
More experienced	52/104 (50.0%)	(40.0%, 60.0%)	1.0	38/48 (79.2%)	(65.0%, 89.5%)	0.22
Less experienced	25/50 (50.0%)	(35.5%, 64.5%)		12/19 (63.2%)	(38.4%, 83.7%)	

\*N = normal; R = at risk; DD = distressed-depressive; DS = distressed-somatic. More experienced = >10 yr clinical practice experience, and less experienced = ≤2 yr clinical practice experience. DRAM = Distress and Risk Assessment Method. †DD or DS versus N or R indicates the sensitivity and specificity for the more-experienced and less-experienced surgeons compared with the DRAM for categorizing between the more distressed categories (DD and DS) and the N and R categories. ‡DD or DS or R versus N indicates the sensitivity and specificity for the more-experienced and less-experienced surgeons compared with the DRAM for categorizing between any level of distress (R, DD, DS) and the nondistressed N group. §The difference was significant.

the 210 patients who needed surgery for treatment of a degenerative condition, eighty (38%) were in the normal category, eighty-eight (42%) were in the at-risk category, and forty-two (20%) were in either the distressed-depressive or distressed-somatic category; of the ninety-six patients who needed surgery for treatment of trauma or tumor, thirty-eight (40%) were in the normal category, forty (42%) were in the at-risk category, and eighteen (19%) were in either the distressed-depressive or distressed-somatic category; and of the seventy-three patients who needed surgery for treatment of a deformity, twenty-nine (40%) were in the normal category, twenty-nine (40%) were in the at-risk category, and fifteen (21%) were in either the distressed-depressive or distressed-somatic category.

When evaluating the physicians' clinical impressions as a whole compared with the DRAM scores (Tables II and III), the sensitivity for patients in the distressed categories (i.e., at risk, distressed-depressive, or distressed-somatic) was 44.9% (95% confidence interval [CI]: 38.7%, 51.2%) and the specificity was 81.5% (95% CI: 74.2%, 87.4%), with a positive predictive value of 80.9% (95% CI: 73.4%, 87.0%) (Table III). For patients in the higher distressed category of distressed-depressive, the sensitivity was 21.6% (95% CI: 11.3%, 35.3%) and the specificity was 92.6% (95% CI: 89.3%, 95.1%), with a positive predictive value of 29.7% (95% CI: 15.9%, 47.0%). For the distressed-somatic category, the sensitivity was 16.7% (95% CI: 6.4%, 32.8%), the specificity was 97.3% (95% CI: 95.0%, 98.7%), and the positive predictive value was 37.5% (95% CI: 15.2%, 64.6%). When the two higher distressed categories (distressed-depressive and distressed-somatic) with the highest relative risk for a poor treatment outcome<sup>9</sup> were combined as one category, the sensitivity was 28.7% (95% CI: 19.5%, 39.4%), the specificity was 91.1% (95% CI: 87.3%, 94.0%), and the positive predictive value was 47.2% (95% CI: 33.3%, 61.4%) (Table III).

In comparing the sensitivity and specificity between physician types, the sensitivity for the nonoperative specialists (41.7% [95% CI: 25.5%, 59.2%]) was significantly better than that for the surgeons (19.6% [95% CI: 9.8%, 33.1%]) for the higher distressed categories (distressed-depressive and distressed-somatic) ( $p = 0.03$ ) (Table IV). There was no significant difference in the specificity between the nonoperative specialists and the surgeons (89.5% [95% CI: 83.3%, 94.0%] versus 92.4% [95% CI: 87.3%, 95.9%], respectively [ $p = 0.38$ ]).

In comparing the sensitivity and specificity between surgeons with more clinical experience (greater than ten years of experience) and those with less experience (two years of experience or less), there was no significant difference in sensitivity (more experienced: 14.7% [95% CI: 5.0%, 31.1%]; less experienced: 29.4% [95% CI: 10.3%, 56.0%]) ( $p = 0.27$ ) (Table V).

## Discussion

The biopsychosocial model for medicine recognizes the complex interactions among the patient's biological condition or disease, psychological condition, and perception of the disease, and the social factors that may be influential<sup>1,3,12</sup>. A patient's psychosocial condition can affect the medical condition

and, similarly, the medical condition can affect the patient's life beyond the particular biological disease process. These concepts are important because psychological factors influence the outcome of treatment. Several studies have documented the adverse impact psychosocial factors can have on the treatment of spinal disorders<sup>4-6,9,12,13</sup>. The adverse role of psychological distress, confirmed by the DRAM questionnaire, on treatment outcomes, in particular, has also been documented<sup>5,9</sup>. Nonetheless, many spinal surgeons remain unaware of this potential adverse influence. Most do not actively screen for it beyond the use of pain drawings, Waddell tests, and the reliance on their own clinical impressions of patient psychology<sup>7</sup>.

The purpose of this study was to evaluate how well spinal surgeons, making use of clinical impression, were able to assess the psychological distress of their patients. The results of this study suggest that surgeons did not accurately assess the distress of their patients in comparison with the distress indicated on the DRAM questionnaire. Surgeons were also much less accurate at assessing patients in the higher distressed categories (i.e., distressed-depressive and distressed-somatic). Physicians were more accurate with patients categorized as normal (i.e., nondistressed). More patients were categorized as normal (65%) by the physicians than were identified as normal (37%) on the DRAM. Overall, physicians were found to underestimate high levels of psychological distress and overestimate normal patient psychology.

The findings in our study are consistent with those of other published studies<sup>7,9</sup>, i.e., that a high percentage of patients presenting for the evaluation of a spinal disorder to a secondary or tertiary spine center have psychological distress. Sixty-four percent of the patients in our study had some degree of psychological distress, whereas 22% had higher levels of distress that could adversely impact treatment outcomes. This prevalence of highly distressed patients is similar to the 28% found by Grevitt et al.<sup>7</sup>, the 29% found by Main et al.<sup>9</sup>, and the 23% found by Greenough and Fraser<sup>14</sup>.

When comparing the ability of spinal surgeons and nonoperative spine specialists to clinically assess psychological distress (Table IV), the nonoperative specialists had a significantly higher sensitivity (41.7%) for the higher distressed categories (distressed-depressive or distressed-somatic) than did the surgeons (19.6%). Positive predictive value revealed no significant differences. When evaluating any level of distress (at risk, distressed-depressive, or distressed-somatic), the surgeons had a significantly higher sensitivity and specificity than did the nonoperative specialists, but there was no significant difference in the positive predictive value. It would appear that the nonoperative specialists tended to detect patients with higher distress better than the surgeons could. The surgeons detected some level of distress, but they rarely categorized it as high enough to place it into the distressed-depressive or distressed-somatic categories. Possible explanations may include differences in training, a greater amount of time spent with patients per visit, and an improved ability to differentiate various levels of psychological distress, such as depression and somatic anxiety, on the part of the nonoperative specialists.



Surgeon level of experience was not a significant factor in evaluating any levels of distress or higher levels of distress (Table V). The sensitivity levels for the more experienced surgeons (14.7%) and the less-experienced surgeons (29.4%) for assessing higher levels of distress (distressed-depressive or distressed-somatic) were low and not significantly different. This result was unexpected but demonstrates the limitations of subjective clinical impression in the detection of psychological distress. This result may be unique to the individual surgeons involved in this study or may indicate a lack of sensitivity, in general, to the psychological aspects of disease on the part of spinal surgeons. Alternatively, this may simply represent a lack of specific understanding of the qualifications of each category within the DRAM, limiting the physicians from appropriately categorizing the patients.

There are other limitations to this study. While the DRAM has been used as a psychological screening tool, it may not be as accurate as the more comprehensive MMPI. Although the study by Main et al.<sup>9</sup> showed correlation with the MMPI on certain categories, the DRAM may underestimate or overestimate the degree of distress, and, as such, make the surgeon seem less accurate in detecting levels of distress. The level of knowledge of the DRAM and its categories varied between physicians. While each of them were given the article by Main et al.<sup>9</sup> describing the DRAM, there was no formal testing to determine each physician's level of understanding. Extensive use of the DRAM clinically may have changed the surgeons' accuracy in interpreting

distress levels. However, we believe that the use of the DRAM as a screening tool in comparison to the surgeons' clinical instincts was valid. The purpose of the DRAM is not to determine a psychological diagnosis but to screen patients that may need further psychological evaluation as part of their treatment.

Most importantly, this study does not attempt to define the cause-and-effect relationship between spinal conditions and psychological distress. Instead, it confirms that they often exist concomitantly and that both aspects need to be addressed. It is important for spinal surgeons to properly identify patients with psychological distress. Surgeons should consider the routine use of a validated questionnaire, such as the DRAM, to screen for psychological distress, and they should integrate the findings into their medical decision-making process. ■

Michael D. Daubs, MD  
Alpesh A. Patel, MD  
Stuart E. Willick, MD  
Richard W. Kendall, DO  
Pamela Hansen, MD  
David J. Petron, MD  
Darrel S. Brodke, MD  
Department of Orthopaedic Surgery,  
University of Utah, 590 Wakara Way,  
Salt Lake City, UT 84108.  
E-mail address for M.D. Daubs: Michael.daubs@hsc.utah.edu

## References

- Gatchel RJ, Mayer TG. Psychological evaluation of the spine patient. *J Am Acad Orthop Surg.* 2008;16:107-12.
- Weiner BK. Spine update: the biopsychosocial model and spine care. *Spine (Phila Pa 1976).* 2008;33:219-23.
- Engel GL. The need for a new medical model: a challenge for biomedicine. *Science.* 1977;196:129-36.
- Carragee EJ, Alamin TF, Carragee JM. Low-pressure positive discography in subjects asymptomatic of significant low back pain illness. *Spine.* 2006;31:505-9.
- Trief PM, Grant W, Fredrickson B. A prospective study of psychological predictors of lumbar surgery outcome. *Spine (Phila Pa 1976).* 2000;25:2616-21.
- Trief PM, Ploutz-Snyder R, Fredrickson BE. Emotional health predicts pain and function after fusion: a prospective multicenter study. *Spine (Phila Pa 1976).* 2006;31:823-30.
- Grevitt M, Pande K, O'Dowd J, Webb J. Do first impressions count? A comparison of subjective and psychologic assessment of spinal patients. *Eur Spine J.* 1998;7:218-23.
- Butcher J, Dahlstrom WG, Graham JR, Tellegen A, Kaemmer B. The Minnesota Multiphasic Personality Inventory-2 (MMPI-2): manual for administration and scoring. Minneapolis, MN: University of Minnesota Press; 1989.
- Main CJ, Wood PL, Hollis S, Spanswick CC, Waddell G. The Distress and Risk Assessment Method. A simple patient classification to identify distress and evaluate the risk of poor outcome. *Spine (Phila Pa 1976).* 1992;17:42-52.
- Deyo RA, Walsh NE, Schoenfeld LS, Ramamurthy S. Studies of the Modified Somatic Perceptions Questionnaire (MSPQ) in patients with back pain. Psychometric and predictive properties. *Spine (Phila Pa 1976).* 1989;14:507-10.
- Waddell G, McCulloch JA, Kummel E, Venner RM. Nonorganic physical signs in low-back pain. *Spine (Phila Pa 1976).* 1980;5:117-25.
- Gatchel RJ, Polatin PB, Mayer TG. The dominant role of psychosocial risk factors in the development of chronic low back pain disability. *Spine (Phila Pa 1976).* 1995;20:2702-9.
- Carragee EJ. Clinical practice. Persistent low back pain. *N Engl J Med.* 2005;352:1891-8.
- Greenough CG, Fraser RD. Comparison of eight psychometric instruments in unselected patients with back pain. *Spine (Phila Pa 1976).* 1991;16:1068-74.