PRESURGICAL PSYCHOLOGICAL EVALUATION: CASE DEMONSTRATIONS USING THE MMPI-2-RF SPINE SURGERY AND SPINAL CORD STIMULATOR CANDIDATE INTERPRETIVE REPORTS

Andrew R. Block, PhD, ABPP
Texas Back Institute
6020 W. Parker Rd., Suite 200
Plano, TX 75093
Email: andrewblockpsych@gmail.com

Disclosure

Andrew R Block received research funding support from University of Minnesota Press for many of the studies cited in this presentation. As co-author of the MMPI-2-RF Spine Surgery Candidate (Spine-CIR) and Spinal Cord Stimulator Candidate (Stim-CIR) Interpretive Reports he receives royalties on sales of the reports.
Participants

- Experience with use of the MMPI-2-RF and/or attendance at Spine-CIR and Stim-CIR overview webinar

Agenda

- Presurgical Psychological Evaluation (PPE) Goals
- Stim-CIR & Spine-CIR Overview
- PPE Evaluation Model & Information Sources
- Information Integration & TX recommendations
- Illustrative Case Examples using the Spine-CIR and Stim-CIR
- Q & A
Psychosocial Factors Can Exert Strong Influence on the Outcome of Both Spine Surgery & Spinal Cord Stimulation

Presurgical Psychological Evaluation (PPE) Is Now Required or Recommended by third party insurers including:

- Medicare
- Workers’ Compensation Systems
- Private Insurers
Goals of PPE

- PPE is essentially a risk assessment procedure
- Elucidates psychosocial risk factors empirically determined to adversely impact results
- Determines the extent to which these factors, when viewed in context are likely to influence outcomes
- Suggests mental health treatment that may mitigate psychological problems and augment surgery results
- Indicates if alternative conservative treatments rather than surgery should be considered of cases of elective surgery.

Spine Surgery Candidate Interpretive Report (Spine-CIR)

Spinal Cord Stimulator Candidate Interpretive Report (Stim-CIR)
Stim-CIR & Spine-CIR: Empirically-Valid Presurgical Assessment Report

- Indicates elevated scores on scales having empirically-demonstrated association with reduced surgery outcomes.
- Compares patient scores to other candidates for same surgery type.
- Indicates over- and under-reporting as well as critical issues to be explored.
- Through clinical correlate research, relates scale score elevations to other psychological constructs shown to impact surgery results.

Stim-CIR & Spine-CIR: The Basis of Empirically-Valid Assessment

- Forms foundation for integrating results in order to determine overall level of psychosocial risk.
- Identifies expected areas of reduced outcome
- Provides treatment recommendations based on scale score elevations.
Published Peer-Reviewed MMPI-2-RF
Spine Surgery and Spinal Cord Stimulator
Candidate Studies #1


Published Peer-Reviewed Studies #2


IN ADDITION, STIM-CIR AND SPINE-CIR DRAW UPON THE EXTENSIVE BODY OF MMPI-2-RF RESEARCH
SPINE-CIR & STIM-CIR

Major Components
Stim-CIR & Spine-CIR Components:
Three levels of Risk Information

• “Substantive Scale Interpretation” Report Section
  • Compares scores to normative sample, not to spinal cord stimulator or spine surgery patient
  • Most relevant to psychological diagnosis and consideration of major psychopathology
MMPI-2-RF Higher-Order (H-O) and Restructured Clinical (RC) Scales

<table>
<thead>
<tr>
<th></th>
<th>EID</th>
<th>THD</th>
<th>BXO</th>
<th>RC4</th>
<th>RC1</th>
<th>RC2</th>
<th>RC3</th>
<th>RC4</th>
<th>RC5</th>
<th>RC6</th>
<th>RC7</th>
<th>RC8</th>
<th>RC9</th>
</tr>
</thead>
<tbody>
<tr>
<td>Raw Score</td>
<td>22</td>
<td>0</td>
<td>1</td>
<td>17</td>
<td>12</td>
<td>8</td>
<td>10</td>
<td>4</td>
<td>1</td>
<td>4</td>
<td>0</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>T Score</td>
<td>66</td>
<td>39</td>
<td>36</td>
<td>72</td>
<td>72</td>
<td>65</td>
<td>61</td>
<td>49</td>
<td>56</td>
<td>46</td>
<td>39</td>
<td>33</td>
<td></td>
</tr>
<tr>
<td>Response %</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td></td>
</tr>
</tbody>
</table>

Comparison Group Data: Spine Surgery Candidate (Men), N = 590

| Mean Score | 51  | 48  | 50  | 51  | 61  | 55  | 49  | 50  | 51  | 46  | 48  | 45  |
| Standard Dev | 12  | 10  | 9   | 11  | 11  | 12  | 10  | 9   | 10  | 11  | 10  | 9   |
| Percent scoring at or below patient | 89  | 36  | 8   | 96  | 87  | 85  | 89  | 57  | 77  | 63  | 38  | 8   |

The highest and lowest T scores possible on each scale are indicated by a "--". MMPI-2-RF T scores are non-gendered.

EID: Emotional/Internalizing Dysfunction
THD: Thought Dysfunction
BXO: Behavioral/Externalizing Dysfunction
RC4: Demoralization
RC1: Somatic Complaints
RC2: Low Positive Emotions
RC3: Cynicism
RC4: Antisocial Behavior
RC5: Ideas of Persecution
RC6: Dysfunctional Negative Emotions
RC7: Aberrant Experiences
RC8: Hypomanic Activation
Substantive Scale Interpretation

- Consider elevation on scale RCd
  - Raw score = 17
  - T score = 73
- Compared to normative sample, all scores T greater than or equal to 65 are interpreted
- Statement from report
  - “He reports feeling sad, unhappy and dissatisfied with his current life circumstances. He is likely to complain of feeling depressed.”

Stim-CIR & Spine-CIR interpretation: Three levels of Risk Information

- “Substantive Scale Interpretation” Report Section
  - Compares scores to normative sample, not to spinal cord stimulator or spine surgery patient
  - Most relevant to psychological diagnosis and consideration of major psychopathology
- “Comparison Group Findings” Report Section
  - Compares pt to candidates of same surgery type, same gender
  - Most relevant to determining poor outcomes
MMPI-2-RF Higher-Order (H-O) and Restructured Clinical (RC) Scales

- **Raw Score:**
  - EID: 22
  - THD: 0
  - BXD: 1
  - RC4: 17
  - RC1: 12
  - RC2: 8
  - RC3: 10
  - RC4: 4
  - RC6: 1
  - RC7: 4
  - RC8: 0
  - RC9: 3

- **T Score:**
  - EID: 66
  - THD: 39
  - BXD: 36
  - RC4: 73
  - RC1: 72
  - RC2: 65
  - RC3: 61
  - RC4: 49
  - RC6: 56
  - RC7: 46
  - RC8: 39
  - RC9: 33

- **Response %:**
  - EID: 100
  - THD: 100
  - BXD: 100
  - RC4: 100
  - RC1: 100
  - RC2: 100
  - RC3: 100
  - RC4: 100
  - RC6: 100
  - RC7: 100
  - RC8: 100
  - RC9: 100

**Comparison Group Data:** Spine Surgery Candidate (Men), N = 590

- **Mean Score ( --- ):**
  - EID: 51
  - THD: 48
  - BXD: 50
  - RC4: 51
  - RC1: 61
  - RC2: 55
  - RC3: 49
  - RC4: 50
  - RC6: 51
  - RC7: 46
  - RC8: 48
  - RC9: 45

- **Standard Dev ( ---- ):**
  - EID: 12
  - THD: 10
  - BXD: 9
  - RC4: 11
  - RC1: 11
  - RC2: 12
  - RC3: 10
  - RC4: 9
  - RC6: 10
  - RC7: 11
  - RC8: 10
  - RC9: 9

- **Percent scoring at or below patient:**
  - EID: 89
  - THD: 36
  - BXD: 8
  - RC4: 96
  - RC1: 87
  - RC2: 85
  - RC3: 89
  - RC4: 57
  - RC6: 77
  - RC7: 63
  - RC8: 38
  - RC9: 8

The highest and lowest T scores possible on each scale are indicated by a "---". MMPI-2-RF T scores are non-gendered.
Comparison Group Findings

- Consider elevation on scale RCd,
  - Raw score 17
  - 96% of spine surgery candidates score below patient
- Comparison group statement
  - “The patient reports a comparatively high level of unhappiness and dissatisfaction for a spine surgery candidate. Only 5.6% of comparison group members report this or a greater level of poor morale.”

Association between pre-implant psychosocial factors and spinal cord stimulator outcome (2015)

- 319 subjects (118 men, 201 women)
- Mean age = 53.4
- Average time to follow up 146 days
### Correlations of MMPI-2-RF selected scales with stimulator outcome

<table>
<thead>
<tr>
<th>Scale</th>
<th>Pain</th>
<th>ODI</th>
<th>Negative Affect</th>
<th>Dissatisfaction</th>
</tr>
</thead>
<tbody>
<tr>
<td>RCd</td>
<td>.26**</td>
<td>.29**</td>
<td>.52**</td>
<td>.27**</td>
</tr>
<tr>
<td>RC1</td>
<td>.19*</td>
<td>.15</td>
<td>.01</td>
<td>.23**</td>
</tr>
<tr>
<td>RC2</td>
<td>.15</td>
<td>.29**</td>
<td>.31**</td>
<td>.16</td>
</tr>
<tr>
<td>RC7</td>
<td>.21**</td>
<td>.23**</td>
<td>.40**</td>
<td>.23**</td>
</tr>
<tr>
<td>MLS</td>
<td>.17*</td>
<td>.37**</td>
<td>.26**</td>
<td>.17</td>
</tr>
<tr>
<td>SFD</td>
<td>.20**</td>
<td>.19*</td>
<td>.37**</td>
<td>.24**</td>
</tr>
<tr>
<td>NFC</td>
<td>.21**</td>
<td>.19*</td>
<td>.36**</td>
<td>.08</td>
</tr>
<tr>
<td>STW</td>
<td>.23**</td>
<td>.30**</td>
<td>.41**</td>
<td>.30**</td>
</tr>
<tr>
<td>FML</td>
<td>.19*</td>
<td>.20**</td>
<td>.28**</td>
<td>.16</td>
</tr>
<tr>
<td>NEGE-r</td>
<td>.19*</td>
<td>.23**</td>
<td>.41**</td>
<td>.24**</td>
</tr>
</tbody>
</table>

### Selected MMPI-2-RF Relative Risk Ratios (RRRs): Post-Implant Oswestry > 40

<table>
<thead>
<tr>
<th>Scale</th>
<th>Cut Off</th>
<th>Risk if Elevated</th>
<th>Risk if not Elevated</th>
<th>RRR</th>
</tr>
</thead>
<tbody>
<tr>
<td>RCd</td>
<td>60</td>
<td>79.3%</td>
<td>55.8%</td>
<td>1.42</td>
</tr>
<tr>
<td>RC2</td>
<td>65</td>
<td>84.4%</td>
<td>53.8%</td>
<td>1.56</td>
</tr>
<tr>
<td>MLS</td>
<td>80</td>
<td>85.3%</td>
<td>53.0%</td>
<td>1.61</td>
</tr>
<tr>
<td>COG</td>
<td>75</td>
<td>92.3%</td>
<td>57.4%</td>
<td>1.61</td>
</tr>
<tr>
<td>STW</td>
<td>55</td>
<td>80.6%</td>
<td>54.0%</td>
<td>1.49</td>
</tr>
<tr>
<td>ANP</td>
<td>55</td>
<td>88.2%</td>
<td>56.8%</td>
<td>1.55</td>
</tr>
<tr>
<td>NEGE-r</td>
<td>65</td>
<td>92.9%</td>
<td>57.0%</td>
<td>1.63</td>
</tr>
</tbody>
</table>
**RC Scales most strongly correlated with spine surgery & stimulator outcome**

- RCd: **Demoralization** – General unhappiness and dissatisfaction
- RC1: **Somatic Complaints** – Diffuse physical health complaints
- RC2: **Low Positive Emotions** – Lack of positive emotional responsiveness
- RC7: **Dysfunctional Negative Emotions** – Maladaptive anxiety, anger, irritability

**Supplemental and PSY-5 Scales Strongly Correlated with Surgery & Stim Outcome**

- MLS: **Malaise** – Overall sense of physical debilitation, poor health
- SFD: **Self-Doubt** – Lack of self-confidence, uselessness
- NFC: **Inefficacy** – Belief one is indecisive and inefficacious
- STW: **Stress/Worry** – Preoccupation with disappointments, difficulty with time pressure
- AXY: **Anxiety** – Pervasive anxiety, frights, nightmares
- FML: **Family Problems** – Conflictual family relationships
- NEGE-r: **Negative Emotionality/Neuroticism-Revised** – Anxiety, insecurity, worry, and fear
Stim-CIR & Spine-CIR interpretation:
Three levels of Risk Information

• “Substantive Scale Interpretation” Report Section
  • Compares scores to normative sample, not to spinal cord stimulator or spine surgery patient
  • Most relevant to psychological diagnosis and consideration of major psychopathology

• “Comparison Group Findings” Report Section
  • Compares to candidates of same surgery type, same gender
  • Most relevant to determining poor outcomes

• “Presurgical Psychological Risk Factors” Report Section
  • 9 constructs linked to reduced surgery outcome
  • Statements triggered when scale elevations have empirically-determined relationship with established risk constructs
  • Most relevant to determining overall risk & treatment recommendations

Presurgical Psychological Risk Factor

• Depression and Demoralization Domain
  • Statement based on elevation on RCd
  • “Compared with other spine surgery candidates the patient is more likely to be experiencing depressive affect, and to have low energy and feel exhausted. He is also likely to have greater levels of self-perceived disability”
  • Clinical correlates for these statements are the CES-D and PAIRS.
MMPI-2-RF Spine-CIR & Stim-CIR:
Presurgical Psychological Risk Factor Domains

• #1: Depression & Demoralization Problems
  ▪ Unhappiness and Life Dissatisfaction
• #2: Pain & Somatic Sensitivity Problems
  ▪ Heightened awareness of physical problems, esp. pain
• #3: Pain-Coping Problems
  ▪ Maladaptive behaviors and cognitions
• #4: Health Orientation & Medical Adherence Problems
  ▪ Tendency to resist therapeutic recommendations
• #5: Anxiety & Stress Problems
  ▪ Stressful events and chronic anxiety that may impact healing

• #6: Fear-Avoidance Problems
  ▪ Behaviors and thoughts resulting from fear of pain or damage
• #7: Interpersonal Problems
  ▪ Behaviors that limit ability to draw on support systems
• #8: Substance Abuse Problems
  ▪ Inappropriate use of drugs and alcohol
• #9: Recovery Disincentive Problems
  ▪ Reinforcement of disability and excessive pain behavior
Stim & Spine-CIR Components: Expected outcomes & treatment recommendations

• Reported reduced outcomes are empirically-demonstrated to be tied to specific MMPI-2-RF elevations.
• Example outcome statement:
  • Compared to other surgery candidates, post-surgery the patient is:
    • Likely to report higher levels of pain
    • Less likely to return to work
• Treatment recommendations address identified presurgical psychological risk factors domains

Spine & Stim-CIR Components: Additional Features

• Items for Follow up
  • Chosen by panel of 10 PPE experts
  • Excellent starting point to probe for additional information during interview
• End Notes and References
  • Identifies the basis for each statement in the report
  • Provides for complete transparency about report conclusions
PRESURGICAL PSYCHOLOGICAL EVALUATION: MODEL & PROCESS OVERVIEW

Utilizing the Stim-CIR & Spine-CIR as foundation for determining overall risk for reduced outcome and providing treatment recommendations

Presurgical Psychological Evaluation (PPE): Primary Information Sources

- Psychometric testing
  - Stim-CIR or Spine-CIR
  - Additional narrow range tests, e.g.:
    - Beck Depression Inventory, Coping Strategies Questionnaire
- Medical Records Review
- Semi-Structured Interview
  - For detailed semi-structured interview format see:
Presurgical Psychological Evaluation: Risk Factor Identification & Mitigation (RIM)

1. Objective RF Identification

2. RF Validation

3. RF Mitigation

4. Data Integration & Risk Determination

5. Treatment Recommendations

Step 1: Identify Objective Risk Factors

Stim-CIR or Spine-CIR Test Results
Additional Objective Case Features
Step #1: Objective RF Identification: Stim-CIR & Spine-CIR

- Comparison Group Findings
  - Individual Scale Elevations associated with reduced results
- Presurgical Psychological Risk Domains
  - Constructs Related to Reduced Results

PPE Step 1: Additional Empirically-Validated Objective RFs

- Substance abuse history
- Chronic Mental Health issues
- Duration of pain (> 2 years)
- Time out of work, inactive (> 2 months)
- Smoking
- Obesity
- Multiple Health Problems
- Medico-Legal (Workers comp, litigation)
Presurgical Psychological Evaluation: Risk Factor Identification & Mitigation (RIM)

1. Objective RF Identification
2. RF Validation
4. Data Integration & Risk Determination
5. Treatment Recommendations
3. RF Mitigation

PPE Step 2 & Step 3: Information sources
- Use multiple sources to validate and mitigate risk factors identified in step 1
  - Narrow Band psychological tests
  - Interview
  - Behavioral Observation
  - Medical records review
  - Family members (if available)
  - Referring Physician (if available)
PPE Step 2: Risk Factor Validation—
Semi-Structured Interview

• Validate and expand upon issues identified in testing
  • Explore identified risk factor domains
  • Determine if emotional distress is reaction to spine problems
  • Assess financial/legal issues
  • Assess responses of family, friends, employer
  • Assess impact of over- and under-reporting on psychometric test results
  • Review “Items for Follow-up” from the Spine-CIR or Stim-CIR

Under-reporting

• Don’t conflate test-based findings of “defensiveness” with either deception or invalid test protocol
• Probe reasons for under-reporting
  • How has the referring MD presented the evaluation to patient?
  • Does patient have background that leads to avoidance of admitting distress?
• Examine evidence that corroborates or contradicts low levels of psychological distress
  • Observe for behavioral indications of emotional distress
  • Discuss reaction to stresses both current and past
• Only interpret subclinical elevations that are corroborated by additional sources
Over-reporting

- Consider full range of overreporting scales
  - Some overreporting on scale, Fs & FBS-r is expected
- Consider full range of patient medical problems
- Consider medico-legal context
- Observe patient behavior for consistency between
  - Pain reports and pain behavior
  - Pain reports and emotional distress
- If over-reporting is confirmed do not interpret borderline elevations on MMPI-2-RF
- In comprehensive report make note of possible over-reporting and discuss its impact on validity of results

Items for Follow-up

23. (True; 16.5%; K-r, RC7, AGG, NEGE-r)
25. (False; 79.2%; VRIN-r, EID, RC2, MLS)
49. (True; 11.2%; BXD, RC4, SUB, DISC-r)
65. (False; 18.6%; RC1)
105. (False; 15.3%; VRIN-r, EID, RCd)
135. (True; 22.1%; HL-P)
105. (True; 15.3%; VRIN-r, RC4, SUB)
152. (True; 13.4%; VRIN-r, NFC)
156. (True; 46.5%; VRIN-r, FBS-r, RBS, BXD, RC4, DISC-r)
172. (True; 9.8%; EID, RCd)
246. (False; 3.8%; VRIN-r, TRIN-r, EID, RC2, INTR-r)
261. (True; 29.2%; VRIN-r, TRIN-r, FBS-r, EID, RCd)
331. (True; 10.7%; VRIN-r, EID, RCd)
PPE Step 2: Example Additional Psych tests

- Catastrophizing/Maladaptive Cognition
  - e.g., Coping Strategies Question, Pain Castastrophizing Scale
- Depression
  - E.g., Beck Depression Inventory, CES-D
- Anxiety
  - Beck Anxiety Inventory
- Fear Avoidance
  - FABQ, Tampa Scale
- Substance Abuse
  - SOAPP-r
- Somatic Sensitivity,
  - Pain Drawing, Pain & Impairment Relationship Scale

PPE Step 2: Validation—
Medical Records Review

- Multiple psychophysiological conditions
- Prescription medication use
- Drug screens
- Compliance with treatments
- Inconsistent Complaints
- “Non organic signs”: Waddell signs
- Physician View of patient
- Examine Referral Rationale
Presurgical Psychological Evaluation: Risk Factor Identification & Mitigation (RIM)

1. Objective RF Identification

2. RF Validation

3. RF Mitigation

4. Data Integration & Risk Determination

5. Treatment Recommendations

PPE Step 3: Risk Factor Mitigation—Semi-structured interview

- Health-related behaviors
- Psychological distress—chronic or reactive
- Explore any incentives for recovery
- Response to previous medical treatment & elective surgery
- Explore resilience (esp. if K-r is elevated)
- Realistic Outcome expectations
PPE Step 3: Risk Factor Mitigation—Medical Records Review

- Has patient have achieved good outcomes to prior surgeries?
- If taking high level of opioids, how have physicians handled opioid medication for patient?
- Could emotional distress be reaction to previous medical treatment?
- Has patient shown motivation for surgery?
  - Sought out information from physician
  - Behaviors to prepare for surgery, eg, weight loss, smoking cessation
- Has patient shown motivation in physical therapy

PPE Step 3: Example Additional Psychometric Tests

- Can be used to assess mitigating factors:
  - Hardiness/Resilience
    - Resilience Scale for Adults, HardiSurvey III-r
  - Positive Pain Coping
    - Coping Strategies Questionnaire-r
  - Health Engagement
    - Patient Activation Measure (PAM)
Patient Activation Measure

“An individual’s propensity to engage in adaptive health behavior” (Hibbard et. al, 2004)

- Believing that the patient role is important;
- Having the confidence and knowledge necessary to take action;
- Actually taking action to maintain and improve one’s health;
- Staying the course even under stress.

Block et al., 2018

- 344 patients (all had surgery)
- Average Follow-up 142 days post-op
- Surgery types
  - Fusion 66.7%
  - ADR 11.5%
  - Lami/Disc 9.1%
  - Other 12.7%
- Not included in analysis 41 pts with fair-poor or poor prognosis who did not have surgery.
PAM Results: Greater health engagement positively correlated with surgery outcome

- Improved function (Oswestry) = .52*
- Patient Satisfaction at 6 months = .49*
- Pain Reduction = .31 (p<.10)

Presurgical Psychological Evaluation: Risk Factor Identification & Mitigation (RIM)

1. Objective RF Identification
2. RF Validation
3. RF Mitigation
4. Data Integration & Risk Determination
5. Treatment Recommendations
Step 4: Data Integration

- Two types of integration processes:
  - Use of algorithm or checklist
  - Narrative Compilation of risk factors, mitigating factors and overall risk determination

**PPS Algorithm**

<table>
<thead>
<tr>
<th>Cat.</th>
<th>Very Poor Discharge Recommended</th>
<th>Poor Non-invasive Treatment</th>
<th>Fair Compliance &amp; Motivation Measures</th>
<th>Good Post-Op Psych Treatment</th>
<th>Excellent No psych Treatment</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Step 4: Data Integration
Narrative Compilation

1. Risk Factors (only validated RFs listed):
   • Spine-CIR & Stim-CIR—either comparison group elevated scales and/or identified presurgical psychological risk domains
   • Additional risk factors
   • Any over or under reporting should be addressed

2. Mitigating Factors

3. Additional Considerations

4. Overall Risk for Reduced Outcome
   • Requires clinical judgement to weigh all factors
   • Should have at least three risk levels: low, moderate, high
   • Greater # of risk factors = higher risk
   • Multiple mitigating factors required to reduce high risk

5. Areas of expected reduced function, provided in Spine & Stim-CIR
   • Less pain reduction,
   • Poorer improvement in functional ability,
   • Less reduction medication use,
   • More negative emotional state,
   • Less likely to return to work,
   • Greater dissatisfaction,
   • and others
Presurgical Psychological Evaluation: Risk Factor Identification & Mitigation (RIM)

1. Objective RF Identification

2. RF Validation

3. RF Mitigation

4. Data Integration & Risk Determination

5. Treatment Recommendations

Step 5: Treatment Recommendations

- General treatment guidelines designed to reinforce surgical outcomes, or be alternatives to surgery
- Spine & Stim-CIR provide basis for recommendations
- May include:
  - Antidepressant medication,
  - Pain management training such as biofeedback or hypnotherapy,
  - Cognitive-Behavioral techniques,
  - Techniques to assess or test motivation
  - Consideration of a chronic pain management program.
- If recommendation is to delay or avoid surgery or stimulator, appropriate qualifications should be given, e.g.,
  - “If medically feasible”.
- If patient has a high level of psychosocial risk, discuss with referring surgeon
Illustrative Case Examples

Ms. R
Spinal Cord Stimulator Candidate

Multiple Risk and Mitigating Factors
Moderate Potential for Poor Outcome
Ms. R

- 74 years old
- Pain Onset 15 years, no precipitating event
- Two prior spine surgeries:
  - Discectomy 12 years ago
  - Fusion L4-L5, L5-S1 9 years ago  
    - Good response until 2 years ago
- Dx: Failed Back Surgery Syndrome
- Retired for 7 years, was an administrative asst.
- Married 54 years, two children
  - Husband has prostate CA
- Junior college level education
- Previous hip replacement with good results

Ms. R

- History of Anxiety Disorder with Agoraphobia
- Takes Sertraline and Effexor from family MD
- Medications partially effective, no recent panic attacks
- Has never seen psychologist or psychiatrist
- No history of physical/sexual abuse
- Sleeps 5-6 hours
- Describes self as “basically happy”
- Tramadol for pain relief
- Recent 17 lb weight loss through diet control, BMI = 26
- Doesn’t smoke or drink
- SOAPP-r = 10, moderate sub abuse potential
- PAM category 3—moderate to strong pt. activation
### MMPI-2-RF®

**Spinal Cord Stimulator Candidate Interpretive Report**

*Andrew Block, PhD, & Yossef S. Ben-Porath, PhD*

<table>
<thead>
<tr>
<th>Name:</th>
<th>Ms. R</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age:</td>
<td>74</td>
</tr>
<tr>
<td>Gender:</td>
<td>Female</td>
</tr>
<tr>
<td>Marital Status:</td>
<td>Not reported</td>
</tr>
<tr>
<td>Years of Education:</td>
<td>Not reported</td>
</tr>
<tr>
<td>Date Assessed:</td>
<td>05/24/2018</td>
</tr>
</tbody>
</table>

---

This report contains copyrighted material and trade secrets. The qualified licensee may excerpt portions of this output report, limited to the minimum text necessary to accurately describe their significant core conclusions, for incorporation into a written evaluation of the examinee, in accordance with their profession's citation standards, if any. No adaptations, translations, modifications, or special versions may be made of this report without prior written permission from the University of Minnesota Press.

[4.1 / 67 / 00]
MMPI-2-RF Validity Scales

| Raw Score: | 4 | 10 | 2 | 1 | 0 | 10 | 8 | 3 | 9 |
| T Score: | 53 | 57 | F | 51 | 51 | 42 | 58 | 63 | 52 | 55 |
| Response %: | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| Cannot Say (Raw): | 0 | | | | | | | | | |
| Percent True (of items answered): | 33% |

Comparison Group Data: Spinal Cord Stimulator Candidate (Women), N = 336

Mean Score (-----): 48 | 52 | F | 60 | 49 | 59 | 61 | 59 | 52 |
Standard Dev (-----): 9 | 10 | 14 | 8 | 17 | 13 | 14 | 11 | 10 |
Percent scoring at or below patient: 82 | 76 | 41 | 80 | 21 | 31 | 67 | 38 | 65 |

The highest and lowest T scores possible on each scale are indicated by a "---". MMPI-2-RF T scores are non-gendered.
MMPI-2-RF Higher-Order (H-O) and Restructured Clinical (RC) Scales

Raw Score: 20 0 0 5 5 10 3 1 0 10 0 6
T Score: 64 39 32 53 56 73 43 39 43 57 39 40
Response %: 100 100 100 100 100 100 100 100 100 100 100

Comparison Group Data: Spinal Cord Stimulator Candidate (Women), N = 306
Mean Score: 53 49 42 54 67 57 47 44 49 47 49 42
Standard Dev (SD): 12 9 7 11 12 12 10 7 9 10 9 8
Percent scoring at or below patient: 81 32 14 53 21 91 43 39 59 88 30 47

The highest and lowest T scores possible on each scale are indicated by a "—". MMPI-2-RF T scores are non-gendered.
### MMPI-2-RF Somatic/Cognitive and Internalizing Scales

#### Raw Score:
- MLS: 4
- GIC: 0
- HPC: 1
- NUC: 2
- COG: 0
- SUI: 1
- HLP: 0
- SFD: 1
- NFC: 2
- STW: 3
- AXY: 3
- ANP: 2
- BRF: 3
- MSF: 4

#### T Score:
- MLS: 63
- GIC: 46
- HPC: 53
- NUC: 59
- COG: 40
- SUI: 66
- HLP: 40
- SFD: 52
- NFC: 48
- STW: 52
- AXY: 80
- ANP: 51
- BRF: 71
- MSF: 51

#### Response %:
- MLS: 100
- GIC: 100
- HPC: 100
- NUC: 100
- COG: 100
- SUI: 100
- HLP: 100
- SFD: 100
- NFC: 100
- STW: 100
- AXY: 100
- ANP: 100
- BRF: 100
- MSF: 100

#### Comparison Group Data:
- Spinal Cord Stimulator Candidate (Women), N = 336
  - Mean Score: 71
  - Standard Dev.: 10
  - Percent scoring at or below patient: 27

The highest and lowest T scores possible on each scale are indicated by a "--". MMPI-2-RF T scores are non-gendered.

<table>
<thead>
<tr>
<th>MLS</th>
<th>Malaise</th>
<th>SUI</th>
<th>Suicidal/Death Ideation</th>
<th>AXY</th>
<th>Anxiety</th>
</tr>
</thead>
<tbody>
<tr>
<td>GIC</td>
<td>Gastrointestinal Complaints</td>
<td>HLP</td>
<td>Helplessness/Hopelessness</td>
<td>ANP</td>
<td>Anger Proneness</td>
</tr>
<tr>
<td>HPC</td>
<td>Head Pain Complaints</td>
<td>SFD</td>
<td>Self-Doubt</td>
<td>BRF</td>
<td>Behavior-Restricting Feats</td>
</tr>
<tr>
<td>NUC</td>
<td>Neurological Complaints</td>
<td>NFC</td>
<td>Inefficacy</td>
<td>MSP</td>
<td>Multiple Specific Fears</td>
</tr>
<tr>
<td>COG</td>
<td>Cognitive Complaints</td>
<td>STW</td>
<td>Stress/Worry</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

---

37
MMPI-2-RF Externalizing, Interpersonal, and Interest Scales

<table>
<thead>
<tr>
<th>Scale</th>
<th>Raw Score</th>
<th>T Score</th>
<th>Response %</th>
</tr>
</thead>
<tbody>
<tr>
<td>JCP</td>
<td>0</td>
<td>40</td>
<td>100</td>
</tr>
<tr>
<td>SUB</td>
<td>0</td>
<td>41</td>
<td>100</td>
</tr>
<tr>
<td>AG/G</td>
<td>0</td>
<td>37</td>
<td>100</td>
</tr>
<tr>
<td>ACT</td>
<td>1</td>
<td>38</td>
<td>100</td>
</tr>
<tr>
<td>FML</td>
<td>3</td>
<td>53</td>
<td>100</td>
</tr>
<tr>
<td>IPP</td>
<td>6</td>
<td>56</td>
<td>100</td>
</tr>
<tr>
<td>SAV</td>
<td>8</td>
<td>70</td>
<td>100</td>
</tr>
<tr>
<td>SHY</td>
<td>7</td>
<td>75</td>
<td>100</td>
</tr>
<tr>
<td>DSF</td>
<td>1</td>
<td>58</td>
<td>100</td>
</tr>
<tr>
<td>AES</td>
<td>1</td>
<td>39</td>
<td>100</td>
</tr>
<tr>
<td>MEC</td>
<td>0</td>
<td>38</td>
<td>100</td>
</tr>
</tbody>
</table>

Comparison Group Data: Spinal Cord Stimulator Candidate (Women), N = 336

- Mean Score: 46, 43, 45, 45, 47, 51, 53, 47, 50, 46, 44
- Standard Dev: 6, 5, 7, 10, 10, 10, 11, 9, 9, 7
- Percent scoring at or below patient: 60, 77, 40, 39, 85, 80, 93, 100, 88, 39, 33

The highest and lowest T scores possible on each scale are indicated by "---": MMPI-2-RF T scores are non-gendered.

- JCP: Juvenile Conduct Problems
- SUB: Substance Abuse
- AG/G: Aggression
- ACT: Activation
- FML: Family Problems
- IPP: InterpersonalPASS
- SAV: Social Avoidance
- SHY: Shyness
- DSF: Dishonesty
- AES: Aesthetic-Literary Interests
- MEC: Mechanical-Physical Interests
MMPI-2-RF PSY-5 Scales

Raw Score:
AGGR-r: 6
PSYC-r: 0
DISC-r: 1
NEGE-r: 7
INTR-r: 15

T Score:
AGGR-r: 43
PSYC-r: 38
DISC-r: 35
NEGE-r: 51
INTR-r: 77

Response %:
AGGR-r: 100
PSYC-r: 100
DISC-r: 100
NEGE-r: 100
INTR-r: 100

Comparison Group Data: Spinal Cord Stimulator Candidate (Women), N = 336
Standard Dev: AGGR-r: 8, PSYC-r: 9, DISC-r: 6, NEGE-r: 11, INTR-r: 12

Percent scoring at or below patient:

The highest and lowest T scores possible on each scale are indicated by a "—". MMPI-2-RF T scores are non-gendered.
This interpretive report is intended for use by a professional qualified to interpret the MMPI-2-RF in the context of a presurgical psychological evaluation of spinal cord stimulator candidates. The information it contains should be considered in the context of the patient’s background, the circumstances of the assessment, and other available information.

Interpretive statements in the Comparison Group Findings section are based on comparisons with the women of the Spinal Cord Stimulator Candidate comparison group. Statements in the remaining sections of the report are based on T scores derived from the general MMPI-2-RF normative sample.

The report includes extensive annotation, which appears as superscripts following each statement in the narrative, keyed to Endnotes with accompanying Research References, which appear in the final two sections of the report. Additional information about the annotation features is provided in the headings to these sections and in the User’s Guide for the Minnesota Multiphasic Personality Inventory-2 Restructured Form (MMPI-2-RF) Spine Surgery Candidate Interpretive Report (Spine-CIR) and Spinal Cord Stimulator Candidate Interpretive Report (Stim-CIR).

SYNOPSIS

This is a valid MMPI-2-RF protocol. Scores on the substantive scales indicate emotional and interpersonal dysfunction. Emotional–internalizing findings include suicidal ideation, depression, anxiety, and fears. Interpersonal difficulties include social avoidance and social anxiety.

Comparison group findings point to possible concerns about suicidality, a low level of positive emotions, anxiety, behavior-restricting fears, and interpersonal problems including social avoidance and shyness.

Possible presurgical risk factors are identified in the Demoralization and Depression, Pain and Somatic Sensitivity, Health Orientation and Medical Adherence, Anxiety and Stress, Fear/Avoidance, Interpersonal, and Substance Abuse domains.

PROTOCOL VALIDITY

This is a valid MMPI-2-RF protocol. There are no problems with unscorable items. The patient responded to the items relevantly on the basis of their content, and there are no indications of over- or under-reporting.
SUBSTANTIVE SCALE INTERPRETATION

Clinical-level symptoms, personality characteristics, and behavioral tendencies of the patient are described in this section and organized according to an empirically guided framework. (Please see Chapter 8, Yossef S. Ben-Porath, Interpreting the MMPI-2-RF, for details.) Statements containing the word "likely" are based on empirical correlates of scale scores. Specific sources for each statement can be accessed with the annotation features of this report.

Somatic/Cognitive Dysfunction
There are no indications of somatic or cognitive dysfunction in this protocol.

Emotional Dysfunction
The patient reports a history of suicidal ideation and/or attempts. She is likely to be preoccupied with suicide and death and to be at risk for current suicidal ideation and attempts.

She reports a lack of positive emotional experiences, significantanhedonia, and lack of interest.

The patient reports feeling anxious and is likely to experience significant anxiety and anxiety-related problems, intrusive ideation, and nightmares. She reports multiple fears that significantly restrict normal activity in and outside the home.

Thought Dysfunction
There are no indications of disordered thinking in this protocol.

Behavioral Dysfunction
There are no indications of maladaptive externalizing behavior in this protocol. The patient's responses indicate a higher than average level of behavioral constraint. She is unlikely to engage in externalizing, acting-out behavior. In addition, she reports a below average level of aggressive behavior.

Interpersonal Functioning Scales
The patient reports not enjoying social events and avoiding social situations. She is likely to be introverted, to have difficulty forming close relationships, and to be emotionally restricted. She reports being shy, easily embarrassed, and uncomfortable around others. She is likely to be socially inhibited and to be anxious and nervous in social situations.

Interest Scales
The patient reports an average number of interests in activities or occupations of an aesthetic or literary nature (e.g., writing, music, the theater). She indicates no interest in activities or occupations of a mechanical or physical nature (e.g., fixing and building things, the outdoors, sports).
DIAGNOSTIC CONSIDERATIONS

This section provides recommendations for psychodiagnostic assessment based on the patient's MMPI-2-RF results. It is recommended that she be evaluated for the following:

**Emotional-Internalizing Disorders**
- Depression-related disorder
- Anxiety-related disorders including PTSD
- Agoraphobia and specific phobias

**Interpersonal Disorders**
- Disorders associated with social avoidance such as avoidant personality disorder
- Social phobia

**SPINAL CORD STIMULATOR COMPARISON GROUP FINDINGS**

This section describes the MMPI-2-RF substantive scale findings in the context of the women of the Spinal Cord Stimulator Candidate comparison group. Specific sources for each statement can be accessed with the annotation features of this report. Presurgical risk factors, postsurgical outcomes, and treatment recommendations associated with these results, if any, are provided in subsequent sections of this report.

The comparison group means reported on pages 2 through 6 of this report show that female spinal cord stimulator candidates score differently from the general MMPI-2-RF normative sample on several scales. Problems discussed earlier in the Substantive Scale Interpretation section are based on clinically elevated normative T scores of 65 and above. Potential difficulties identified in this section are based on scores that are unusually high in relation to the Spinal Cord Stimulator Candidate (Women) comparison group, and thus may differ from those discussed earlier. If multiple risk factors are identified, the possibility of poor surgery results increases, but may be mitigated with psychological intervention.

**Emotional/Internalizing Problems**

The patient reported suicidal thoughts. These are very uncommon responses that require immediate follow-up. Only 16.7% of comparison group members responded this way. Please see the Critical Responses section later in this report for details.

She reports a comparatively high level of introversion and low positive emotions for a spinal cord stimulator implant candidate. Only 8.3% of comparison group members convey this or a greater level of social withdrawal and lack of positivity.

The patient reports a comparatively high level of problems with pervasive anxiety for a spinal cord stimulator implant candidate. Only 6.3% of comparison group members convey this or a greater level of anxiety. She also reports a relatively high level of behavior-restricting fears for this population. Only 5.4% of comparison group members convey this or a greater level of fears that inhibit normal behavior.
ENDNOTES

This section lists for each statement in the report the MMPI-2-RF score(s) that triggered it. In addition, each statement is identified as a Test Response, if based on item content, a Correlate, if based on empirical correlates, or an Inference, if based on the report authors' judgment. (This information can also be accessed on-screen by placing the cursor on a given statement.) For correlate-based statements, research references (Ref. No.) are provided, keyed to the consecutively numbered reference list following the endnotes.

1 Test Response: SUI=66
2 Correlate: SUI=66, Ref. 3, 14, 16, 23, 24, 31
3 Test Response: SUI=66, Ref. 3, 14, 16, 29, 31
4 Test Response: RC2=73; INTR-r=77
5 Test Response: AXY=80
6 Correlate: AXY=80, Ref. 1, 6, 15, 23, 24, 27
7 Correlate: AXY=80, Ref. 15, 23, 31
8 Test Response: BRF=71
9 Correlate: BXD=32, Ref. 18, 25, 31; DISC-r=35, Ref. 31
10 Correlate: BXD=32, Ref. 18, 31, DISC-r=35, Ref. 31
11 Test Response: AGG=37
12 Test Response: SAV=70
13 Correlate: SAV=70, Ref. 1, 2, 5, 11, 13, 31; SHY=75, Ref. 1, 2, 5, 10, 31
14 Correlate: SAV=70, Ref. 1, 9, 12, 13, 31
15 Correlate: SAV=70, Ref. 31
16 Test Response: SHY=75
17 Correlate: SHY=75, Ref. 1, 2, 5, 10, 31
18 Correlate: SHY=75, Ref. 1, 5, 31
19 Correlate: SHY=75, Ref. 5, 8, 12, 23, 31
20 Test Response: AES=39
21 Test Response: MEC=38
22 Correlate: RC2=73, Ref. 17, 19, 22, 26, 28, 31, 32; INTR-r=77, Ref. 31
23 Correlate: AXY=80, Ref. 4, 27, 31
24 Inference: BRF=71
25 Correlate: SAV=70, Ref. 32
26 Inference: SHY=75
27 Test Response: INTR-r=77
28 Correlate: RC2=73, Ref. 6, 22
29 Correlate: RC2=73, Ref. 20
30 Correlate: RC2=73, Ref. 6
31 Correlate: RC2=73, Ref. 30
32 Correlate: RC2=73, Ref. 21; SHY=75, Ref. 21
33 Correlate: AXY=80, Ref. 6; SHY=75, Ref. 6
34 Correlate: AXY=80, Ref. 30
35 Correlate: AXY=80, Ref. 6; BRF=71, Ref. 6
36 Correlate: BRF=71, Ref. 6
Interpersonal Problems
The patient reports a comparatively high level of social avoidance for a spinal cord stimulator implant candidate. Only 13.7% of comparison group members convey this or a greater preference for avoiding social interaction. Her responses indicate a level of shyness that may negatively affect outcomes. This level of social anxiety, which likely includes being uncomfortable around others, is very uncommon among this population. Only 3.0% of comparison group members give evidence of this or a greater level of shyness and inhibition.

PRESURGICAL PSYCHOLOGICAL RISK FACTORS
Psychological risk factors associated empirically with diminished spinal cord implant results are described in this section and organized according to nine problem domains identified in the professional literature as relevant to spinal cord implant outcomes. (Please see User's Guide for the MMPI-2-RF Spine Surgery Candidate Interpretive Report (Spine-CIR) and Spinal Cord Stimulator Candidate Interpretive Report (Stim-CIR) for details.) Specific sources for each statement can be accessed with the annotation features of this report.

Demoralization and Depression Problems
Compared with other spinal cord stimulator implant candidates, the patient is more likely to be experiencing depressive affect and to have a low energy level and feel exhausted.

Pain and Somatic Sensitivity Problems
Compared with other spinal cord stimulator implant candidates, the patient is more likely to perceive herself as deserving and needing assistance from others. She is also likely to report greater functional disability associated with pain.

Health Orientation and Medical Adherence Problems
Compared with other spinal cord stimulator implant candidates, the patient is less likely to seek out information about health, to feel confident in obtaining information from the physician, to be able to continue with exercise/diet recommendations when under stress, and to be engaged in overall health maintenance and improvement. She is also more likely to smoke.

Anxiety and Stress Problems
Compared with other spinal cord stimulator implant candidates, the patient is more likely to be diagnosed with an anxiety disorder and to be taking benzodiazepines. She is also likely to report higher levels of anxiety and to experience higher levels of current stress.

Fear/Avoidance Problems
Compared with other spinal cord stimulator implant candidates, the patient is likely to express higher levels of fear and avoidance of work activities and of physical activities. She is also more likely to have been out of work for more than 2 months.
ENDNOTES

This section lists for each statement in the report the MMPI-2-RF score(s) that triggered it. In addition, each statement is identified as a Test Response, if based on item content, a Correlate, if based on empirical correlates, or an Inference, if based on the report authors' judgment. (This information can also be accessed on-screen by placing the cursor on a given statement.) For correlate-based statements, research references (Ref. No.) are provided, keyed to the consecutively numbered reference list following the endnotes.

1 Test Response: SUI=66
2 Correlate: SUI=66, Ref. 3, 14, 16, 23, 24, 31
3 Correlate: SUI=66, Ref. 3, 14, 16, 29, 31
4 Test Response: RC2=73; INTR-r=77
5 Test Response: AXY=80
6 Correlate: AXY=80, Ref. 1, 6, 15, 23, 24, 27
7 Correlate: AXY=80, Ref. 15, 23, 31
8 Test Response: BRF=71
9 Correlate: BXD=32, Ref. 18, 25, 31; DISC-r=35, Ref. 31
10 Correlate: BXD=32, Ref. 18, 31, DISC-r=35, Ref. 31
11 Test Response: AGG=37
12 Test Response: SAV=70
13 Correlate: SAV=70, Ref. 1, 2, 5, 11, 13, 31; SHY=75, Ref. 1, 2, 5, 10, 31
14 Correlate: SAV=70, Ref. 1, 9, 12, 13, 31
15 Correlate: SAV=70, Ref. 31
16 Test Response: SHY=75
17 Correlate: SHY=75, Ref. 1, 2, 5, 10, 31
18 Correlate: SHY=75, Ref. 1, 5, 31
19 Correlate: SHY=75, Ref. 5, 8, 12, 23, 31
20 Test Response: AES=39
21 Test Response: MEC=38
22 Correlate: RC2=73, Ref. 17, 19, 22, 26, 28, 31, 32; INTR-r=77, Ref. 31
23 Correlate: AXY=80, Ref. 4, 27, 31
24 Inference: BRF=71
25 Correlate: SAV=70, Ref. 32
26 Inference: SHY=75
27 Test Response: INTR-r=77
28 Correlate: RC2=73, Ref. 6, 22
29 Correlate: RC2=73, Ref. 20
30 Correlate: RC2=73, Ref. 6
31 Correlate: RC2=73, Ref. 30
32 Correlate: RC2=73, Ref. 21; SHY=75, Ref. 21
33 Correlate: AXY=80, Ref. 6; SHY=75, Ref. 6
34 Correlate: AXY=80, Ref. 30
35 Correlate: AXY=80, Ref. 6; BRF=71, Ref. 6
36 Correlate: BRF=71, Ref. 6
RESEARCH REFERENCE LIST

The following studies are sources for empirical correlates identified in the Endnotes section of this report.


End of Report

Note total # of references. More references = greater risk.
Interpersonal Problems
Compared with other spinal cord stimulator implant candidates, the patient is more likely to report a history of abuse or abandonment\(^a\) and to report a lack of social support\(^b\).

Substance Abuse Problems
Compared with other spinal cord stimulator implant candidates, the patient is likely to take more opioid medications for pain\(^c\).

The candidate's scores are not associated with empirically identified risk factors in the following domains:
- Pain Coping Problems
- Recovery Disincentive Problems

POSTSURGICAL OUTCOMES
The postsurgical outcome statement listed here is based on prospective empirical studies indicating that, relative to other candidates, this patient is at increased risk for this specific adverse result. Inclusion of an adverse outcome does not imply that it will definitely occur, nor can other negative outcomes be definitively ruled out. Specific sources for each statement can be accessed with the annotation features of this report.

Compared to other spinal cord stimulator candidates, post-surgery this patient is likely to:
- Report greater levels of disability\(^d\)

TREATMENT RECOMMENDATIONS
This section contains inferential treatment-focused recommendations specifically for spinal cord stimulator candidates, based on the patient's MMPI-2-RF scores. Sources for each statement can be accessed with the annotation features of this report.

Recommendation Based on Elevated Suicidal/Death Ideation Scale
Risk for suicide should be assessed immediately\(^e\).

Recommendations Based on Elevated Emotional Dysfunction Scales
The patient appears to be experiencing a pervasive sense of anxiety. Explore the extent to which the anxiety may be triggered by past medical treatments or maladaptive cognitions about the current medical condition. Help the patient to develop balanced, realistic perspectives about the spinal cord stimulator, perhaps through cognitive behavioral techniques, and include treatments that assist in anxiety reduction such as meditation or biofeedback\(^f\).

The patient may also be experiencing depressive affect, which could impact spinal cord stimulator results. Consideration should be given to antidepressant medication, which may also help with pain reduction, as depression can increase pain awareness. Including individual psychotherapy in the overall
Ms. R Step 1: Risk Factors

- MMPI-2-RF elevations
  - RC2, AXY, BRF, INTR-r
- Presurgical Psychological Risk factors
  - Depression & Demoralization
  - Pain and Somatic Sensitivity
  - Health Orientation & Compliance
  - Anxiety & Stress
  - Fear/Avoidance
  - Interpersonal
  - Substance Abuse
- Other Factors
  - Pain Duration = 2 years

Ms. R Step 2: RF Validation

- Depression & Demoralization: BDI = 21 (moderate)
- Pain and Somatic Sensitivity:
  - Not validated. CSQ Catastrophizing = 2.0; average pain = 3
- Health Orientation & Compliance
  - Not validated. Weight loss, continues to exercise
- Anxiety & Stress
  - BAI = 33; (Severe) chronic anxiety
- Fear/Avoidance
  - FABQ Work 38; FABQ PA = 20 (severe)
- Interpersonal
  - Expresses anger at husband
- Substance Abuse
  - Distant History of opioid medication abuse, SOAPP –r = 10
Ms. R Step 3: RF Mitigation Analysis

- Strong health engagement
  - PAM score shows strong patient activation
  - Weight loss, has done own research about the stimulator
- Good response to previous spine surgery
  - 9 years pain free after last surgery
- Recovery Incentives
  - Expresses strong desire to resume exercise and be active with grandchildren

Ms. R Step 4: Data Integration

- Validated Risk Factors:
  - Depression, anxiety, Fear/avoidance, interpersonal, substance abuse
- Mitigating Factors
  - Strong health engagement; good response to previous spine surgery; recovery incentives
- Over/Underreporting --None
- Mitigating Factors strong enough to somewhat reduce risk factors (Clinical Judgement)
- Currently MODERATE risk of reduced outcome
- Expected Adverse Results
  - Greater Levels of disability
Interpersonal Problems
Compared with other spinal cord stimulator implant candidates, the patient is more likely to report a history of abuse or abandonment⁹ and to report a lack of social support⁹.

Substance Abuse Problems
Compared with other spinal cord stimulator implant candidates, the patient is likely to take more opioid medications for pain⁹.

The candidate's scores are not associated with empirically identified risk factors in the following domains:
- Pain Coping Problems
- Recovery Disincentive Problems

POSTSURGICAL OUTCOMES
The postsurgical outcome statement listed here is based on prospective empirical studies indicating that, relative to other candidates, this patient is at increased risk for this specific adverse result. Inclusion of an adverse outcome does not imply that it will definitely occur, nor can other negative outcomes be definitively ruled out. Specific sources for each statement can be accessed with the annotation features of this report.

Compared to other spinal cord stimulator candidates, post-surgery this patient is likely to:
- Report greater levels of disability⁹

TREATMENT RECOMMENDATIONS
This section contains inferential treatment-focused recommendations specifically for spinal cord stimulator candidates, based on the patient's MMPI-2-RF scores. Sources for each statement can be accessed with the annotation features of this report.

Recommendation Based on Elevated Suicidal/Death Ideation Scale
Risk for suicide should be assessed immediately¹⁰.

Recommendations Based on Elevated Emotional Dysfunction Scales
The patient appears to be experiencing a pervasive sense of anxiety. Explore the extent to which the anxiety may be triggered by past medical treatments or maladaptive cognitions about the current medical condition. Help the patient to develop balanced, realistic perspectives about the spinal cord stimulator, perhaps through cognitive behavioral techniques, and include treatments that assist in anxiety reduction such as meditation or biofeedback¹⁰.

The patient may also be experiencing depressive affect, which could impact spinal cord stimulator results. Consideration should be given to antidepressant medication, which may also help with pain reduction, as depression can increase pain awareness. Including individual psychotherapy in the overall
treatment plan may help the patient identify and experience pleasurable activities while rehabilitat—

In addition, the patient has multiple fears that may restrict her activity level. Exploring the extent to which excessive fear of increased pain or injury is unnecessarily restricting her activity is recommended. If needed, interventions aimed at learning to distinguish between expected pain increases and those that may signal worsening of an underlying medical condition are recommended.

ITEM-LEVEL INFORMATION

Unscorable Responses
The patient produced scorable responses to all the MMPI-2-RF items.

Critical Responses
Seven MMPI-2-RF scales—Suicidal/Death Ideation (SUI), Helplessness/Hopelessness (HLP), Anxiety (AXY), Ideas of Persecution (RP6), Aberrant Experiences (RC6), Substance Abuse (SUB), and Aggression (AGG)—have been designated by the test authors as having critical item content that may require immediate attention and follow-up. Items answered by the individual in the keyed direction (True or False) on a critical scale are listed below if her T score on that scale is 65 or higher. The percentage of the MMPI-2-RF normative sample (NS) and of the Spinal Cord Stimulator Candidate (Women) comparison group (CG) that answered each item in the keyed direction are provided in parentheses following the item content.

Suicidal/Death Ideation (SUI, T Score = 66)

334. Item Content Omitted. (True; NS 13.5%, CG 8.2%)

Anxiety (AXY, T Score = 80)

79. Item Content Omitted. (True; NS 6.2%, CG 13.9%)
228. Item Content Omitted. (True; NS 17.3%, CG 21.8%)
289. Item Content Omitted. (True; NS 12.7%, CG 13.1%)

Items for Follow-up
This section contains a list of items to which the patient responded in a manner warranting follow-up. The items were identified by presurgical assessment experts as having critical content. Clinicians are encouraged to follow up on these statements with the patient by making related inquiries, rather than reciting the item(s) verbatim. Each item is followed by the patient’s response, the percentage of the Spinal Cord Stimulator Candidate (Women) comparison group members who gave this response, and the scale(s) on which the item appears.

25. Item Content Omitted. (False; 86.6%; VRIN-r, EID, RC2, MLS)
77. Item Content Omitted. (True; 18.3%; FBS-r, RC7, NEGE-r)
152. Item Content Omitted. (True; 13.9%; VRIN-r, NFC)
Ms. R Step 5: Tx Recommendations

- Psychological treatment should augment stimulator results
- Continue psychotropic medications
  - Don’t discontinue for 3-6 months even if stimulator highly effective
- Brief Adjunctive Cognitive-Behavioral Intervention
  - Examine maladaptive beliefs maintaining fear/avoidance
  - Relaxation/meditation for anxiety

---

Mr. W
Spine Surgery Candidate

High Current Potential for Poor Outcome
Medically-Critical Surgery
Treatment Recommendations to Augment Surgery Results
Mr. W

- 69 year old diagnosed with scoliosis, 52 degree curve
- Neck and low back pain
- Candidate for Fusion at T12-L5
- No previous surgery
- No work since 1995, SSDI till age 65
- Divorced X 1 after one year, no children
- Lived with mother till she died one year ago
- Now lives with sister & brother-in-law, argues a lot
- Tearful and bereft
- Refuses any mental health intervention

Mr. W

- Sleeps 2-4 hours per night.
- Takes Hydrocodone 10-325 bid
- Pairs = 62 (low entitlement)
- Soapp-r = 6 low aberrant medication potential
Critical to examine sources of underreporting
Demoralization very strong predictor of poor outcome
Examine expectations of patient’s role in results

### MMPI-2-RF Somatic/Cognitive and Internalizing Scales

<table>
<thead>
<tr>
<th>Score Type</th>
<th>MLS</th>
<th>GIC</th>
<th>HPC</th>
<th>NUC</th>
<th>COG</th>
<th>GSC</th>
<th>SUR</th>
<th>HLP</th>
<th>SFD</th>
<th>NFC</th>
<th>STW</th>
<th>AXY</th>
<th>ANP</th>
<th>BRF</th>
<th>MSF</th>
</tr>
</thead>
<tbody>
<tr>
<td>Raw Score</td>
<td>5</td>
<td>0</td>
<td>3</td>
<td>4</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>5</td>
<td>2</td>
<td>5</td>
<td>4</td>
<td>1</td>
<td>3</td>
<td>1</td>
<td>4</td>
</tr>
<tr>
<td>T Score</td>
<td>69</td>
<td>46</td>
<td>65</td>
<td>70</td>
<td>50</td>
<td>66</td>
<td>89</td>
<td>66</td>
<td>98</td>
<td>56</td>
<td>58</td>
<td>57</td>
<td>59</td>
<td>54</td>
<td>56</td>
</tr>
<tr>
<td>Response %</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
</tr>
</tbody>
</table>

**Comparison Group Data:** Spine Surgery Candidate (Men), N = 590

Mean Score (-----): 57 55 60 63 54 49 50 50 47 51 51 49 49 46

Standard Dev (-----): 11 13 8 13 13 10 11 10 10 11 12 10 9 7

Percent scoring at or below patient: 64 65 84 80 54 96 100 84 91 82 87 81 88 85

The highest and lowest T scores possible on each scale are indicated by a “—”. MMPI-2-RF T scores are non-gendered.
DSF elevation suggests management problems.
MMPI-2-RF PSY-5 Scales

Raw Score: 5 0 1 10 15
T Score: 41 38 35 59 77
Response %: 94 100 100 100 100

Comparison Group Data: Spine Surgery Candidate (Men). N = 590
Mean Score: 53 48 51 48 56
Standard Dev: 9 9 9 11 12
Percent scoring at or below patient: 9 36 3 86 95

The highest and lowest T scores possible on each scale are indicated by a "*". MMPI-2-RF T scores are non-gendered.

AGGR-r Aggressiveness-Revised
PSYC-r Psychoticism-Revised
DISC-r Disconstraint-Revised
NEGE-r Negative Emotionality/Neuroticism-Revised
INTR-r Introversion/Low Positive Emotionality-Revised
Over-Reporting
There are no indications of over-reporting in this protocol.

Under-Reporting
The patient presented himself in an extremely positive light by denying many minor faults and shortcomings that most people acknowledge. This level of virtuous self-presentation is very uncommon even in individuals with a background stressing traditional values. Any absence of elevation on the substantive scales is uninterpretable. Elevated scores on the substantive scales may underestimate the problems assessed by those scales.

SUBSTANTIVE SCALE INTERPRETATION
Clinical-level symptoms, personality characteristics, and behavioral tendencies of the patient are described in this section and organized according to an empirically guided framework. (Please see Chapter 8, Yossef S. Ben-Porath, Interpreting the MMPI-2-RF, for details.) Statements containing the word “reports” are based on the item content of MMPI-2-RF scales, whereas statements that include the word “likely” are based on empirical correlates of scale scores. Specific sources for each statement can be accessed with the annotation features of this report.

The following interpretation needs to be considered in light of cautions noted about the possible impact of under-reporting (claiming a large number of unlikely virtues) on the validity of this protocol.

Somatic/Cognitive Dysfunction
The patient reports multiple somatic complaints including head pain and vague neurological complaints. He is likely to be prone to developing physical symptoms in response to stress. He reports experiencing poor health and feeling weak or tired. He is indeed likely to be preoccupied with poor health and to complain of sleep disturbance, fatigue, and sexual dysfunction.

Emotional Dysfunction
The patient reports a history of suicidal ideation and/or attempts. He is likely to be preoccupied with suicide and death and to be at risk for current suicidal ideation and attempts.

His responses indicate significant emotional distress. More specifically, he reports feeling sad and unhappy and being dissatisfied with his current life circumstances. He is likely to complain of feeling depressed. He reports believing he cannot change and overcome his problems and is incapable of reaching his life goals. He is very likely to feel hopeless, overwhelmed, and that life is a strain, to believe he cannot be helped and gets a raw deal from life, and to lack motivation for change.

The patient reports a lack of positive emotional experiences, significant anhedonia, and lack of interest. He is likely to be pessimistic.
Thought Dysfunction
There are no indications of disordered thinking in this protocol. However, because of indications of under-reporting described earlier, such problems cannot be ruled out.

Behavioral Dysfunction
There are no indications of maladaptive externalizing behavior in this protocol. However, because of indications of under-reporting described earlier, such problems cannot be ruled out.

Interpersonal Functioning Scales
The patient reports not enjoying social events and avoiding social situations. He is likely to be introverted, to have difficulty forming close relationships, and to be emotionally restricted. He reports disliking people and being around others, preferring to be alone. He is very likely to be asocial.

Interest Scales
The patient reports an average number of interests in activities or occupations of a mechanical or physical nature (e.g., fixing and building things, the outdoors, sports). He indicates little or no interest in activities or occupations of an aesthetic or literary nature (e.g., writing, music, the theater).

DIAGNOSTIC CONSIDERATIONS
This section provides recommendations for psychodiagnostic assessment based on the patient's MMPI-2-RF results. It is recommended that he be evaluated for the following:

Emotional/Internalizing Disorders
- Somatoform disorder, if physical origins for malaise, head pain complaints, and neurological complaints have been ruled out
- Depression-related disorder

Interpersonal Disorders
- Disorders associated with social avoidance such as avoidant personality disorder

SPINE SURGERY COMPARISON GROUP FINDINGS
This section describes the MMPI-2-RF substantive scale findings in the context of the men of the Spine Surgery Candidate comparison group. Specific sources for each statement can be accessed with the annotation features of this report. Presurgical risk factors, postsurgical outcomes, and treatment recommendations associated with these results, if any, are provided in subsequent sections of this report.

The comparison group means reported on pages 2 through 6 of this report show that male spine surgery candidates score differently from the general MMPI-2-RF normative sample on several scales. Problems discussed earlier in the Substantive Scale Interpretation section are based on clinically
elevated normative T scores of 65 and above. Potential difficulties identified in this section are based on scores that are unusually high in relation to the Spine Surgery Candidate (Men) comparison group, and thus may differ from those discussed earlier. If multiple risk factors are identified, the possibility of poor surgery results increases, but may be mitigated with psychological intervention.

The following interpretation needs to be considered in light of cautions noted about the possible impact of under-reporting (claiming a large number of unlikely virtues) on the validity of this protocol.

Emotional/Internalizing Problems
The patient reported suicidal thoughts. These are very uncommon responses that require immediate follow-up. Only 16.3% of comparison group members responded this way\(^5\). Please see the Critical Responses section later in this report for details.

He reports a comparatively large number of emotional problems for a spine surgery candidate. Only 12.7% of comparison group members convey this or a greater level of emotional difficulties\(^6\). More specifically, he reports a relatively high level of introversion and low positive emotions for this population\(^6\). Only 7.3% of comparison group members convey this or a greater level of social withdrawal and lack of positivity\(^6\).

The patient reports a comparatively high level of unhappiness and dissatisfaction for a spine surgery candidate. Only 5.6% of comparison group members convey this or a greater level of poor morale\(^7\). In particular, his responses indicate a level of hopelessness and hopelessness that may negatively affect surgical results\(^7\). This level of belief that he cannot solve problems and reach important goals is very uncommon among this population. Only 1.9% of comparison group members give evidence of this or a greater level of helplessness\(^7\). He reports a relatively high level of ineffectiveness decision making for a spine surgery candidate. Only 15.1% of comparison group members convey this or a greater level of perceived inefficacy\(^7\).

Interpersonal Problems
The patient reports a comparatively high level of family conflict for a spine surgery candidate. Only 13.1% of comparison group members convey this or a greater level of family problems\(^4\). He also reports a relatively high level of distrust and low opinion of others for this population. Only 16.4% of comparison group members convey this or a greater level of cynicism\(^4\). In addition, he reports a comparatively high level of social avoidance for a spine surgery candidate. Only 14.1% of comparison group members convey this or a greater preference for avoiding social interaction\(^4\). His responses indicate a level of disaffiliativeness that may adversely impact surgical results\(^4\). This level of disinterest in interacting with others is very uncommon among this population. No comparison group members give evidence of this or a greater level of disaffiliativeness\(^4\).
PRESURGICAL PSYCHOLOGICAL RISK FACTORS

Psychological risk factors associated empirically with diminished surgical results are described in this section and organized according to nine problem domains identified in the professional literature as relevant to spine surgery outcomes. (Please see User's Guide for the MMPI-2-RF Spine Surgery Candidate Interpretive Report (Spine-CIR) and Spinal Cord Stimulator Candidate Interpretive Report (Stim-CIR) for details.) Specific sources for each statement can be accessed with the annotation features of this report.

The following interpretation needs to be considered in light of cautions noted about the possible impact of under-reporting (claiming a large number of unlikely virtues) on the validity of this protocol.

Demoralization and Depression Problems
Compared with other spine surgery candidates, the patient is more likely to be experiencing depressive affect and to have a low energy level and feel exhausted. He is also likely to have greater levels of self-perceived disability.

Pain Coping Problems
Compared with other spine surgery candidates, the patient is more likely to catastrophize when experiencing pain. He is also likely to be less self-reliant.

Health Orientation and Medical Adherence Problems
Compared with other spine surgery candidates, the patient is less likely to seek out information about health, to feel confident in obtaining information from the physician, to be able to continue with exercise/diet recommendations when under stress, and to be engaged in overall health maintenance and improvement. He is also more likely to smoke.

Fear/Avoidance Problems
Compared with other spine surgery candidates, the patient is likely to express higher levels of fear and avoidance of work activities. He is also more likely to have been out of work for more than 2 months.

Interpersonal Problems
Compared with other spine surgery candidates, the patient is more likely to report a history of abuse or abandonment. He is also likely to report higher levels of anger.

Substance Abuse Problems
Compared with other spine surgery candidates, the patient is likely to take more opioid medications for pain.

The candidate's scores are not associated with empirically identified risk factors in the following domains:
- Pain and Somatic Sensitivity Problems
- Anxiety and Stress Problems
Mr. W Step 1: Risk Factors

- MMPI-2-RF Comparison Group findings
  - RCd, RC1, SUI, HLP, SAV, DSF
- MMPI-2-RF Presurgical risk factors
  - Demoralization & Depression
  - Pain Coping
  - Health Orientation & Compliance
  - Fear Avoidance
  - Interpersonal Problems
  - Substance Abuse Problems
- Additional Objective Risk Factors
  - Chronicity—pain over twenty years

Mr. W Step 2: Presurgical RF Validation

- Elevated L-r indicative of some under-reporting so MMPI-2-RF elevations valid, OK to interpret borderline scores
- Depression—BDI = 37; refuses treatment, not suicidal
- Pain Coping: CSQ Catastrophizing scale = 4.4
- Health Orientation & Compliance
  - No showed several PT appointments
- Fear Avoidance
  - FABQ Work = 42; FABQ PA = 18
- Interpersonal
  - Major arguments with siblings
- Substance Abuse
  - Not validated
Items for Follow-up

This section contains a list of items to which the patient responded in a manner warranting follow-up. Items were identified by presurgical assessment experts as having critical content. Clinicians are encouraged to follow up on these statements with the patient by making related inquiries, rather than reciting the item(s) verbatim. Each item is followed by the patient’s response, the percentage of the Spine Surgery Candidate (Men) comparison group members who gave this response, and the scale(s) on which the item appears.

25. Item Content Omitted. (False; 84.2%; VRIN-r, EID, RC2, MLS)
30. Item Content Omitted. (True; 19.8%; TRIN-r, F-r, EID, RCd)
65. Item Content Omitted. (False; 20.2%; RC1)
77. Item Content Omitted. (True; 16.9%; FBS-r, RC7, NEGE-r)
101. Item Content Omitted. (True; 12.7%; TRIN-r, FBS-r, RBS, RC1, HPC)
105. Item Content Omitted. (False; 20.3%; VRIN-r, EID, RCd)
135. Item Content Omitted. (True; 22.2%; HLP)
169. Item Content Omitted. (True; 8.0%; TRIN-r, EID, HLP)
172. Item Content Omitted. (True; 14.4%; EID, RCd)
214. Item Content Omitted. (True; 14.2%; HLP)
261. Item Content Omitted. (True; 20.0%; VRIN-r, TRIN-r, FBS-r, EID, RCd)
315. Item Content Omitted. (True; 10.0%; FBS-r, RCd)
331. Item Content Omitted. (True; 11.0%; VRIN-r, EID, RCd)

Special Note:
The content of the test items is included in the actual reports. To protect the integrity of the test, the item content does not appear in this sample report.
Mr. W Step 3: RF Mitigation Analysis

- Has sought out information from MD and internet
- Has realistic outcome expectations
- Minimal potential for aberrant medication taking
- PAM = 3, Moderate to strong health engagement

Mr. W Step 4: Data Integration

- Validated Risk Factors
  - Depression; Pain Coping; Health Orientation & Compliance; Fear avoidance; Interpersonal
- Mitigating Factors
  - Moderate Health Engagement; Realistic Outcome Expectations
- Over/Under-reporting
  - Underreporting on results indicate distress may be worse than reported
- **Mitigating Factors Not sufficient to overcome Risk Factors** *(Clinical Judgement)*
- Currently has HIGH RISK of poor outcome
- Expected Adverse Outcomes
  - High pain; greater disability; negative affect; unlikely to resume working; outcome dissatisfaction
POSTSURGICAL OUTCOMES

The postsurgical outcome statements listed here are based on prospective empirical studies indicating that, relative to other candidates, this patient is at increased risk for these specific adverse results. Inclusion of an adverse outcome does not imply that it will definitely occur, nor can other negative outcomes be definitively ruled out. Specific sources for each statement can be accessed with the annotation features of this report.

The following interpretation needs to be considered in light of cautions noted about the possible impact of under-reporting (claiming a large number of unlikely virtues) on the validity of this protocol.

Compared to other spine surgery candidates, post-surgery this patient is likely to:
- Report higher levels of pain³⁴
- Report greater levels of disability³⁵
- Experience more negative affect and higher levels of psychological distress³⁶
- Be more likely to take Schedule II opioid medication³⁷
- Be less likely to return to work³⁸
- Have lower levels of satisfaction with the results of surgery³⁹
- Convey stronger feelings that surgical results did not meet expectations⁴⁰
- Report a more negative overall outcome⁴¹

TREATMENT RECOMMENDATIONS

This section contains inferential treatment-focused recommendations specifically for spine surgery candidates, based on the patient's MMPI-2-RF scores. Sources for each statement can be accessed with the annotation features of this report.

The following interpretation needs to be considered in light of cautions noted about the possible impact of under-reporting (claiming a large number of unlikely virtues) on the validity of this protocol.

Recommendation Based on Elevated Suicidal/Death Ideation Scale
Risk for suicide should be assessed immediately⁴².

Recommendations Based on Elevated Emotional Dysfunction Scales
The patient is significantly demoralized, feels overwhelmed, and may be quite dissatisfied with life circumstances. He may have difficulty becoming motivated and following treatment recommendations. Helping the patient recognize positive aspects of his situation, and focusing on each improvement, however small, may help build momentum for recovery⁴³.
The patient also believes that he cannot be helped. Working with him to recognize behavioral, psychosocial, and medical problems that he experiences, to distinguish them from spine pain, and to identify paths to overcome or adapt to these problems may help him to perceive greater control and become more positive.

Recommendations Based on Elevated Interpersonal Functioning Scales

The patient prefers being alone and is disinterested in forming close relationships, which may lead to difficulties in working with treatment team members. It is recommended that providers approach the patient in a business-like fashion, focusing on behavioral and functional improvements, while limiting discussion of personal matters.

ITEM-LEVEL INFORMATION

Unscoreable Responses

Following is a list of items to which the patient did not provide scorable responses. Unanswered or double answered (both True and False) items are unscoreable. The scales on which the items appear are in parentheses following the item content.

276. Item Content Omitted. (VRIN-r, IPP, AGGR-r)

Critical Responses

Seven MMPI-2-RF scales—Suicidal/Death Ideation (SUI), Helplessness/Hopelessness (HLP), Anxiety (AXT), Ideas of Persecution (RC6), Aberrant Experiences (RC8), Substance Abuse (SUB), and Aggression (AGG)—have been designated by the test authors as having critical item content that may require immediate attention and follow-up. Items answered by the individual in the keyed direction (True or False) on a critical scale are listed below if his T score on that scale is 65 or higher. The percentage of the MMPI-2-RF normative sample (NS) and of the Spine Surgery Candidate (Men) comparison group (CG) that answered each item in the keyed direction are provided in parentheses following the item content.

Suicidal/Death Ideation (SUI, T Score = 66)

334. Item Content Omitted. (True; NS 13.5%, CG 10.5%)

Helplessness/Hopelessness (HLP, T Score = 88)

135. Item Content Omitted. (True; NS 24.2%, CG 22.2%)
169. Item Content Omitted. (True; NS 4.3%, CG 8.0%)
214. Item Content Omitted. (True; NS 10.4%, CG 14.2%)
282. Item Content Omitted. (False; NS 17.3%, CG 21.2%)
336. Item Content Omitted. (True; NS 38.0%, CG 34.1%)

Special Note: The content of the test items is included in the actual reports. To protect the integrity of the test, the item content does not appear in this sample report.
Mr. W Step 4:
High Risk Surgery Patients

- Discuss with Surgeon the following:
  - Invasiveness of surgery
    - E.g., multiple level instrumented fusion is much more extensive surgery than a laminectomy discectomy (this is a patient with scoliosis—5-level fusion)
  - Has a specific Pain-Generator been identified?
  - Is the surgery being performed primarily to provide pain relief?
  - If surgery is delayed or not performed would worsening or permanent physical damage be expected?
  - If surgeon feels surgery must be performed immediately or soon, the role of PPE is providing support recommendations

Mr. W Step 5: Tx Recommendations

- Surgeon states some delay in surgery is medically-acceptable, but should occur soon as curve increasing
- Psychiatric referral for antidepressant medications
- Cognitive-behavioral treatment
  - Pain self-management—e.g., mindfulness meditation
  - Challenge maladaptive thinking, identify incentives for recovery
  - Grief Therapy
  - Education re: taking active role in rehabilitation
- Delay surgery 1 month for treatments to begin
- Since depression/demoralization is at least partially reactive to loss of mother, adverse living situation, and increased disability, patient surgical outcome should be improved with psychological treatment
Ms. N
Spinal Cord Stimulator Candidate

High Potential for Poor Outcome
Multiple MMPI-2-RF Elevations
Multiple Presurgical Psych RFs

Ms. N
• 37 years old, divorced mother of two
• Chronic neck pain and headaches
• Not candidate for spine surgery
• On Long-term disability, applying for SSDI
• Is a catastrophic insurance claims agent
• Has PTSD related to extensive childhood sexual abuse
• Frequent panic attacks, some compulsive behavior
• Sees a psychiatrist and psychologist
• Medications: Lexapro 20 mg, Clonazepam .5 mg bid, Oxycodone 10-325 1-2 per day
Ms. N

- Pairs = 78 (strong sense of entitlement)
- CSQ Catastrophizing score = 5.0
- SOAPP-\(r = 26\) (strong potential for aberrant medication use)
- BDI = 34 (severe depression)
- BAI = 38 (severe anxiety)
<table>
<thead>
<tr>
<th>Name</th>
<th>Ms. N</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>37</td>
</tr>
<tr>
<td>Gender</td>
<td>Female</td>
</tr>
<tr>
<td>Marital Status</td>
<td>Not reported</td>
</tr>
<tr>
<td>Years of Education</td>
<td>Not reported</td>
</tr>
<tr>
<td>Administration Language</td>
<td>English</td>
</tr>
<tr>
<td>Date Assessed</td>
<td>04/16/2018</td>
</tr>
</tbody>
</table>
Chronic pain patients often have multiple health problems: RF validation is critical.
MMPI-2-RF Higher-Order (H-O) and Restructured Clinical (RC) Scales

Flaw Score: 30 3 7 16 21 8 5 8 2 13 2 9
T Score: 78 57 53 71 93 65 47 59 61 65 52 45
Response %: 100 100 100 100 100 100 100 100 100 100 100 100

Comparison Group Data: Spinal Cord Stimulator Candidate (Women), N = 306

Mean Score (-----): 53 49 42 54 67 57 47 44 49 47 49 42
Standard Dev (-----): 12 9 7 11 12 12 10 7 9 10 9 8
Percent scoring at or below patient: 96 88 97 92 98 81 61 99.1 93 95 74 76

The highest and lowest T scores possible on each scale are indicated by a "---". MMPI-2-RF T scores are non-gendered.

EID Emotional/Internalizing Dysfunction
THD Thought Dysfunction
BXO Behavioral/Externalizing Dysfunction
RCd Demoralization
RC1 Somatic Complaints
RC2 Low Positive Emotions
RC3 Cynicism
RC4 Antisocial Behavior
RC5 Ideas of Persecution
RC6 Dysfunctional Negative Emotions
RC7 Aberrant Experiences
RC8 Hypomanic Activation
Examine if stress & anxiety are chronic or reactive

Note multiple physical symptom areas. Potential Somatoform components
MMPI-2-RF Externalizing, Interpersonal, and Interest Scales

Raw Score: 2 2 1 2 6 3 9 6 0 4 5
T Score: 57 55 45 44 68 46 75 66 44 56 61
Response %: 100 100 100 100 100 100 100 100 100 100 100

Comparison Group Data: Spinal Cord Stimulator Candidate (Women), N = 336
Mean Score (±SD): 46 43 45 45 47 51 53 47 50 46 44
Standard Dev: 8 5 7 10 10 10 11 9 10 9 7
Percent scoring at or below patient: 93 99.1 69 64 97 40 98 97 72 90 99

The highest and lowest T scores possible on each scale are indicated by a *-. MMPI-2-RF T scores are non-gendered.

JCP Juvenile Conduct Problems   FML Family Problems   AES Aesthetic-Literary Interests
SUB Substance Abuse             IPP Interpersonal Passivity  MEC Mechanical-Physical Interests
AGG Aggression                  SAV Social Avoidance
ACT Activation                  SHY Shyness
DSF Dissociality
NEGE-r is very strong predictor of poor outcomes
### PROTOCOL VALIDITY

<table>
<thead>
<tr>
<th>Content Non-Responsiveness</th>
<th>0</th>
<th>48</th>
<th>50</th>
</tr>
</thead>
<tbody>
<tr>
<td>CNS</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>VRN-é</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TRN-é</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Over-Reporting</th>
<th>74</th>
<th>51</th>
<th>99</th>
<th>80</th>
<th>84</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fp</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fp-é</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fv</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fv-é</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BS</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BS-é</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Under-Reporting</th>
<th>57</th>
<th>38</th>
</tr>
</thead>
<tbody>
<tr>
<td>L-é</td>
<td></td>
<td></td>
</tr>
<tr>
<td>K-é</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### SUBSTANTIVE SCALES

#### Somatic/Cognitive Dysfunction

<table>
<thead>
<tr>
<th></th>
<th>93</th>
<th>81</th>
<th>72</th>
<th>85</th>
<th>96</th>
<th>64</th>
</tr>
</thead>
<tbody>
<tr>
<td>RC1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MLS</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>GEU</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>HBC</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NUC</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>COG</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### Emotional Dysfunction

<table>
<thead>
<tr>
<th></th>
<th>78</th>
<th>45</th>
<th>40</th>
<th>76</th>
<th>48</th>
</tr>
</thead>
<tbody>
<tr>
<td>RC4</td>
<td>71</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SUI</td>
<td></td>
<td>45</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>HLP</td>
<td></td>
<td>40</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SFD</td>
<td></td>
<td>76</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NDC</td>
<td></td>
<td>48</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>65</th>
<th>74</th>
</tr>
</thead>
<tbody>
<tr>
<td>RC2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>INTER-é</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>65</th>
<th>81</th>
<th>80</th>
<th>66</th>
<th>56</th>
<th>48</th>
<th>73</th>
</tr>
</thead>
<tbody>
<tr>
<td>RC7</td>
<td></td>
<td>81</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SYW</td>
<td></td>
<td>80</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>AXY</td>
<td></td>
<td>66</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ANP</td>
<td></td>
<td>56</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BRF</td>
<td></td>
<td>48</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MSF</td>
<td></td>
<td>73</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NEGE-é</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### Thought Dysfunction

<table>
<thead>
<tr>
<th></th>
<th>57</th>
<th>61</th>
</tr>
</thead>
<tbody>
<tr>
<td>RC6</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>52</th>
<th>47</th>
</tr>
</thead>
<tbody>
<tr>
<td>RC8</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PSYC-é</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### Behavioral Dysfunction

<table>
<thead>
<tr>
<th></th>
<th>57</th>
<th>57</th>
<th>55</th>
</tr>
</thead>
<tbody>
<tr>
<td>RC4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>JCP</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>STB</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>45</th>
<th>45</th>
<th>44</th>
<th>47</th>
<th>49</th>
</tr>
</thead>
<tbody>
<tr>
<td>RC5</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>AGS</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ACT</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>AGS-é</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DSC-é</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### Interpersonal Functioning

<table>
<thead>
<tr>
<th></th>
<th>68</th>
<th>47</th>
<th>46</th>
<th>75</th>
<th>66</th>
<th>44</th>
</tr>
</thead>
<tbody>
<tr>
<td>FML</td>
<td></td>
<td>68</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>RC1</td>
<td></td>
<td>47</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>IPV</td>
<td></td>
<td>46</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SAV</td>
<td></td>
<td>75</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SHY</td>
<td></td>
<td>66</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DSF</td>
<td></td>
<td>44</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>56</th>
<th>61</th>
</tr>
</thead>
<tbody>
<tr>
<td>AER</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MEC</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Scale scores shown in bold font are interpreted in the report.

Note: This information is provided to facilitate interpretation following the recommended structure for MMPI-2-RF interpretation in Chapter 5 of the MMPI-2-RF Manual for Administration, Scoring, and Interpretation, which provides details in the text and an outline in Tables 5-1.

Special caution when interpreted scores in 4 or 5 areas
This interpretive report is intended for use by a professional qualified to interpret the MMPI-2-RF in the context of a presurgical psychological evaluation of spinal cord stimulator candidates. The information it contains should be considered in the context of the patient’s background, the circumstances of the assessment, and other available information.

Interpretive statements in the Comparison Group Findings section are based on comparisons with the women of the Spinal Cord Stimulator Candidate comparison group. Statements in the remaining sections of the report are based on T scores derived from the general MMPI-2-RF normative sample.

The report includes extensive annotation, which appears as superscripts following each statement in the narrative, keyed to Endnotes with accompanying Research References, which appear in the final two sections of the report. Additional information about the annotation features is provided in the headnotes to these sections and in the User’s Guide for the Minnesota Multiphasic Personality Inventory-2-Revised Form (MMPI-2-RF) Spine Surgery Candidate Interpretive Report (Spine-CIR) and Spinal Cord Stimulator Candidate Interpretive Report (Stim-CIR).

SYNOPSIS

Scores on the MMPI-2-RF validity scales raise concerns about the possible impact of over-reporting (specifically, of somatic and cognitive symptoms) on the validity of this protocol. With that caution noted, scores on the substantive scales indicate somatic complaints and emotional and interpersonal dysfunction. Somatic complaints include preoccupation with poor health, malaise, head pain, neurological symptoms, and gastrointestinal problems. Emotional-internalizing findings include demoralization, depression, self-doubt, stress and worry, anxiety, and anger. Interpersonal difficulties include family problems, social avoidance, and social anxiety.

Comparison group findings point to possible concerns about somatic complaints including preoccupation with health, head pain complaints, and neurological complaints, emotional problems including unhappiness and dissatisfaction, self-doubt, a low level of positive emotions, negative emotions, stress and worry, anxiety, and anger, persecutory beliefs, irresponsible behavior, substance use, and interpersonal problems including family conflict, social avoidance, and shyness.

Possible presurgical risk factors are identified in the Demoralization and Depression, Pain and Somatic Sensitivity, Pain Coping, Health Orientation and Medical Adherence, Anxiety and Stress, Fear/Avoidance, Interpersonal, Substance Abuse, and Recovery Disincentive domains.
PROTOCOL VALIDITY

Content Non-Responsiveness
There are no problems with unscorable items in this protocol. The patient responded relevantly to the items on the basis of their content.

Over-Reporting
The patient reported a much larger than average number of somatic symptoms rarely described by individuals with genuine medical conditions. She also provided an unusual combination of responses that is associated with non-credible reporting of somatic and/or cognitive symptoms. In addition, she provided an unusual combination of responses that is associated with non-credible memory complaints. This pattern of responding may occur in individuals with substantial medical problems or emotional dysfunction who report credible symptoms, but it could also reflect exaggeration. In individuals with no history or other corroborating evidence of physical health problems or emotional difficulties this likely indicates non-credible reporting of somatic and cognitive symptoms. Scores on the somatic scales—Somatic Complaints (RC1), Malaise (MLS), Gastrointestinal Complaints (GIC), Head Pain Complaints (HPC), and Neurological Complaints (NUC)—and the Cognitive Complaints (COG) scale should be interpreted in light of this caution.

Under-Reporting
There are no indications of under-reporting in this protocol.

SUBSTANTIVE SCALE INTERPRETATION

Clinical-level symptoms, personality characteristics, and behavioral tendencies of the patient are described in this section and organized according to an empirically guided framework. (Please see Chapter 8, Yossel S. Ben-Porath, Interpreting the MMPI-2-RF, for details.) Statements containing the word “reports” are based on the item content of MMPI-2-RF scales, whereas statements that include the word “likely” are based on empirical correlates of scale scores. Specific sources for each statement can be accessed with the annotation features of this report.

The following interpretation needs to be considered in light of cautions noted about the possible impact of over-reporting (specifically, of somatic and cognitive symptoms) on the validity of this protocol.

Somatic/Cognitive Dysfunction
The patient reports a diffuse and pervasive pattern of somatic complaints involving different bodily systems, including diffuse head and neck pain, recurring headaches, and developing head pain when upset; a large number of vague neurological complaints, for example, dizziness, loss of balance, numbness, weakness and paralysis, and loss of control over movement, including involuntary movement; and a number of gastrointestinal complaints. She is indeed likely to have a history of gastrointestinal problems. She is also very likely to have a psychological component to her somatic complaints. In addition, she is very likely to be prone to developing physical symptoms in response to stress. She
reports a general sense of malaise manifested in poor health, and feeling tired, weak, and incapacitated$^8$. She is indeed very likely to be preoccupied with poor health$^8$ and to complain of sleep disturbance$^2$, fatigue$^1$, low energy$^4$, and sexual dysfunction$^9$.

**Emotional Dysfunction**

The patient's responses indicate significant and pervasive emotional distress$^9$. More specifically, she reports feeling sad and unhappy and being dissatisfied with her current life circumstances$^9$. She is likely to complain of feeling depressed$^9$. She reports lacking confidence and feeling useless$^8$, and is very likely to be prone to rumination, to experience self-doubt, to feel insecure and inferior, and to be self-disparaging and introspective$^6$. She reports multiple problems involving experiences of stress and worry, including preoccupation with disappointments, difficulties with time pressure, and specific worries over misfortune and finances$^8$. She is very likely to be stress-reactive$^2$ and worry-prone$^2$ and to engage in obsessive rumination$^9$.

She reports a lack of positive emotional experiences, significant anhedonia, and lack of interest$^9$.

The patient reports various negative emotional experiences$^9$ and is likely to be self-critical and guilt-prone$^2$. She reports feeling anxious$^9$ and is likely to experience significant anxiety and anxiety-related problems$^9$, intrusive ideation, and nightmares$^8$. She reports being anger-prone$^9$. She is indeed likely to have problems with anger, irritability, and low tolerance for frustration$^2$, to hold grudges$^9$; to have temper tantrums$^9$; and to be argumentative and abusive$^4$.

**Thought Dysfunction**

There are no indications of disordered thinking in this protocol.

**Behavioral Dysfunction**

There are no indications of maladaptive externalizing behavior in this protocol.

**Interpersonal Functioning Scales**

The patient reports conflictual family relationships and lack of support from family members$^9$. She is indeed likely to have family conflicts and to experience poor family functioning$^9$, to have strong negative feelings about family members$^9$, and to blame family members for her difficulties$^9$.

She reports not enjoying social events and avoiding social situations$^9$. She is likely to be introverted$^9$, to have difficulty forming close relationships$^9$, and to be emotionally restricted$^9$. She reports being shy, easily embarrassed, and uncomfortable around others$^9$. She is likely to be socially inhibited$^9$ and to be anxious and nervous in social situations$^9$.

**Interest Scales**

The patient reports an average number of interests in activities or occupations of an aesthetic or literary nature (e.g., writing, music, the theater)$^9$. She also reports an average number of interests in activities or occupations of a mechanical or physical nature (e.g., fixing and building things, the outdoors, sports)$^9$. 
DIAGNOSTIC CONSIDERATIONS

This section provides recommendations for psychodiagnostic assessment based on the patient's MMPI-2-RF results. It is recommended that she be evaluated for the following:

Emotional-Internalizing Disorders
- Somatoform disorder\(^{16}\), if physical origins for malaise\(^{17}\), head pain complaints\(^{18}\), neurological complaints\(^{19}\), and gastrointestinal complaints\(^{20}\) have been ruled out
- Depression-related disorder\(^{21}\)
- Disorders involving excessive stress and worry such as obsessive-compulsive disorder\(^{22}\)
- Anxiety-related disorders including PTSD\(^{23}\)
- Anger-related disorders\(^{24}\)

Interpersonal Disorders
- Disorders associated with social avoidance such as avoidant personality disorder\(^{25}\)
- Social phobia\(^{26}\)

SPINAL CORD STIMULATOR COMPARISON GROUP FINDINGS

This section describes the MMPI-2-RF substantive scale findings in the context of the women of the Spinal Cord Stimulator Candidate comparison group. Specific sources for each statement can be accessed with the annotation features of this report. Presurgical risk factors, postsurgical outcomes, and treatment recommendations associated with these results, if any, are provided in subsequent sections of this report.

The comparison group means reported on pages 2 through 6 of this report show that female spinal cord stimulator candidates score differently from the general MMPI-2-RF normative sample on several scales. Problems discussed earlier in the Substantive Scale Interpretation section are based on clinically elevated normative T scores of 65 and above. Potential difficulties identified in this section are based on scores that are unusually high in relation to the Spinal Cord Stimulator Candidate (Women) comparison group, and thus may differ from those discussed earlier. If multiple risk factors are identified, the possibility of poor surgery results increases, but may be mitigated with psychological intervention.

The following interpretation needs to be considered in light of cautions noted about the possible impact of over-reporting (specifically, of somatic and cognitive symptoms) on the validity of this protocol.

Somatic/Cognitive Complaints
The patient's responses indicate a level of somatization that may negatively affect outcomes\(^{27}\). This level of diffuse health concerns is very uncommon among spinal cord stimulator implant candidates. Only 3.0% of comparison group members give evidence of this or a greater level of somatic complaints\(^{28}\). More specifically, her responses indicate a level of head and neck pain complaints reflecting possible sensitivity to physical symptoms that may adversely impact outcomes\(^{29}\). This level of pain complaints is very uncommon in this population. Only 4.8% of comparison group members demonstrate this or a
greater level of headache pain complaints8. Her responses also reflect a level of neurological complaints indicating possible somatoform psychopathology, which may negatively affect outcomes9. This level of symptoms—such as dizziness, loss of balance, weakness, and loss of control over movement—is very uncommon in spinal cord stimulator implant candidates. Only 2.7% of comparison group members give evidence of this or a greater level of neurological complaints8. She reports a comparatively high level of concern about her overall health for this population. Only 30.7% of comparison group members convey this or a greater level of health concerns8.

**Emotional/Internalizing Problems**

The patient's responses indicate a level of emotional dysfunction that may adversely impact outcomes8. This level of emotional difficulties is very uncommon among spinal cord stimulator implant candidates. Only 4.8% of comparison group members give evidence of this or a greater level of emotional dysfunction8. More specifically, she reports a comparatively high level of introversion and low positive emotions for this population9. Only 11.6% of comparison group members convey this or a greater level of social withdrawal and lack of positivity9.

She reports a comparatively high level of negative emotions for a spinal cord stimulator implant candidate9. Only 6.3% of comparison group members convey this or a greater level of negative emotionality9. In particular, her responses indicate a level of stress and worry that may negatively affect outcomes9. This level of stress reactivity, worry, and rumination is very uncommon among this population. Only 1.5% of comparison group members demonstrate this or a greater level of stress and worry9. She reports a relatively high level of problems with pervasive anxiety for a spinal cord stimulator implant candidate. Only 6.3% of comparison group members convey this or a greater level of anxiety9. She also reports a comparatively high level of problems with anger for this population. Only 7.4% of comparison group members convey this or a greater level of anger proneness9.

The patient reports a comparatively high level of unhappiness and dissatisfaction for a spinal cord stimulator implant candidate. Only 9.2% of comparison group members convey this or a greater level of poor morale7. More specifically, her responses indicate a level of self-doubt that may adversely impact outcomes4. This lack of confidence is very uncommon among this population. Only 9.5% of comparison group members give evidence of this or a greater level of self-doubt4.

**Unusual Thoughts, Perceptions, and Beliefs**

The patient reports a comparatively high level of persecutory beliefs for a spinal cord stimulator implant candidate. Only 16.1% of comparison group members convey this or a greater level of persecutory thinking4.

**Behavioral/Externalizing Problems**

The patient's responses indicate a level of behavioral control problems that may negatively affect treatment compliance and, as a result, jeopardize outcomes8. This level of rule-breaking behavior is very uncommon among spinal cord stimulator implant candidates. Only 3.3% of comparison group members give evidence of this or a greater level of antisocial behavior8. More specifically, she reports a comparatively high level of juvenile conduct problems for this population. Only 15.8% of comparison group members convey this or a greater level of conduct problems during their teenage years8. Her responses indicate past and/or current substance use, raising concerns about potential abuse, as well as treatment compliance problems that may adversely impact outcomes8. This level of alcohol and possible
drug use is very uncommon among spinal cord stimulator implant candidates. Only 4.2% of comparison group members demonstrate this or a greater level of substance use\(^1\).

**Interpersonal Problems**
The patient's responses indicate a level of family problems that may negatively affect outcomes\(^2\). This level of family conflict, which may include feelings that family members cannot be counted on in times of need, is very uncommon among spinal cord stimulator implant candidates. Only 4.8% of comparison group members give evidence of this or a greater level of family problems\(^2\). She reports a comparatively high level of social avoidance for this population. Only 6.9% of comparison group members convey this or a greater preference for avoiding social interaction\(^6\). She also reports a relatively high level of social anxiety for a spinal cord stimulator implant candidate. Only 9.2% of comparison group members convey this or a greater level of shyness and inhibition\(^6\).

**PRESURGICAL PSYCHOLOGICAL RISK FACTORS**

Psychological risk factors associated empirically with diminished spinal cord implant results are described in this section and organized according to nine problem domains identified in the professional literature as relevant to spinal cord implant outcomes. (Please see User's Guide for the MMPI-2-RF Spine Surgery Candidate Interpretive Report (Spine-CIR) and Spinal Cord Stimulator Candidate Interpretive Report (Spino-CIR) for details.) Specific sources for each statement can be accessed with the annotation features of this report.

The following interpretation needs to be considered in light of cautions noted about the possible impact of over-reporting (specifically, of somatic and cognitive symptoms) on the validity of this protocol.

**Demoralization and Depression Problems**
Compared with other spinal cord stimulator implant candidates, the patient is more likely to be experiencing depressive affect\(^8\) and to have a low energy level and feel exhausted\(^8\). She is also likely to have greater levels of self-perceived disability\(^8\).

**Pain and Somatic Sensitivity Problems**
Compared with other spinal cord stimulator implant candidates, the patient is more likely to have a history of multiple somatic complaints\(^9\), to convey a general sense of experiencing poor health\(^9\), to complain about frequent headaches\(^9\), and to perceive herself as deserving and needing assistance from others\(^9\). She is also likely to display higher levels of pain behavior (e.g., down time, facial grimacing, stationary movement)\(^9\) and to report greater functional disability associated with pain\(^9\).

**Pain Coping Problems**
Compared with other spinal cord stimulator implant candidates, the patient is more likely to catastrophize when experiencing pain\(^9\). She is also likely to be less self-reliant\(^9\).
Health Orientation and Medical Adherence Problems
Compared with other spinal cord stimulator implant candidates, the patient is less likely to seek out information about health, to feel confident in obtaining information from the physician, to be able to continue with exercise/diet recommendations when under stress, and to be engaged in overall health maintenance and improvement. She is also more likely to smoke.

Anxiety and Stress Problems
Compared with other spinal cord stimulator implant candidates, the patient is more likely to be diagnosed with an anxiety disorder and to be taking benzodiazepines. She is also likely to report higher levels of anxiety and to experience higher levels of current stress.

Fear/Avoidance Problems
Compared with other spinal cord stimulator implant candidates, the patient is likely to express higher levels of fear and avoidance of work activities and of physical activities and to report more hours resting per day. She is also more likely to have been out of work for more than 2 months.

Interpersonal Problems
Compared with other spinal cord stimulator implant candidates, the patient is more likely to have had a chaotic or disrupted childhood, to report a history of abuse or abandonment, to have a partner who reinforces pain behavior, and to report a lack of social support. She is also likely to report higher levels of anger.

Substance Abuse Problems
Compared with other spinal cord stimulator implant candidates, the patient is likely to take more opioid medications for pain and to be at increased risk for opioid abuse.

Recovery Disincentive Problems
Compared with other spinal cord stimulator implant candidates, the patient is more likely to over-report physical symptoms.

POSTSURGICAL OUTCOMES
The postsurgical outcome statements listed here are based on prospective empirical studies indicating that, relative to other candidates, this patient is at increased risk for these specific adverse results. Inclusion of an adverse outcome does not imply that it will definitely occur, nor can other negative outcomes be definitively ruled out. Specific sources for each statement can be accessed with the annotation features of this report.

The following interpretation needs to be considered in light of cautions noted about the possible impact of over-reporting (specifically, of somatic and cognitive symptoms) on the validity of this protocol.

Compared to other spinal cord stimulator candidates, post-surgery this patient is likely to:

Special caution if 5 or greater problem areas identified. Extreme caution if 7 or more categories are validated.
- Report higher levels of pain
- Report greater levels of disability
- Experience more negative affect and higher levels of psychological distress
- Report greater interference of pain with lifestyle
- Have lower levels of satisfaction with the results of surgery
- Convey stronger feelings that surgical results did not meet expectations

TREATMENT RECOMMENDATIONS

This section contains inferential treatment-focused recommendations specifically for spinal cord stimulator candidates, based on the patient’s MMPI-2-RF scores. Sources for each statement can be accessed with the annotation features of this report.

The following interpretation needs to be considered in light of cautions noted about the possible impact of over-reporting (specifically, of somatic and cognitive symptoms) on the validity of this protocol.

Recommendations Based on Elevated Somatic/Cognitive Dysfunction Scales

The patient has an elevated degree of sensitivity to pain and somatic symptoms. Behavioral intervention, with minimal attention directed toward minor complaints, along with reinforcement of functional improvements, may be most effective following the implant procedure.

The patient is also preoccupied with poor health and may feel fatigued and experience sleep disturbance and sexual dysfunction. Treatment techniques aimed at viewing spinal cord stimulation as a component of overall health improvement may be most effective. Structured techniques for behavioral change, such as weight loss, diet control, smoking cessation, sexual adaptation, and sleep hygiene, may help the patient achieve the best possible outcomes.

Recommendations Based on Elevated Emotional Dysfunction Scales

The patient is significantly demoralized, feels overwhelmed, and may be quite dissatisfied with life circumstances. She may have difficulty becoming motivated and following treatment recommendations. Helping the patient recognize positive aspects of her situation, and focusing on each improvement, however small, may help build momentum for recovery.

The patient also feels useless and inferior. Interventions that help her identify strengths maintained despite her pain problems and that develop techniques for countering negative self-evaluations may improve post-implant results.

In addition, the patient appears to be experiencing a pervasive sense of anxiety. Explore the extent to which the anxiety may be triggered by past medical treatments or maladaptive cognitions about the current medical condition. Help the patient to develop balanced, realistic perspectives about the spinal cord stimulator, perhaps through cognitive behavioral techniques, and include treatments that assist in anxiety reduction such as meditation or biofeedback.
The patient experiences a wide range of negative emotions and intrusive negative thoughts. She may consequently be motivated for psychological intervention as part of the treatment plan. Cognitive-behavioral treatment focused on challenging and controlling negative thinking, overcoming guilt related to pain and limitations, and sleep improvement strategies may enhance overall results.

The patient is also experiencing a much higher level of stress/worry than other patients do, and is prone to both ruminate about disappointments and misfortunes and to feel a strong sense of time pressure to recover from the spinal pain problems. Recommended interventions include stress management training and strategies aimed at establishing and acting on priorities in the post-implant recovery process.

In addition, the patient is prone to experience anger, irritability, and poor frustration tolerance—all of which may impact relationships with the treatment team. It is recommended that providers collaborate with her in developing approaches to prepare for and recover from the implant procedure, and help her anticipate and deal with setbacks in the recovery process.

Recommendations Based on Elevated Interpersonal Functioning Scales

The patient reports problematic family relationships. Including significant others/family members in all treatment planning may help them understand her condition, so that they can provide reinforcement for pain reduction and improvements in functional gains.

ITEM-LEVEL INFORMATION

Unscored Responses

The patient produced unscored responses to all the MMPI-2-RF items.

Critical Responses

Seven MMPI-2-RF scales—Suicidal/Death Ideation (SUI), Helplessness/Hopelessness (HLP), Anxiety (AXY), Ideas of Persecution (RO6), Aberrant Experiences (RC6), Substance Abuse (SUB), and Aggression (AGG)—have been designated by the test authors as having critical item content that may require immediate attention and follow-up. Items answered by the individual in the keyed direction (True or False) on a critical scale are listed below if her T score on that scale is 65 or higher. The percentage of the MMPI-2-RF normative sample (NS) and of the Spinal Cord Stimulator Candidate (Women) comparison group (CG) that answered each item in the keyed direction are provided in parentheses following the item content.

Anxiety (AXY, T Score = 80)

79. Item Content Omitted. (True; NS 6.2%, CG 13.9%)
228. Item Content Omitted. (True; NS 17.3%, CG 21.8%)
289. Item Content Omitted. (True; NS 12.7%, CG 13.1%)

Special Note: The content of the test item is included in the actual reports. To protect the integrity of the test, the item content does not appear in this sample report.
Items for Follow-up

This section contains a list of items to which the patient responded in a manner warranting follow-up. The items were identified by presurgical assessment experts as having critical content. Clinicians are encouraged to follow up on these statements with the patient by making related inquiries, rather than reciting the item(s) verbatim. Each item is followed by the patient’s response, the percentage of the Spinal Cord Stimulator Candidate (Women) comparison group members who gave this response, and the scale(s) on which the item appears.

25. Item Content Omitted. (False; 86.6%; VRIN-r, EID, RC2, MLS)
30. Item Content Omitted. (True; 20.7%; TRIN-r, F-r, EID, RCd)
43. Item Content Omitted. (True; 12.8%; Fs, FBS-r, RC1, GIC)
49. Item Content Omitted. (True; 6.5%; BXD, RC4, SUB, DISC-r)
65. Item Content Omitted. (False; 20.4%; RC1)
77. Item Content Omitted. (True; 18.3%; FBS-r, RC7, NEGE-r)
101. Item Content Omitted. (True; 18.8%; TRIN-r, FBS-r, RBS, RC1, HPC)
141. Item Content Omitted. (True; 13.4%; VRIN-r, FBS-r, RC4, SUB)
170. Item Content Omitted. (True; 11.2%; Fs)
172. Item Content Omitted. (True; 16.1%; EID, RCd)
176. Item Content Omitted. (True; 13.1%; RC1, HPC)
261. Item Content Omitted. (True; 23.7%; VRIN-r, TRIN-r, FBS-r, EID, RCd)
318. Item Content Omitted. (True; 12.3%; VRIN-r, RC7, ANP)
331. Item Content Omitted. (True; 10.9%; VRIN-r, EID, RCd)

Special Note: The content of the test items is included in the actual reports. To protect the integrity of the test, the item content does not appear in this sample report.
Ms. N Step 1: Risk Factors

- MMPI-2-RF risk factors
  - Depression & Demoralization
  - Pain Sensitivity
  - Pain Coping
  - Health Orientation
  - Anxiety & Stress
  - Fear Avoidance
  - Interpersonal Problems
  - Substance Abuse
  - Recovery Disincentives

- Other risk factors
  - Chronic Mental health issues
  - Current active mental health problems
  - Applying for SSDI
  - Poor support system

Ms. N. Step 2: RF Validation

- VALIDATION CRITICAL DUE TO OVERREPORTING
  - Depression & Demoralization – BDI = 34
  - Pain Sensitivity – Whole body pain, inconsistent with condition
  - Pain Coping -- CSQ Catastrophizing = 5.0
  - Health Orientation – Does not exercise, no exploration of stimulator
  - Anxiety & Stress -- BAI = 38
  - Fear Avoidance – Greatly restricts activity, worries about injury
  - Interpersonal Problems – poor support, arguments with family
  - Substance Abuse – SOAPP = 23
  - Recovery Disincentives – Applying for SSDI
Ms. N Step 3: RF Mitigation

- No mitigating factors found

Ms. N Step 4: Data Integration

- Validated Psychological Risk Factors
  - Depression & Demoralization, Pain Sensitivity, Pain Coping, Health Orientation, Anxiety & Stress, Fear Avoidance, Interpersonal Problems, Substance Abuse, Recovery Disincentives

- Mitigating Risk Factors
  - None

- Over/Underreporting
  - Possible overreporting, although risk factors validated

- HIGH level of risk for reduced stimulator outcome

- Psych issues so intense, chronic and disincentives so strong that stimulator unlikely to ever be effective
Ms. N: Treatment Recommendation

- Avoid stimulator if not medically critical
- Refer to a chronic pain management program
  - Summarize treatment recommendations from Stim-CIR to advise pain management program.

Ms. H
Spine Surgery Candidate

High Risk for Poor Outcome
Limited # of MMPI-2-RF elevations
Multiple Presurgical Psych RFs
Ms. H

- Candidate for Lumbar 360 fusion at L4-L5 and L5-S1
- Pain 3 years, insidious onset
- Failed lumbar fusion 1 year ago.
- Severe post-op pain control problems—was on Percocet, Morphine and Fentanyl patch without pain control
- Has both lumbar and cervical pain
- Poor sleep: 4 hours despite taking Seroquel qhs
- Meds: Tylenol#4 qid, Clonazepam 1 mg bid, Celexa 20, Seroquel qhs—says these are not helping
- Unable to work
- Strong history of childhood sexual abuse, adult rape

Ms. H

- Pairs = 84, strong entitlement
- SOAPP-r = 29, strong potential for aberrant medication use
- Inconsistent presentation—no pain behavior despite level 9 pain, upbeat affect
MMPI-2-RF®
Spinal Cord Stimulator Candidate Interpretive Report
Andrew Block, PhD, & Yossif S. Ben-Porath, PhD

<table>
<thead>
<tr>
<th>Name:</th>
<th>Ms. R</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age:</td>
<td>74</td>
</tr>
<tr>
<td>Gender:</td>
<td>Female</td>
</tr>
<tr>
<td>Marital Status:</td>
<td>Not reported</td>
</tr>
<tr>
<td>Years of Education:</td>
<td>Not reported</td>
</tr>
<tr>
<td>Date Assessed:</td>
<td>05/24/2018</td>
</tr>
</tbody>
</table>
MMPI-2-RF Validity Scales

<table>
<thead>
<tr>
<th>Scale</th>
<th>Raw Score</th>
<th>T Score</th>
<th>Response %</th>
<th>Cannot Say (Raw)</th>
<th>Percent True (of items answered)</th>
</tr>
</thead>
<tbody>
<tr>
<td>VRIN-r</td>
<td>2</td>
<td>43</td>
<td>98</td>
<td>2</td>
<td>29%</td>
</tr>
<tr>
<td>TRIN-r</td>
<td>11</td>
<td>50</td>
<td>100</td>
<td>11</td>
<td></td>
</tr>
<tr>
<td>F-r</td>
<td>4</td>
<td>61</td>
<td>100</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Fp-r</td>
<td>2</td>
<td>59</td>
<td>100</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Fs</td>
<td>1</td>
<td>50</td>
<td>100</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>FBS-r</td>
<td>13</td>
<td>67</td>
<td>100</td>
<td>13</td>
<td></td>
</tr>
<tr>
<td>RBS</td>
<td>5</td>
<td>50</td>
<td>97</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>L-r</td>
<td>6</td>
<td>66</td>
<td>100</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>K-r</td>
<td>8</td>
<td>52</td>
<td>100</td>
<td>8</td>
<td></td>
</tr>
</tbody>
</table>

Comparison Group Data: Spine Surgery Candidate (Women), N = 662

<table>
<thead>
<tr>
<th>Scale</th>
<th>Mean Score</th>
<th>Standard Dev</th>
<th>Percent scoring at or below patient</th>
</tr>
</thead>
<tbody>
<tr>
<td>VRIN-r</td>
<td>47</td>
<td>10</td>
<td>50</td>
</tr>
<tr>
<td>TRIN-r</td>
<td>52</td>
<td>9</td>
<td>36</td>
</tr>
<tr>
<td>F-r</td>
<td>56</td>
<td>12</td>
<td>77</td>
</tr>
<tr>
<td>Fp-r</td>
<td>49</td>
<td>9</td>
<td>93</td>
</tr>
<tr>
<td>Fs</td>
<td>55</td>
<td>14</td>
<td>59</td>
</tr>
<tr>
<td>FBS-r</td>
<td>65</td>
<td>12</td>
<td>64</td>
</tr>
<tr>
<td>RBS</td>
<td>58</td>
<td>12</td>
<td>37</td>
</tr>
<tr>
<td>L-r</td>
<td>59</td>
<td>11</td>
<td>83</td>
</tr>
<tr>
<td>K-r</td>
<td>54</td>
<td>10</td>
<td>46</td>
</tr>
</tbody>
</table>

The highest and lowest T scores possible on each scale are indicated by a "—". MMPI-2-RF T scores are non-gendered.
MMPI-2-RF Higher-Order (H-O) and Restructured Clinical (RC) Scales

Higher-Order

Restructured Clinical

<table>
<thead>
<tr>
<th>Scale</th>
<th>Raw Score</th>
<th>T Score</th>
<th>Response %</th>
</tr>
</thead>
<tbody>
<tr>
<td>E/O</td>
<td>12</td>
<td>53</td>
<td>100</td>
</tr>
<tr>
<td>THO</td>
<td>0</td>
<td>39</td>
<td>100</td>
</tr>
<tr>
<td>BXO</td>
<td>0</td>
<td>32</td>
<td>100</td>
</tr>
<tr>
<td>RC4</td>
<td>7</td>
<td>96</td>
<td>96</td>
</tr>
<tr>
<td>RC1</td>
<td>9</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>RC2</td>
<td>4</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>RC3</td>
<td>4</td>
<td>98</td>
<td>98</td>
</tr>
<tr>
<td>RC4</td>
<td>2</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>RC6</td>
<td>4</td>
<td>94</td>
<td>94</td>
</tr>
<tr>
<td>RC7</td>
<td>0</td>
<td>41</td>
<td>41</td>
</tr>
<tr>
<td>RC8</td>
<td>2</td>
<td>43</td>
<td>43</td>
</tr>
<tr>
<td>RC9</td>
<td>1</td>
<td>47</td>
<td>47</td>
</tr>
<tr>
<td>RC10</td>
<td>6</td>
<td>40</td>
<td>40</td>
</tr>
</tbody>
</table>

Comparison Group Data: Spine Surgery Candidate (Women), N = 662

Mean Score (- - - -): 51 46 43 52 64 53 45 45 49 46 47 42

Standard Deviation: 11 9 8 11 11 10 10 8 8 9 10 9 8

Percent scoring at or below patient: 64 38 12 71 64 49 39 78 61 39 68 47

The highest and lowest T scores possible on each scale are indicated by a "-". MMPI-2-RF T scores are non-gendered.
Maximum MLS elevation is very strong predictor of poor outcome.
Explore social situation & reaction of others to patient's pain.
MMPI-2-RF PSY-5 Scales

- Raw Score:
  - AGGR: 10
  - PSYC: 0
  - DISC: 1
  - NEGE: 2
  - INTR: 5
- T Score:
  - AGGR: 53
  - PSYC: 38
  - DISC: 35
  - NEGE: 40
  - INTR: 47
- Response %:
  - AGGR: 100
  - PSYC: 100
  - DISC: 100
  - NEGE: 100
  - INTR: 100

Comparison Group Data: Spine Surgery Candidate (Women), N = 662
- Standard Dev (-----): AGGR: 8, PSYC: 8, DISC: 7, NEGE: 11, INTR: 11
- Percent scoring at or below patient: AGGR: 81, PSYC: 39, DISC: 24, NEGE: 23, INTR: 37

The highest and lowest T scores possible on each scale are indicated by a "---", MMPI-2-RF T scores are non-gendered.
## MMPI-2-RF T SCORES (BY DOMAIN)

### PROTOCOL VALIDITY

<table>
<thead>
<tr>
<th></th>
<th>2</th>
<th>43</th>
<th>50</th>
</tr>
</thead>
<tbody>
<tr>
<td>Content Non-Respondiveness</td>
<td>CNS</td>
<td>VUN-r</td>
<td>TRN-r</td>
</tr>
<tr>
<td>Over-Reporting</td>
<td>61</td>
<td>59</td>
<td>50</td>
</tr>
<tr>
<td></td>
<td>Fp</td>
<td>Fp-r</td>
<td>Fp</td>
</tr>
<tr>
<td>Under-Reporting</td>
<td>66</td>
<td>52</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Lr</td>
<td>K-r</td>
<td></td>
</tr>
</tbody>
</table>

### SUBSTANTIVE SCALES

<table>
<thead>
<tr>
<th>Somatic/Cognitive Dysfunction</th>
<th>65</th>
<th>87</th>
<th>64</th>
<th>65</th>
<th>59</th>
<th>40</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>RCI</td>
<td>MLS</td>
<td>GRC</td>
<td>HPC</td>
<td>NUC</td>
<td>NCG</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Emotional Dysfunction</th>
<th>53</th>
<th>45</th>
<th>52</th>
<th>56</th>
<th>36</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>EID</td>
<td>SUI</td>
<td>REP</td>
<td>S/F</td>
<td>N/E</td>
<td></td>
</tr>
<tr>
<td></td>
<td>50</td>
<td>47</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>RC2</td>
<td>INT-r</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>41</td>
<td>47</td>
<td>44</td>
<td>39</td>
<td>63</td>
<td>59</td>
</tr>
<tr>
<td></td>
<td>RC7</td>
<td>STW</td>
<td>AXY</td>
<td>ANP</td>
<td>BRF</td>
<td>MSF</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Thought Dysfunction</th>
<th>39</th>
<th>41</th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>THD</td>
<td>RE#</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>47</td>
<td>RCE</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>38</td>
<td>PST-r</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Behavioral Dysfunction</th>
<th>32</th>
<th>49</th>
<th>40</th>
<th>41</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>BXD</td>
<td>RCP</td>
<td>SUB</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>40</td>
<td>37</td>
<td>39</td>
<td>53</td>
<td>35</td>
<td></td>
</tr>
<tr>
<td></td>
<td>BC9</td>
<td>AGG</td>
<td>ACT</td>
<td>AGGR-r</td>
<td>DISC-r</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Interpersonal Functioning</th>
<th>68</th>
<th>41</th>
<th>46</th>
<th>36</th>
<th>37</th>
<th>44</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>FML</td>
<td>RC3</td>
<td>RPP</td>
<td>SAV</td>
<td>STHY</td>
<td>DSN</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Interests</th>
<th>45</th>
<th>38</th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>AES</td>
<td>MEC</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Scale scores shown in bold font are interpreted in the report.*

**Note:** This information is provided to facilitate interpretation following the recommended structure for MMPI-2-RF interpretation in Chapter 5 of the *MMPI-2-RF Manual for Administration, Scoring, and Interpretation*, which provides details in the text and an outline in Table 5-1.
This interpretive report is intended for use by a professional qualified to interpret the MMPI-2-RF in the context of a presurgical psychological evaluation of spine surgery candidates. The information it contains should be considered in the context of the patient’s background, the circumstances of the assessment, and other available information.

Interpretive statements in the Comparison Group Findings section are based on comparisons with the women of the Spine Surgery Candidate comparison group. Statements in the remaining sections of the report are based on T scores derived from the general MMPI-2-RF normative sample.

The report includes extensive annotation, which appears as superscripts following each statement in the narrative, keyed to Endnotes with accompanying Research References, which appear in the final two sections of the report. Additional information about the annotation features is provided in the headnotes to these sections and in the User's Guide for the Minnesota Multiphasic Personality Inventory-2- Restructured Form (MMPI-2-RF) Spine Surgery Candidate Interpretive Report (Spine-CIR) and Spinal Cord Stimulator Candidate Interpretive Report (Stim-CIR).

SYNOPSIS

Scores on the MMPI-2-RF validity scales raise concerns about the possible impact of under-reporting (claiming a large number of unlikely virtues) on the validity of this protocol. With that caution noted, scores on the substantive scales indicate somatic complaints and interpersonal dysfunction. Somatic complaints include preoccupation with poor health, malaise, and head pain. Interpersonal difficulties relate to family problems.

Comparison group findings point to possible concerns about preoccupation with health, behavior-restricting fears, and interpersonal problems including family conflict.

Possible presurgical risk factors are identified in the Demoralization and Depression, Pain and Somatic Sensitivity, Pain Coping, Health Orientation and Medical Adherence, Fear/Avoidance, Interpersonal, and Substance Abuse domains.

PROTOCOL VALIDITY

Content Non-Responsiveness

There are no problems with unscorable items in this protocol. The patient responded relevantly to the items on the basis of their content.

Over-Reporting

There are no indications of over-reporting in this protocol.
Under-Reporting
The patient presented herself in a positive light by denying some minor faults and shortcomings that most people acknowledge. This level of virtuous self-presentation may reflect a background stressing traditional values. Any absence of elevation on the substantive scales should be interpreted with caution. Elevated scores on the substantive scales may underestimate the problems assessed by those scales.

SUBSTANTIVE SCALE INTERPRETATION
Clinical-level symptoms, personality characteristics, and behavioral tendencies of the patient are described in this section and organized according to an empirically guided framework. (Please see Chapter 8, Yossef S. Ben-Porath, Interpreting the MMPI-2-RF, for details.) Statements containing the word “reports” are based on the item content of MMPI-2-RF scales, whereas statements that include the word “likely” are based on empirical correlates of scale scores. Specific sources for each statement can be accessed with the annotation features of this report.

The following interpretation needs to be considered in light of cautions noted about the possible impact of under-reporting (claiming a large number of unlikely virtues) on the validity of this protocol.

Somatic/Cognitive Dysfunction
The patient reports multiple somatic complaints including head pain. She is likely to be prone to developing physical symptoms in response to stress. She reports a general sense of malaise manifested in poor health, and feeling tired, weak, and incapacitated. She is indeed very likely to be preoccupied with poor health and to complain of sleep disturbance, fatigue, low energy, and sexual dysfunction.

Emotional Dysfunction
There are no indications of emotional-internalizing dysfunction in this protocol. However, because of indications of under-reporting described earlier, such problems cannot be ruled out.

Thought Dysfunction
There are no indications of disordered thinking in this protocol. However, because of indications of under-reporting described earlier, such problems cannot be ruled out.

Behavioral Dysfunction
There are no indications of maladaptive externalizing behavior in this protocol. However, because of indications of under-reporting described earlier, such problems cannot be ruled out.

Interpersonal Functioning Scales
The patient reports conflictual family relationships and lack of support from family members. She is indeed likely to have family conflicts and to experience poor family functioning, to have strong negative feelings about family members, and to blame family members for her difficulties.
Interest Scales
The patient reports an average number of interests in activities or occupations of an aesthetic or literary nature (e.g., writing, music, the theater)\(^9\). She indicates no interest in activities or occupations of a mechanical or physical nature (e.g., fixing and building things, the outdoors, sports)\(^9\).

DIAGNOSTIC CONSIDERATIONS
This section provides recommendations for psychodiagnostic assessment based on the patient’s MMPI-2-RF results. It is recommended that she be evaluated for the following:

Emotional-Internalizing Disorders
- Somatoform disorder\(^9\), if physical origins for malaise\(^8\) and head pain complaints\(^8\) have been ruled out

SPINE SURGERY COMPARISON GROUP FINDINGS
This section describes the MMPI-2-RF substantive scale findings in the context of the women of the Spine Surgery Candidate comparison group. Specific sources for each statement can be accessed with the annotation features of this report. Presurgical risk factors, postsurgical outcomes, and treatment recommendations associated with these results, if any, are provided in subsequent sections of this report.

The comparison group means reported on pages 2 through 6 of this report show that female spine surgery candidates score differently from the general MMPI 2-RF normative sample on several scales. Problems discussed earlier in the Substantive Scale Interpretation section are based on clinically elevated normative T scores of 65 and above. Potential difficulties identified in this section are based on scores that are unusually high in relation to the Spine Surgery Candidate (Women) comparison group, and thus may differ from those discussed earlier. If multiple risk factors are identified, the possibility of poor surgery results increases, but may be mitigated with psychological intervention.

The following interpretation needs to be considered in light of cautions noted about the possible impact of under-reporting (claiming a large number of unlikely virtues) on the validity of this protocol.

Somatic/Cognitive Complaints
The patient’s responses indicate a level of malaise reflecting a sensitivity to physical symptoms that may negatively affect surgical results\(^8\). This level of self-perceived physical debilitation and poor health is very uncommon in spine surgery candidates. Only 8.6% of comparison group members give evidence of this or a greater level of perceived poor health\(^8\).

Emotional/Internalizing Problems
The patient reports a comparatively high level of behavior-restricting fears for a spine surgery candidate. Only 15.4% of comparison group members convey this or a greater level of fears that inhibit normal behavior\(^8\).
Interpersonal Problems
The patient's responses indicate a level of family problems that may adversely impact surgical results. This level of family conflict, which may include feelings that family members cannot be counted on in times of need, is very uncommon among spine surgery candidates. Only 5.0% of comparison group members give evidence of this or a greater level of family problems.

PRESURGICAL PSYCHOLOGICAL RISK FACTORS

Psychological risk factors associated empirically with diminished surgical results are described in this section and organized according to nine problem domains identified in the professional literature as relevant to spine surgery outcomes. (Please see User's Guide for the MMPI-2-RF Spine Surgery Candidate Interpretive Report (Spine-CIR) and Spinal Cord Stimulator Candidate Interpretive Report (Stim-CIR) for details.) Specific sources for each statement can be accessed with the annotation features of this report.

The following interpretation needs to be considered in light of cautions noted about the possible impact of under-reporting (claiming a large number of unlikely virtues) on the validity of this protocol.

Demoralization and Depression Problems
Compared with other spine surgery candidates, the patient is more likely to have a low energy level and feel exhausted. She is also likely to have greater levels of self-perceived disability.

Pain and Somatic Sensitivity Problems
Compared with other spine surgery candidates, the patient is more likely to have a history of multiple somatic complaints, to convey a general sense of experiencing poor health, and to perceive herself as deserving and needing assistance from others. She is also likely to report greater functional disability associated with pain.

Pain Coping Problems
Compared with other spine surgery candidates, the patient is more likely to catastrophize when experiencing pain.

Health Orientation and Medical Adherence Problems
Compared with other spine surgery candidates, the patient is less likely to seek out information about health, to feel confident in obtaining information from the physician, to be able to continue with exercise/diet recommendations when under stress, and to be engaged in overall health maintenance and improvement.

Fear/Avoidance Problems
Compared with other spine surgery candidates, the patient is likely to express higher levels of fear and avoidance of work activities and of physical activities and to report more hours resting per day. She is also more likely to have been out of work for more than 2 months.
Interpersonal Problems
Compared with other spine surgery candidates, the patient is more likely to have had a chaotic or disrupted childhood and to report a history of abuse or abandonment.

Substance Abuse Problems
Compared with other spine surgery candidates, the patient is likely to be at increased risk for opioid abuse.

The candidate's scores are not associated with empirically identified risk factors in the following domains:
- Anxiety and Stress Problems
- Recovery Disincentive Problems

POSTSURGICAL OUTCOMES

The postsurgical outcome statements listed here are based on prospective empirical studies indicating that, relative to other candidates, this patient is at increased risk for these specific adverse outcomes. Inclusion of an adverse outcome does not imply that it will definitely occur, nor can other negative outcomes be definitively ruled out. Specific sources for each statement can be accessed with the annotation features of this report.

The following interpretation needs to be considered in light of cautions noted about the possible impact of under-reporting (claiming a large number of unlikely virtues) on the validity of this protocol.

Compared to other spine surgery candidates, post-surgery this patient is likely to:
- Report higher levels of pain
- Experience more negative affect and higher levels of psychological distress
- Be more likely to take Schedule II opioid medication
- Be less likely to return to work
- Have lower levels of satisfaction with the results of surgery
- Convey stronger feelings that surgical results did not meet expectations
- Report a more negative overall outcome

TREATMENT RECOMMENDATIONS

This section contains inferential treatment-focused recommendations specifically for spine surgery candidates, based on the patient's MMPI-2-RF scores. Sources for each statement can be accessed with the annotation features of this report.

The following interpretation needs to be considered in light of cautions noted about the possible impact of under-reporting (claiming a large number of unlikely virtues) on the validity of this protocol.
Recommendations Based on Elevated Somatic/Cognitive Dysfunction Scales
The patient is preoccupied with poor health and may feel fatigued and experience sleep disturbance and sexual dysfunction. Treatment techniques aimed at viewing spine surgery as a component of overall health improvement may be most effective. Structured techniques for behavioral change, such as weight loss, diet control, smoking cessation, sexual adaptation, and sleep hygiene, may help the patient achieve the best possible outcomes.

Recommendations Based on Elevated Interpersonal Functioning Scales
The patient reports problematic family relationships. Including significant others/family members in all treatment planning may help them understand her condition, so that they can provide reinforcement for pain reduction and improvements in functional gains.

ITEM-LEVEL INFORMATION

Unscorable Responses
Following is a list of items to which the patient did not provide scorable responses. Unanswered or double answered (both True and False) items are unscorable. The scales on which the items appear are in parentheses following the item content.

  99. Item Content Omitted. (VRIN-r, FBS-r, K-r, RC3)
  130. Item Content Omitted. (RCd)

Critical Responses
Seven MMPI-2-RF scales—Suicidal/Death Ideation (SUI), Helplessness/Hopelessness (HLP), Anxiety (AXY), Ideas of Persecution (OCP), Aberrant Experiences (RC8), Substance Abuse (SUB), and Aggression (AGG)—have been designated by the test authors as having critical item content that may require immediate attention and follow-up. Items answered by the individual in the keyed direction (True or False) on a critical scale are listed below if her T score on that scale is 65 or higher.

The patient has not produced an elevated T score (≥ 65) on any of these scales.

Items for Follow-up
This section contains a list of items to which the patient responded in a manner warranting follow-up. The items were identified by presurgical assessment experts as having critical content. Clinicians are encouraged to follow up on these statements with the patient by making related inquiries, rather than reciting the item(s) verbatim. Each item is followed by the patient's response, the percentage of the Spine Surgery Candidate (Women) comparison group members who gave this response, and the scale(s) on which the item appears.

  25. Item Content Omitted. (False; 79.2%; VRIN-r, EID, RC2, MLS)
  65. Item Content Omitted. (False; 18.6%; RC1)
Ms. H Step 1: Objective Risk Factors

- MMPI-2-RF factors
  - Scale Elevations
    - MLS, BRF, FML
- Presurgical RFs
  - Depression & Demoral
  - Pain Sensitivity
  - Pain Coping
  - Health Orientation
  - Fear Avoidance
  - Interpersonal
  - Substance Abuse

- Other factors
  - Chronic depression/
    anxiety
  - Very poor response to
    previous spine Sx
  - Sexual abuse history

Ms. H Step 2: RF Validation

- Depression & Demoralization: BDI = 37
- Pain Sensitivity: no pain behavior despite pain rating = 10
- Pain Coping: CSQ elevated Catastrophizing scale
- Health Orientation: Low PAM score
- Fear Avoidance: FABQ PA = 20, Work = 40
- Interpersonal: Poor support system, frequent arguments
- Substance Abuse: SOAPP-r = 18
Ms. H Step 3: Mitigation

- No mitigating factors determined

Ms. H Step 4: Data Integration

- Validated MMPI-2-RF risk factors
  - Demoralization, Pain Sensitivity, Pain Coping, Health Orientation, Fear avoidance, Interpersonal, Substance Abuse
- Over/Underreporting
  - None
- Mitigating Factors
  - None
- Additional Considerations
  - Extreme pain control difficulties after previous spine surgery
  - Chronic depression non-responsive to medication
- Since no mitigating factors, patient has high risk for poor outcome of spine surgery
Ms. H Step 5: Recommendations

- Discussion with Surgeon indicates surgery is primarily for pain relief, and delaying/avoiding surgery is OK.
- All medications through psychiatrist
- Opioid medication weaning
- Contact patient's psychologist to determine current treatments. Suggest pain self-management techniques as indicated in Spine-CIR
- Include husband in treatment, especially to minimize reinforcement of pain behavior

DISCUSSION

Questions? andrewblockpsych@gmail.com