Validation of the Juvenile Sexual Offender Recidivism Risk Assessment Tool – II (JSORRAT-II) in Iowa

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Goals/Purposes of the JSORRAT-II

- Provide empirically based estimates of risk of juvenile sexual recidivism to inform a range of decisions, such as:
  - Placement
  - Programming
  - Treatment intensity
  - Resource allocation

- Reflected our belief that treatment outcomes must be defined and assessed with greater precision and specificity before good measures of modified risk can be developed

Development of the JSORRAT-II

- Collaborative project with Utah Juvenile Justice Services (Dave Fowers & John Dewitt)
- Exhaustive cohort of 636 male JSOs in Utah
- Extensive case review of large number of potential predictors
- Hierarchical and sequential logistic regression analyses identified 12 variables that were optimally predictive of juvenile sexual recidivism
Development of the JSORRAT-II (cont.)


Final 12 Variables that Comprise the JSORRAT-II (See attached score sheet)

- Sex Offending History
  - Number of SO adjudications
  - Duration of sexual offending
  - Number of SO victims
- Offense characteristics
  - SO while under supervision
  - Felony-level SO in a public place
  - Use of deception, grooming, enticement
- Abuse history (as victim)
  - Number of hands-on sexual abuse events as victim (official report)
  - Number of physical abuse events as victim (official report)
- SO treatment history
  - Completion status of prior SO treatments

- Special education history
  - Placement in a special ed. program
- School discipline history
  - Number of educational periods with discipline problems (elementary, middle school, high school)
- Non-sexual offending behavior
  - Number of adjudications for non-sexual offenses
Examples of Simple Categorical Scoring

1. Number of SO adjudications

<table>
<thead>
<tr>
<th>Value</th>
<th>Score</th>
<th>Recidivism Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>0</td>
<td>6.2%</td>
</tr>
<tr>
<td>2</td>
<td>1</td>
<td>26.3%</td>
</tr>
<tr>
<td>3</td>
<td>2</td>
<td>35.1%</td>
</tr>
<tr>
<td>4+</td>
<td>3</td>
<td>41.4%</td>
</tr>
</tbody>
</table>

8. Number of officially documented hands-on, sexual abuse incidents in which the offender was the victim

<table>
<thead>
<tr>
<th>Value</th>
<th>Score</th>
<th>Recidivism Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>0</td>
<td>9.8%</td>
</tr>
<tr>
<td>1 – 4</td>
<td>1</td>
<td>26.0%</td>
</tr>
<tr>
<td>5+</td>
<td>2</td>
<td>46.2%</td>
</tr>
</tbody>
</table>
Performance of the Simplified Categorical Scoring Model

Area Under the ROC Curve = .89

Reliability of Student Coders

- Scored the same 16 cases selected by stratified (on expected score) random selection
- Singular ICC for absolute agreement was .96
Reliability of Evaluators

- Collaborative study with Michelle Gourley and colleagues
- Seven state evaluators who had attended a one-day training session
- Scored the same 17 cases (stratified random selection) over the next couple of weeks
- Singular ICC for absolute agreement was .91, which is excellent

Validation Studies

- Utah
  - completed for juvenile sexual recidivism but not for adult recidivism
- Iowa
  - completed for juvenile sexual recidivism but not for adult recidivism
- Georgia in progress
- Other states in preparation
Validation Studies (continued)

- Research methods in validation studies
  - Same file preparation and review as in the development study
  - Same training methods for coders, but using a coding grid instead of the old coding books
    - 12 JSORRAT-II variables plus about 30 research variables
    - 12 items were optimal in development study, but others may replicate better across samples

Utah Validation Study

- Nearly exhaustive sample of 494 male JSOs
  - adjudicated sexual offense in 1996 or 1997
  - between the ages of 11.00 and 16.99 years
  - Only real difference from development sample is temporal cohort
- Complete data sample of 406 JSOs having complete data for all 12 JSORRAT-II items
- Juvenile sexual recidivism base rates
  - 14.0% for full under age 17 sample (69/494)
  - 12.3% for complete data sample (50/406)
Utah Validation Study (continued)

- Areas under the ROC curves and 95% confidence intervals

<table>
<thead>
<tr>
<th>Sample</th>
<th>ROC</th>
<th>95% CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Full Sample (n=494)</td>
<td>.64</td>
<td>.57 to .71</td>
</tr>
<tr>
<td>Complete Data (n=408)</td>
<td>.66</td>
<td>.58 to .74</td>
</tr>
</tbody>
</table>

Predicted Probabilities: Total Sample (N = 494) and the Complete Data Sample (N = 408)
Optimal Risk Levels from Utah Validation Data

<table>
<thead>
<tr>
<th>Risk Level</th>
<th>Score Range</th>
<th>Recidivists/Non-Recid’s</th>
<th>Recidivism Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>0</td>
<td>1/56</td>
<td>1.8%</td>
</tr>
<tr>
<td>2</td>
<td>1-3</td>
<td>27/214</td>
<td>11.2%</td>
</tr>
<tr>
<td>3</td>
<td>4-7</td>
<td>25/108</td>
<td>18.8%</td>
</tr>
<tr>
<td>4</td>
<td>8+</td>
<td>16/47</td>
<td>25.4%</td>
</tr>
</tbody>
</table>

Iowa Validation Study

- Nearly exhaustive sample of 318 juveniles between 11 and 16.99
  - Adjudicated for a sexual offense on or after 1/1/2000 and turned 18 by March 2008
- Base rate for juvenile sexual recidivism was 7.2% (23/318)
- ROC-AUC = .65 (95% CI of .54 - .75)
# Time at Risk

<table>
<thead>
<tr>
<th></th>
<th>Total Sample</th>
<th>Recidivists</th>
<th>Non-Recidivists</th>
<th>Non-Recidivists Scoring 7+</th>
</tr>
</thead>
<tbody>
<tr>
<td>No Secure Placement</td>
<td>39.3%</td>
<td>30.4%</td>
<td>40.0%</td>
<td>23.1%</td>
</tr>
<tr>
<td>Secure Placement</td>
<td>60.7%</td>
<td>69.6%</td>
<td>60.0%</td>
<td>76.9%</td>
</tr>
<tr>
<td>&gt; 6 Months</td>
<td>44.3%</td>
<td>26.1%</td>
<td>45.8%</td>
<td>69.2%</td>
</tr>
<tr>
<td>&gt; 9 Months</td>
<td>39.9%</td>
<td>17.4%</td>
<td>41.7%</td>
<td>69.2%</td>
</tr>
<tr>
<td>&gt; 12 Months</td>
<td>34.6%</td>
<td>13.0%</td>
<td>36.3%</td>
<td>61.5%</td>
</tr>
<tr>
<td>&gt; 15 Months</td>
<td>27.4%</td>
<td>13.0%</td>
<td>28.5%</td>
<td>53.8%</td>
</tr>
<tr>
<td>&gt; 18 Months</td>
<td>25.2%</td>
<td>13.0%</td>
<td>26.1%</td>
<td>50.0%</td>
</tr>
</tbody>
</table>

## Predicted Probabilities by Score and Time at Risk

![Graph showing predicted probabilities by score and time at risk](chart.png)
### Iowa Predicted Probability of Sexual Recidivism (<17-year-old Sample)

<table>
<thead>
<tr>
<th>Score</th>
<th>Total Sample</th>
<th>12-Mo at Risk</th>
<th>18-Mo at Risk</th>
<th>24-Mo at Risk</th>
<th>Score</th>
<th>Total Sample</th>
<th>12-Mo at Risk</th>
<th>18-Mo at Risk</th>
<th>24-Mo at Risk</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>.039</td>
<td>.043</td>
<td>.045</td>
<td>.054</td>
<td>8</td>
<td>.142</td>
<td>.212</td>
<td>.278</td>
<td>.374</td>
</tr>
<tr>
<td>1</td>
<td>.046</td>
<td>.053</td>
<td>.058</td>
<td>.071</td>
<td>9</td>
<td>.165</td>
<td>.252</td>
<td>.334</td>
<td>.445</td>
</tr>
<tr>
<td>2</td>
<td>.054</td>
<td>.065</td>
<td>.074</td>
<td>.093</td>
<td>10</td>
<td>.191</td>
<td>.297</td>
<td>.395</td>
<td>.519</td>
</tr>
<tr>
<td>3</td>
<td>.064</td>
<td>.080</td>
<td>.094</td>
<td>.121</td>
<td>11</td>
<td>.220</td>
<td>.346</td>
<td>.459</td>
<td>.591</td>
</tr>
<tr>
<td>4</td>
<td>.076</td>
<td>.099</td>
<td>.119</td>
<td>.156</td>
<td>12</td>
<td>.252</td>
<td>.398</td>
<td>.525</td>
<td>.660</td>
</tr>
<tr>
<td>5</td>
<td>.089</td>
<td>.120</td>
<td>.149</td>
<td>.199</td>
<td>13</td>
<td>.287</td>
<td>.453</td>
<td>.590</td>
<td>.723</td>
</tr>
<tr>
<td>6</td>
<td>.104</td>
<td>.146</td>
<td>.186</td>
<td>.250</td>
<td>14</td>
<td>.324</td>
<td>.509</td>
<td>.651</td>
<td>.777</td>
</tr>
<tr>
<td>7</td>
<td>.122</td>
<td>.177</td>
<td>.229</td>
<td>.309</td>
<td>15</td>
<td>.360</td>
<td>.562</td>
<td>.724</td>
<td>.866</td>
</tr>
</tbody>
</table>

### Optimal Risk Categories from Iowa Data

<table>
<thead>
<tr>
<th>Risk Level</th>
<th>Score</th>
<th>Sexual Recidivism Rates</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>0-1</td>
<td>Total Sample: 0.0% 12-mo at Risk: 0.0% 18-mo at Risk: 0.0% 24-mo at Risk: 0.0%</td>
</tr>
<tr>
<td>2</td>
<td>2-6</td>
<td>Total Sample: 8.1% 12-mo at Risk: 10.1% 18-mo at Risk: 11.6% 24-mo at Risk: 14.8%</td>
</tr>
<tr>
<td>3</td>
<td>7+</td>
<td>Total Sample: 18.8% 12-mo at Risk: 30.0% 18-mo at Risk: 35.3% 24-mo at Risk: 46.2%</td>
</tr>
</tbody>
</table>
Summary

- JSORRAT-II has been successfully validated in two states
- Although the predictive validity was statistically significant in both studies, it was less accurate than in the development sample
- This suggests that there may have been considerable “capitalization on chance” in the development sample -- but

Additional Likely Contributors

- Given that both Utah samples are exhaustive samples of JSO’s that differ only temporally (1990-92 and 1996-97)
  AND
- Given the much lower number of prior sex offense charges & adjudications in the validation samples
  AND
- Given the dramatically lower recidivism rate for the Iowa sample (consistent with national trends)
Additional Likely Explanations (cont.)

- There may have been systemic changes between 1990-92 and 1996-97 and again between the mid-1990’s and early 2000’s in the way JSO’s were charged, adjudicated, and managed
- Discussions with Utah JJS officials confirms that beginning in about 1995 more minor offenses were charged and processed through the juvenile court
  - More first-time offenders with minor offenses and little history. More minor offenses as recidivating offenses

Additional Likely Explanations (cont.)

- In Iowa, there is a possibility of a decreased likelihood of adjudicating sex offenses as sex offenses because of the consequences of registration and community notification
- Risk management (i.e., supervision) and reduction (i.e., treatment) strategies may be working
Future Research

- Revisit Utah validation data to explore time at risk
- Perform additional analyses in both the Utah and the Iowa validation samples controlling for severity of index and recidivating offenses

Future Research (continued)

- Complete validation studies in other states
  - Will provide multiple data points and ability to look for patterns (e.g., are Utah and Iowa validation samples outliers or part of a larger pattern)
  - If part of a larger pattern, evaluate research items for possible substitution to increase accuracy across states
Future Research (continued)

- Collect and analyze adult recidivism for Utah and Iowa validation samples
- Continue to follow both Utah samples (development and validation samples) and the Iowa sample (n = 1540 for three samples combined) further into adulthood
- Examine temporal patterns in offending
- Further assess ability, if any, to predict sexual offending as adults

Use of the JSORRAT-II

- May be used experimentally to tentatively advise treatment and programming decisions
- May be used to advise forensic decisions in Utah and Iowa, as well as in Georgia and California where the tool is being validated concurrently with use
- Assessments expire at age 18
Use of the JSORRAT-II (continued)

- Use of the JSORRAT-II is free, but we ask that you request permission in an email that states your intended use
- Requests for scoring manuals and other materials and permission to use should be directed to Doug Epperson
- Questions may be directed to either of us
- Confidence in the accuracy and reliability of scores requires careful review of the scoring manual, training, and supervised scoring of practice cases