INTRODUCTION: SPJ AND RATIONALE FOR REVISING THE HCR-20
Violence

• Actual, attempted, or threatened physical harm that is deliberate and nonconsenting
  – includes violence against victims who cannot give full, informed consent
  – includes fear-inducing behavior, where threats may be implicit or directed at third parties
  – Excludes harm against animals
  – Excludes sanctioned acts within military, law enforcement, sports
Early Approaches

- Predictionist approach
- Passive, simple
- Two time points, A and B
- Constant risk
Problems with Early Research

• Impoverished predictor variables (Monahan & Steadman, 1994)
  – Too blunt; atheoretical

• Impoverished outcome variables
  – Over-reliance on single-source, official records
  – E.g., Mulvey, Shaw, & Lidz (1994)
    • Official records only: 12% recidivism
    • Include self-report and collateral information: 47% recidivism

How Have Things Changed?
Advances

• Empirical advances
  – Base rates are not negligible
  – Various complex predictors of violence exist
  – Risk and violence are complex and multifaceted
  – “Accurate” predictions are attainable

• Conceptual advances
  – Shift from prediction to risk assessment and management
  – Increased attention to “dynamic risk”
Contemporary Approaches

- Assessment/Management approach
- Active, complex
- Infinite time points
- Variable risk

$P \rightarrow V$

$Time \propto -1$

Life!
Prediction vs. Risk

• We don’t predict risk, we assess it
• *Prediction*
  – A definitive statement about a future behavior
  – Is incorrect if the behavior does not occur
• *Risk*
  – A state of potential
  – Need not materialize to be true
Purpose of Risk Assessment

• Public safety (civil rights)
• Guide to management and intervention
• Evaluatee rights (constitutional)
• Professionalism
Models of Decision-Making

• Need a method of decision-making that…
  – Promotes consistency between clinicians
  – Identifies outcomes of interest
  – Takes all relevant risk factors into account
  – Takes the individual patient into account
  – Can inform treatment, management, prevention
  – Can facilitate communication between parties
  – Is reviewable, accountable, or transparent
Risk Assessment “Families”

- Unstructured Clinical Judgment
- Structured Decision Making
- Actuarial Prediction
- Structured Professional Judgment (SPJ)
Violence Risk Appraisal Guide
(Harris, Rice, & Quinsey, 1993; Quinsey, Harris, Rice, & Cormier, 1998)

• Empirically developed, actuarial instrument
• Constructed in adult male patients assessed or treated at a maximum security psychiatric hospital (Penetanguishene, Ontario)
• Based on reviews of files from 1965 to 1980
• 12 items weighted according to ability to predict violence over 7 and 10 year follow-ups
• Total scores divided into 9 “bins,” with estimated $p$(violence) from 0% to 100%
VRAG Items

- PCL-R score
- Elem. school problems
- Personality disorder
- Age (—)
- Separated from parents under age 16
- Failure on prior conditional release

- Nonviolent offense history
- Never married
- Schizophrenia (—)
- Victim injury (—)
- Alcohol abuse
- Female victim (—)

Mult R = .44
\( p(\text{violence}) \)
Attempt at Replication
Douglas, Hart, Dempster, & Lyon (1999)

- 80 maximum security male forensic psychiatric patients in Western Canada
- Six months of consecutive releases in 1980s
- Violence was detected from official recidivism records over 10 years.
- Diagnoses were made on the basis of consensus assessments of two clinicians, based on DSM-III criteria (as per the VRAG).
- $R = .25$ (versus .44)
$p(\text{violence})$
VRAG (Actuarial) Caveats

- Precision estimates may not generalize
- Predictive properties may change by some unknown degree when used in different contexts (unknown being the problem)
- High-end estimates based on small $N$
- What if the follow-up period of concern is not 7 or 10 years?
- What if the sample is not “forensic”?
- What about other variables?
The Dow Jones' 15-minute crash

6 May 2010

14:47

All times are in EDT
Source: Bloomberg
STRUCTURED PROFESSIONAL JUDGMENT (SPJ)
SPJ: A Model of Risk Assessment

• Relies on clinical expertise within a structured application
• Logical (not empirical) selection of risk factors
  • Review of scientific literature (empirically-based)
  • Not sample-specific (enhances generalizability)
  • Comprehensive
• Operational definitions of risk factors
  • Explicit coding procedures
  • Promotes reliability
SPJ

• Allowance for idiographic risk factors
  • Facilitates flexibility and case-specific considerations

• Relevance to management and prevention
  • Risk decisions are tied directly to risk reduction strategies

• Reflects current themes in the field
  • Risk is (1) ongoing, (2) dynamic, (3) requires re-assessment
Common Aspects of SPJ Measures

• Professional guidelines
• Multi-sectioned manuals, focusing on …
  – Review / history of topic and research
  – General points for conducting risk assessments
  – Risk factors to consider
  – How to make and communicate decisions
Assessment

- Identification of static and dynamic risk factors
- Individual manifestation and relevance
- Low, moderate, high risk
- Intensity of management
- Specification of interventions, derived from risk factors

Communication

- Application of management and treatment interventions

Management & Treatment

SPJ Approach

Repeat as Necessary
Risk Communication

• The bridge between assessment and management

• Why low, moderate, and high?
  – Clinician preference
  – Less susceptible to bias than frequencies or probabilities
  – No false precision (but has fuzzy clarity)
Goals of Communication

- Compels action
- Facilitates action
- Specifies action
- Common discourse
- Record of decision-making
A Caveat:

Despite the disclaimer about the dangers of a purely actuarial (statistical) approach, we still need statistics to evaluate and guide SPJ instruments!
Use statistics wisely!

21% of the boys and 30% of the girls support me; therefore I'll get 51% of the vote.
Update
(studies as of 2012 reporting predictive validity)

<table>
<thead>
<tr>
<th>Category</th>
<th>Samples</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>Forensic Psychiatric</td>
<td>55</td>
<td>7,993</td>
</tr>
<tr>
<td>Correctional</td>
<td>24</td>
<td>9,105*</td>
</tr>
<tr>
<td>Civil Psychiatric</td>
<td>6</td>
<td>686</td>
</tr>
<tr>
<td>Mixed/Other Samples</td>
<td>11</td>
<td>1,103</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>95</td>
<td>18,887</td>
</tr>
</tbody>
</table>

*One unpublished correctional data set contains 4,854 lifers
HCR-20 Research

- 200 Disseminations
- 150 Data Sets
- 35 Countries
- 20 Translations
- Most Common
  - Singh (2013)
Research Topics

- Dynamic Risk
- Risk Ratings
- Risk Factors
- Reliability and Concurrent Validity
(Guy, Douglas, Hart, & Edens, in prep)

• Meta-analysis of 166 independent SPJ studies
  – 172 disseminations, 2903 effect sizes, $N = 26,903$
• Evaluated…
  – SPJ numeric scores versus summary risk ratings
  – SPJ vs actuarial tools (44 studies)
  – Numerous moderators
  – Measure-specific performance
# HCR-20: Average AUCs

<table>
<thead>
<tr>
<th>Outcome</th>
<th>Numeric Score</th>
<th>Summary Risk Ratings (L,M,H)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Any Antisocial</td>
<td>.70 (k=96)</td>
<td>.71 (k=23)</td>
</tr>
<tr>
<td>Any Violence</td>
<td>.70 (k=71)</td>
<td>.74 (k=21)</td>
</tr>
</tbody>
</table>
HCR-20 Summary Risk Rating

- HCR-20 SRR (L, M, H) and Violence
- 20 samples (N = 2,079)

\[ \text{Mdn}_{\text{AUC}} = .78 \]

(0.55, 0.56, 0.63, 0.64, 0.65, 0.69, 0.7, 0.7, 0.77, 0.78, 0.78, 0.79, 0.79, 0.8, 0.81, 0.83, 0.85, 0.86, 0.89, 0.91)
Heilbrun et al. (2010)

“…five studies have assessed whether the SPJ “final judgment” adds incremental predictive accuracy to the use of the tool elements combined in an actuarial fashion. In all five (de Vogel et al., 2006; Douglas et al., 2003, 2005; Enebrink et al., 2006; Kropp & Hart, 2000), such incremental validity was observed.”
SPJ SRR vs. SPJ Total Score

- SRR demonstrates incremental predictive accuracy over the actuarial use of the SPJ tool
  - Kropp & Hart, 2000 (SARA)
  - Douglas, Ogloff, & Hart, 2003 (HCR-20)
  - de Vogel, de Ruiter, Hildebrand, Bos, & van de Ven, 2004 (HCR-20)
  - Fujii, Lichton, & Tokioka, 2004 (HCR-20)
  - de Vogel & de Ruiter, 2006 (HCR-20)
  - Douglas, Yeomans, & Boer, 2005 (HCR-20)
  - Enebrink, Langstrom, & Gumpert, 2006 (EARL-20B)
- Cf: Vincent, Chapman, & Cook, 2011 (SAVRY)
Forensic Psychiatric, Community
Douglas, Ogloff, & Hart (2003), *Psychiatric Services*

• **Research questions**
  – Reliability and validity of *structured clinical risk ratings*

• **Method**
  – 100 forensic psychiatric (NCRMD) patients released from maximum security institution
  – Overlapped coding on half of patients \( n=50 \) to permit interrater reliability analyses
  – Violence measured through criminal records and records of re-admission to forensic hospital
Reliability of Final Risk Judgments

- N=50 (x2)
- ICC$_1$=.61
- ICC$_2$=.76
- “Good”
- 0% Category Errors

<table>
<thead>
<tr>
<th></th>
<th>Low</th>
<th>Med</th>
<th>High</th>
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<tbody>
<tr>
<td>Low</td>
<td>9</td>
<td>4</td>
<td>0</td>
</tr>
<tr>
<td>Med</td>
<td>2</td>
<td>23</td>
<td>4</td>
</tr>
<tr>
<td>High</td>
<td>0</td>
<td>5</td>
<td>3</td>
</tr>
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Total Errors: 50
### Reliability of Final Risk Judgments

- **N=50 (x2)**
- **ICC$_1$=.61**
- **ICC$_2$=.76**
- **“Good”**
- **0% Category Errors**

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<th>Total</th>
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</thead>
<tbody>
<tr>
<td>Low</td>
<td>9</td>
<td>4</td>
<td>0</td>
<td>13</td>
</tr>
<tr>
<td>Med</td>
<td>2</td>
<td>23</td>
<td>4</td>
<td>29</td>
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<tr>
<td>High</td>
<td>0</td>
<td>5</td>
<td>3</td>
<td>8</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>11</td>
<td>32</td>
<td>7</td>
<td>50</td>
</tr>
</tbody>
</table>
Validity: Frequency of Violence Across Risk Judgments

<table>
<thead>
<tr>
<th>Risk Level</th>
<th>Any</th>
<th>Phys.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low ((n=23))</td>
<td>2 (9%)</td>
<td>1 (4%)</td>
</tr>
<tr>
<td>Mod ((n=64))</td>
<td>12 (19%)</td>
<td>7 (11%)</td>
</tr>
<tr>
<td>High ((n=13))</td>
<td>8 (62%)</td>
<td>7 (54%)</td>
</tr>
</tbody>
</table>

Base rates 22% 15%

\(N=100\)

*Douglas, Ogloff, & Hart (2003)*
SPJ vs Actuarial
(Hierarchical Cox proportional hazard analysis)

- Physical violence
- H, C, and R scales entered 1st
  - $\chi^2 = 9.9, p < .05$
- HCR-20 clinical judgments (L, M, H) entered 2nd
  - Significant model improvement ($\Delta \chi^2 = 9.8, p < .01$)
  - Overall model $\chi^2 = 20.07, p < .0001$
  - Only the clinical judgments remain significant
    - $e^B = 9.44, p < .003$
Why do the Judgments Compete with Numeric (Actuarial) Prediction?

• Idiographic optimization of nomothetic data?
• Configural relations & pattern recognition?
• Individual “theorizing?”
• SPJ allows additional information
• Optimal structure-discretion function?

“Mental health professionals can make reliable and valid judgments if they are careful about the information they use … and if they are careful in how they make judgments…”

Garb (2003)
WHY REVISE THE HCR-20?

Things change
2500 studies published on violence since Version 2 was released in 1997
Conceptual developments in risk assessment
We learned a lot about how the HCR-20 could be better