Does Change in Hostility Predict Sexual Recidivism?

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Hostility and sex offending
- Negative evaluations and feelings towards people
- Perception of others as antagonistic and threatening
- Multifactor theories of sexual aggression
  (e.g., Hall & Hirschman, 1991)
- Distinguishes SOs from NSOs and NOs
  (Whitaker et al., 2008)
- Predicts sexual, violent, and general recidivism among SOs
  (Hanson & Morton-Bourgon, 2005; Hanson et al., 2007)

Treatment Change in Hostility and Recidivism
- Hostility as a dynamic risk factor
- Findings of treatment change studies are equivocal
  (Beggs & Grace, 2011; Wakeling & Barnett, 2011)
- Difference scores
  - Post- minus pre-treatment scores
  - Controlling for pre-treatment scores
    (Beggs & Grace, 2011)
- Clinical Significance
  - Has client reached a target level of functioning?
  - Is the amount of change larger than what would be expected by chance alone?

Controlling for pre-treatment scores

<table>
<thead>
<tr>
<th></th>
<th>Pre-treatment</th>
<th>Post-treatment</th>
</tr>
</thead>
<tbody>
<tr>
<td>BOB</td>
<td>450 lbs</td>
<td>410 lbs</td>
</tr>
<tr>
<td>TED</td>
<td>200 lbs</td>
<td>160 lbs</td>
</tr>
</tbody>
</table>

Functional vs. dysfunctional

Pre-treatment
- BOB: 450 lbs
- TED: 200 lbs

Post-treatment
- BOB: 410 lbs
- TED: 160 lbs

PURPOSE
- The goal of the current study was to examine whether clinically significant change in hostility over the course of treatment predicts sexual recidivism.
  - Post- treatment scores
  - Simple difference scores
  - Clinically significant change
PARTICIPANTS

- N = 120
  - 94 non-recidivists
  - 26 recidivists
- Treated at Regional Treatment Centre Sex Offender Treatment Program (RTCSOTP) in Ontario, Canada from 1996 to 2010
- Average follow-up time (years) = 7.82 (3.63)
- Mixed sample
  - Sex offenders against children (51.7%)
  - Sex offenders against adults (42.5%)
  - Sex offenders with adult and child victims (5.8%)

MEASURES

- The Buss-Durkee Hostility Inventory (BDHI; Buss & Durkee, 1957)
  - Self-report measure (66 bipolar items)
  - Seven subscales: Assault, Indirect hostility, Irritability, Negativism, Resentment, Suspicion, Verbal hostility
- Sexual recidivism
  - Any post-release conviction
    - Sexual offence(s)
    - Sexually motivated offences

CLINICALLY SIGNIFICANT CHANGE

- How do we determine a (dys)functional level of hostility?
  - What score on our measure is considered (dys)functional?
    - Determine a cutoff score for (dys)functional
      - Cutoff scores only as good as the norms they are based on
        - META-ANALYSES OF NORMS

STEP 1: COLLECT NORMS

- Search for norms
  - PsycINFO, Pubmed, and Web of Science,
    - Reference lists
  - Published articles
    - Means, standard deviations, or internal consistency estimates
    - BDHI subscale(s) and/or total score
  - Search terminated in January 2013

STEP 1.1: SELECT CUTOFF

- What cutoff (functional vs. dysfunctional) should we use?
  - Dependent on client group and availability of norms
    - Cutoff A: Dysfunctional mean minus 2 standard deviations
      - Clients expected to be dysfunctional at pre-treatment
    - Cutoff B: Functional mean plus 2 standard deviations
      - 1 SD in current study
      - Clients vary on area/extent of dysfunction at pre-treatment
    - Cutoff C: midpoint of functional and dysfunctional means

STEP 1.2: EXCLUSION CRITERIA

- Samples wherein an appreciable portion of cases may be dysfunctional
  - Inpatients with PDs associated with hostility (e.g., BPD)
  - Chronic alcohol/substance abusers
  - Violent offenders
  - Samples from (possibly) incomparable populations
    - Children/youth
    - Women
STEP 1.3: DEFINE RELIABLE CHANGE

- How do we determine what amount of change is reliable?
  - Highly reliable measures
    - Small changes may be meaningful
  - Less reliable measures
    - Relatively large changes may be required
- Reliability norms
  - Meta-analysis of internal consistency coefficients

STEP 1.4: CONDUCT META-ANALYSIS

- Meta-analyses of means and standard deviations
  - Comprehensive meta-analysis program (CMA)
    - Means (random-effects model)
    - Standard deviations (fixed-effects model)
  - Meta-analyses of internal consistency coefficients
    - Rodriguez and Maeda (2006) formulae and SPSS syntax (fixed-effects meta-analysis)

STEP 2: CALCULATE RELIABLE CHANGE

\[ RCI = \frac{M_2 - M_1}{S_{diff}} \]

\[ S_{diff} = \sqrt{2(S_E)^2} \]

\[ S_E = S_1 \sqrt{1 - r_{xx}} \]

- \( M_2 \) = post-treatment score, \( M_1 \) = pre-treatment score
- \( S_{diff} \) = standard error of difference between \( M_2 \) and \( M_1 \)
- \( S_E \) = standard error of measurement
- \( r_{xx} \) = reliability (meta-analyzed internal consistency)
- \( S_1 \) = standard deviation for functional group

STEP 3: DEFINE CHANGE GROUPS

<table>
<thead>
<tr>
<th>Change Group</th>
<th>Pre-treatment</th>
<th>Post-treatment</th>
<th>Reliable change?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Recovered</td>
<td>Dysfunctional</td>
<td>Functional</td>
<td>yes</td>
</tr>
<tr>
<td>Improved</td>
<td>Dysfunctional</td>
<td>Functional</td>
<td>yes</td>
</tr>
<tr>
<td>Unchanged</td>
<td>Dysfunctional</td>
<td>Functional</td>
<td>no</td>
</tr>
<tr>
<td>Deteriorated</td>
<td>Dysfunctional</td>
<td>Functional</td>
<td>yes</td>
</tr>
</tbody>
</table>

RESULTS

PRE, POST, AND SIMPLE DIFFERENCE SCORES

- Pre-treatment total scores
  - \( d = 0.32 \), 95% CI [-0.11, 0.76]
- Post-treatment total scores
  - \( d = 0.36 \), 95% CI [-0.08, 0.79]
  - Assault
    - \( d = 0.48^* \), 95% CI [0.04, 0.92]
  - Verbal Hostility
    - \( d = 0.54^* \), 95% CI [0.10, 0.98]
  - Simple difference total (and subscale scores)
    - \( d = 0.06 \), 95% CI [-0.37, 0.50]

TREATMENT NEEDS AND CHANGE
FUNCTIONAL VS. DYSFUNCTIONAL

- Functional vs. dysfunctional on BDHI total scores at pre- and post-treatment and sexual recidivism

<table>
<thead>
<tr>
<th></th>
<th>Functional</th>
<th>Dysfunctional</th>
<th>OR [95% CI]</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre-treatment</td>
<td>20.0%</td>
<td>26.7%</td>
<td>1.46 [0.56, 3.80]</td>
</tr>
<tr>
<td>Post-treatment</td>
<td>20.2%</td>
<td>25.8%</td>
<td>1.37 [0.53, 3.57]</td>
</tr>
</tbody>
</table>

- Functional vs. dysfunctional on BDHI subscale scores pre-and post-treatment did not significantly predict sexual recidivism

CLINICALLY SIGNIFICANT CHANGE

- Improved/recovered vs. unchanged/deteriorated on BDHI total scores and sexual recidivism (N = 120)

<table>
<thead>
<tr>
<th></th>
<th>Post-treatment</th>
<th>OR [95% CI]</th>
</tr>
</thead>
<tbody>
<tr>
<td>Improved/Recovered</td>
<td>57.1% (47)</td>
<td>4.50 [0.78, 26.13]</td>
</tr>
<tr>
<td>Unchanged</td>
<td>0.0% (0/1)</td>
<td>[0.00, 1.00]</td>
</tr>
</tbody>
</table>

- Improved/recovered vs. unchanged/deteriorated on BDHI subscale scores did not predict sexual recidivism (N = 120)

CLINICALLY SIGNIFICANT CHANGE

- Improved vs. unchanged/deteriorated on BDHI total scores and sexual recidivism among offenders with functional pre-treatment scores (n = 90)

<table>
<thead>
<tr>
<th></th>
<th>OR [95% CI]</th>
</tr>
</thead>
<tbody>
<tr>
<td>Improved</td>
<td>1.18 [0.34, 4.15]</td>
</tr>
<tr>
<td>Unchanged/deteriorated</td>
<td>0.34* [0.04, 1.29]</td>
</tr>
</tbody>
</table>

- The same pattern of results emerged with subscales

CLINICALLY SIGNIFICANT CHANGE

- Positive change vs. negative change vs. no change and sexual recidivism (N = 120)

<table>
<thead>
<tr>
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</thead>
<tbody>
<tr>
<td>Recovered/improved vs. unchanged</td>
<td>0.34* [0.12, 0.99]</td>
</tr>
<tr>
<td>Improved vs. deteriorated</td>
<td>0.56 [0.16, 1.94]</td>
</tr>
<tr>
<td>Unchanged vs. deteriorated</td>
<td>0.19* [0.06, 0.59]</td>
</tr>
</tbody>
</table>

* p < .05

- The same pattern of results emerged with subscales
CLINICALLY SIGNIFICANT CHANGE

- Positive change vs. negative change vs. no change and sexual recidivism among offenders with functional pre-treatment scores (n = 90)

<table>
<thead>
<tr>
<th>Post-treatment</th>
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</thead>
<tbody>
<tr>
<td>Improved vs. Unchanged</td>
<td>2.29 [0.57, 9.25]</td>
</tr>
<tr>
<td>Improved vs. deteriorated</td>
<td>0.36 [0.08, 1.52]</td>
</tr>
<tr>
<td>Unchanged vs. deteriorated</td>
<td>6.40*[1.82, 22.54]</td>
</tr>
</tbody>
</table>

* p < .05

- The same pattern of results emerged with subscales

DISCUSSION AND LIMITATIONS

- No untreated control group
- Few offenders with dysfunctional pre-treatment scores
  - Results of clinical significance analyses for offenders with functional pre-treatment scores
  - Are lower scores always better?

"When someone doesn’t treat me right, I don’t let it annoy me"

- Cutoff scores
- Differential relevance of BDHI subscales
- Sex offender subtypes

SUMMARY

- The purpose of current study was to examine whether hostility and change in hostility predicted sexual recidivism
- Partial support for relevance of hostility to sexual recidivism
- Post-treatment: Assault and Verbal hostility
- Effect sizes vs. statistical significance
  - Recidivists more likely to have dysfunctional scores
  - Functional pre- + post-treatment = lower recidivism
- Treatment gains on hostility did not lead to lower recidivism
  - Functional pre-treatment + treatment gain = increased recidivism

FUTURE DIRECTIONS

- Current study highlights the utility of clinical significance to assessment of treatment change among sex offenders
- Treatment gains in larger sample of dysfunctional offenders
  - Deterioration + remain functional vs. become dysfunctional
  - “Relapse” group?
- Subtypes of sex offenders
- Practical utility of BDHI and similar measures for assessment of treatment change and risk of recidivism

META-ANALYSIS OF FUNCTIONAL NORMS

<table>
<thead>
<tr>
<th>BDHI Scale</th>
<th>Functional means and standard deviations</th>
<th>Internal consistency</th>
<th>Cutoff B*</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>k</td>
<td>M</td>
<td>SDb</td>
</tr>
<tr>
<td>Total</td>
<td>13</td>
<td>28.7</td>
<td>8.41</td>
</tr>
<tr>
<td>Assault</td>
<td>11</td>
<td>4.20</td>
<td>2.12</td>
</tr>
<tr>
<td>Indirect hostility</td>
<td>11</td>
<td>4.08</td>
<td>1.56</td>
</tr>
<tr>
<td>Irritability</td>
<td>11</td>
<td>4.81</td>
<td>1.11</td>
</tr>
<tr>
<td>Negativism</td>
<td>11</td>
<td>2.47</td>
<td>2.12</td>
</tr>
<tr>
<td>Resentment</td>
<td>11</td>
<td>2.65</td>
<td>1.34</td>
</tr>
<tr>
<td>Suspicion</td>
<td>11</td>
<td>3.48</td>
<td>1.92</td>
</tr>
<tr>
<td>Verbal hostility</td>
<td>11</td>
<td>6.25</td>
<td>2.18</td>
</tr>
</tbody>
</table>

* Random effects. b Fixed effects. c Functional mean + 1 SD

Acknowledgements

Correctional Services of Canada
Thank you
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Questions?
More about our research
Aggressive Cognition and Behaviour Research Lab
http://www.carleton.ca/acbrlab/

Presentation reference