



The Stability of Recidivism for Static-2002 Risk Categories

Leslie Helmus

R. Karl Hanson

David Thornton

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Static-2002

- Empirically derived actuarial risk assessment tool designed to predict sexual recidivism
- Easily scored from commonly available criminal history information
- Can be used by psychologists, parole/probation officers, treatment providers, police officers, etc..
- Appropriate for adult male sexual offenders



Goals of Static-2002

- 1) Increase coherence and conceptual clarity
 - Static-99 is atheoretical, part of dustbowl empiricism

- 2) Improve consistency of scoring criteria
 - E.g., convictions, charges, sentencing occasion

- 3) Reduce counter-intuitive scorings
 - Static-99 has possibility of lower score upon recidivism

- 4) Increase predictive accuracy
 - More items, altered definitions



Static-2002

- 14 items grouped in 5 conceptual categories
- Scores range from 0-14
 - Low risk (0-2); low-moderate (3-4); moderate (5-6); moderate-high (7-8); and 9+ is high risk
- 4 items are same as Static-99 with same coding rules
- 4 items are same with modified coding rules
- 6 new items
- 2 items deleted: single, and index non-sexual violence



Static-2002 Items (grouped by categories)

- 1) **Age**
 - Age
- 2) **Persistence of Sexual Offending**
 - Prior sex offences, Juvenile arrest for sex offence, High rate of sex offending
- 3) **Sexual Deviance**
 - Non-contact convictions, male victims, 2+ victims under 12 at least one of whom is unrelated
- 4) **Relationship to Victim**
 - Unrelated victim, Stranger victim
- 5) **General Criminality**
 - Any prior involvement in CJS, Prior sentencing occasions, Breach of conditional release, 4 years free prior to index, Prior non-sexual violence



Goal of this Presentation

- Review/update our research validating Static-2002 and comparing it to Static-99
- Explore variability in predictive accuracy
- What are the best recidivism estimates for Static-2002?



Methods

- 8 samples
 - 7 from Helmus (2007) with some modifications, 1 new sample (Denmark)
- Datasets cleaned and merged. Cases deleted if:
 - No follow-up info (e.g., offender not released)
 - More than one Static-2002 item missing
 - ANY item on Static-99 missing (except Item 2: Single)
 - Illogical Static-99/Static-2002 codings



8 Samples ($N = 3,034$)

- CSC: B.C. (Boer, 2003; $n = 299$)
- CSC: Quebec (Bigras, 2007; $n = 487$)
- CSC: Warkworth (Langton et al., 2007; $n = 354$)
- CSC: Detained (Haag, 2005; $n = 198$)



8 Samples continued

- Bridgewater: MTC (Knight & Thornton, 2007; $n = 485$)
- Denmark: Psychiatric (Bengtson, 2008; $n = 311$)
- Canada: DSP (Hanson et al., 2007; $n = 702$)
- U.K. Multi-Site Treatment (Harkins & Beech, 2007; $n = 198$)



Descriptive Information

- All samples had both rapists and child molesters (overall split 38% and 51%)
- Total missing information: 1.8% of cases had one item missing on either Static-99 or Static-2002
- Average age = 39 ($SD = 12$)



Descriptive Information

- Average follow-up: Ranged 3.4 – 14.8 years ($M = 7.5$)
- 4 samples used convictions as outcome; 4 used charges
- Overall recidivism rates
 - 15.2% sexual (8 samples)
 - 25.6% violent, including sexual (7 samples)
 - 39.7% any recidivism (7 samples)



ROC Meta-Analysis Results

	Sexual Recidivism*	Violent Recidivism*	Any Recidivism*
Static-99	.66	.66	.66
Static-2002	.68	.70	.71

* Differences Significant ($p < .05$)



ROC Meta-Analysis Results: Significant Variability

- Static-99 and Static-2002 showed significant variability in predictive accuracy across samples for all three outcomes
- What gives?
 - Restriction of range in Static-2002 scores across samples?
 - Other variables moderating predictive accuracy?



Another Perspective: Logistic Regression

- Stability of logistic regression coefficients
- B_0 : proxy for recidivism base rate
- B_1 : proxy for predictive accuracy
- Requires fixed follow-up periods
 - Total $n = 1,923$ for fixed 5-year sexual ($k = 8$)
 - Total $n = 1,132$ for fixed 10-year sexual ($k = 5$)
 - Total $n = 1,732$ for fixed 5-year violent ($k = 7$)
 - Total $n = 1,142$ for fixed 10-year violent ($k = 5$)



Logistic Regression Meta-Analysis

	<i>k</i>	<i>n</i> recid	Total <i>N</i>
Sexual: 5 year	7	282	1,892
Sexual: 10 year	4	236	1,085
Violent: 5 year	6	414	1,701
Violent: 10 year	5	392	1,142
Any: 5 year	6	663	1,704
Any: 5 year	5	586	1,149



Logistic Regression Meta-Analysis

	B_0	Q	B_1	Q
Sexual: 5 yr	-3.14	17.62**	.255	5.69
Sexual: 10 yr	-2.59	12.62**	.237	4.45
Violent: 5 yr	-2.67	11.08*	.270	4.45
Violent: 10 yr	-2.27	12.73*	.281	8.74
Any: 5 yr	-2.21	11.39*	.316	11.75*
Any: 10 yr	-1.67	17.78**	.310	15.33**



Next Step: Cox Regression

- Explore potential variables moderating predictive accuracy and recidivism base rates
- Advantage: uses survival data (not fixed follow-ups), so complete sample included in analyses



Cox Regression Results: Sample Type

- Sample Type:
 - Pre-selected high risk: $n = 994$ (Bridgewater, Denmark Psychiatric, CSC Detained)
 - Routine CSC cases: $n = 1,140$ (B.C., Quebec, Warkworth)
- After controlling for Static-2002, routine CSC samples had significantly lower sexual ($\text{Exp}(B) = .438$) and violent recidivism ($\text{Exp}(B) = .713$)
- Static-2002 and sample-type interaction for all 3 outcomes: greater predictive accuracy in CSC samples



Cox Regression Results: Offender Type

- Rapists ($n = 835$) versus Child Molesters ($n = 1,025$; $k = 5$)
- After controlling for Static-2002 score, child molesters had significantly lower sexual ($\text{Exp}(B) = .752$), violent ($\text{Exp}(B) = .548$), and any recidivism rates ($\text{Exp}(B) = .538$)
- No interactions



Given these findings, what are the best recidivism estimates to use?



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Recidivism Estimates: Methods

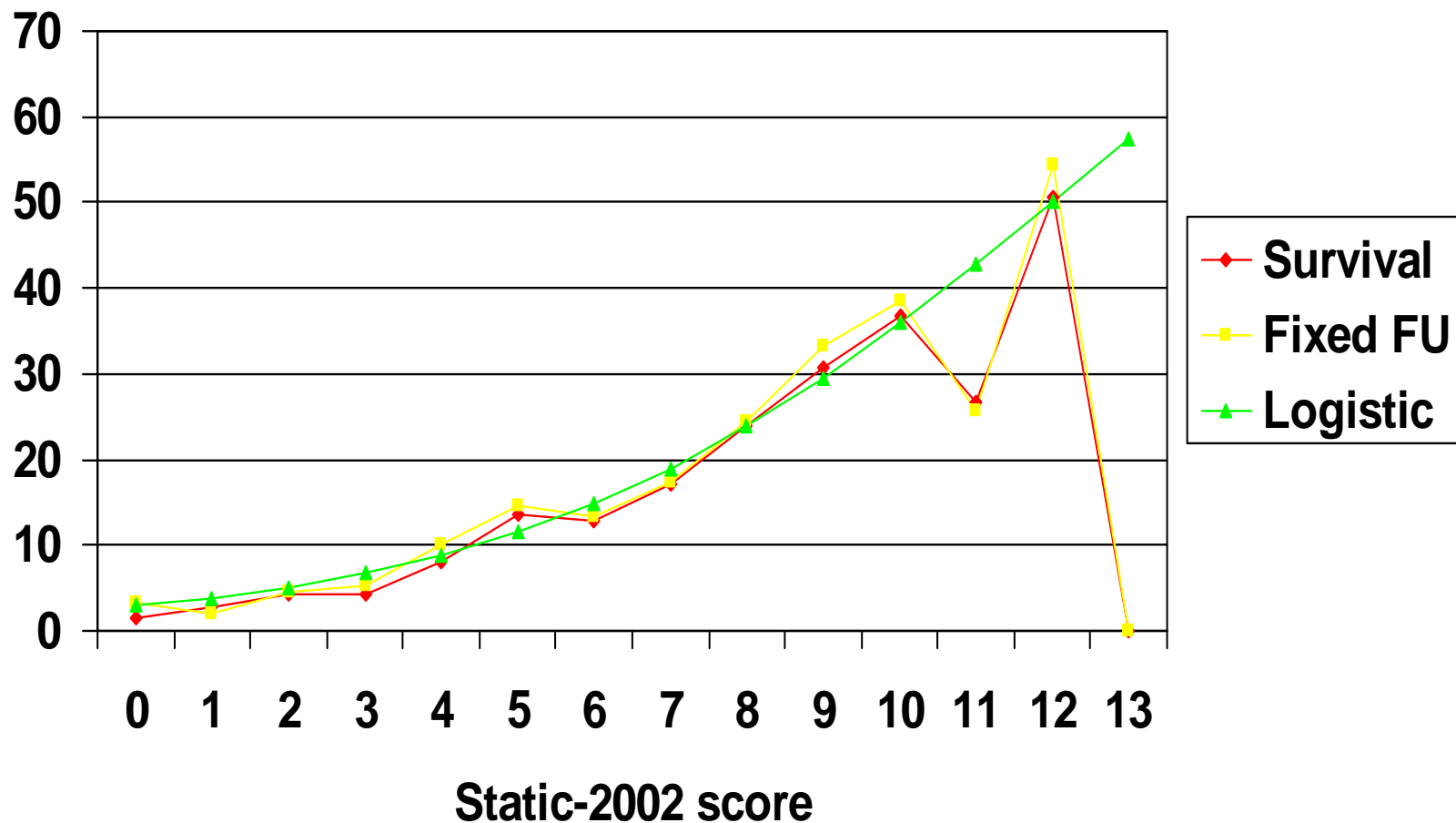
- 1) Survival analysis (original Static-99 norms)
 - Random fluctuations (e.g., 10 and 15 year sex recid rates for Static-99 scores of 0 and 1)
 - Only use offenders with specific score - noisy and with small sample sizes (scores of 6+ on Static-99)

- 2) Observed rates for fixed follow-ups
 - Same problems as above, & much reduced sample size

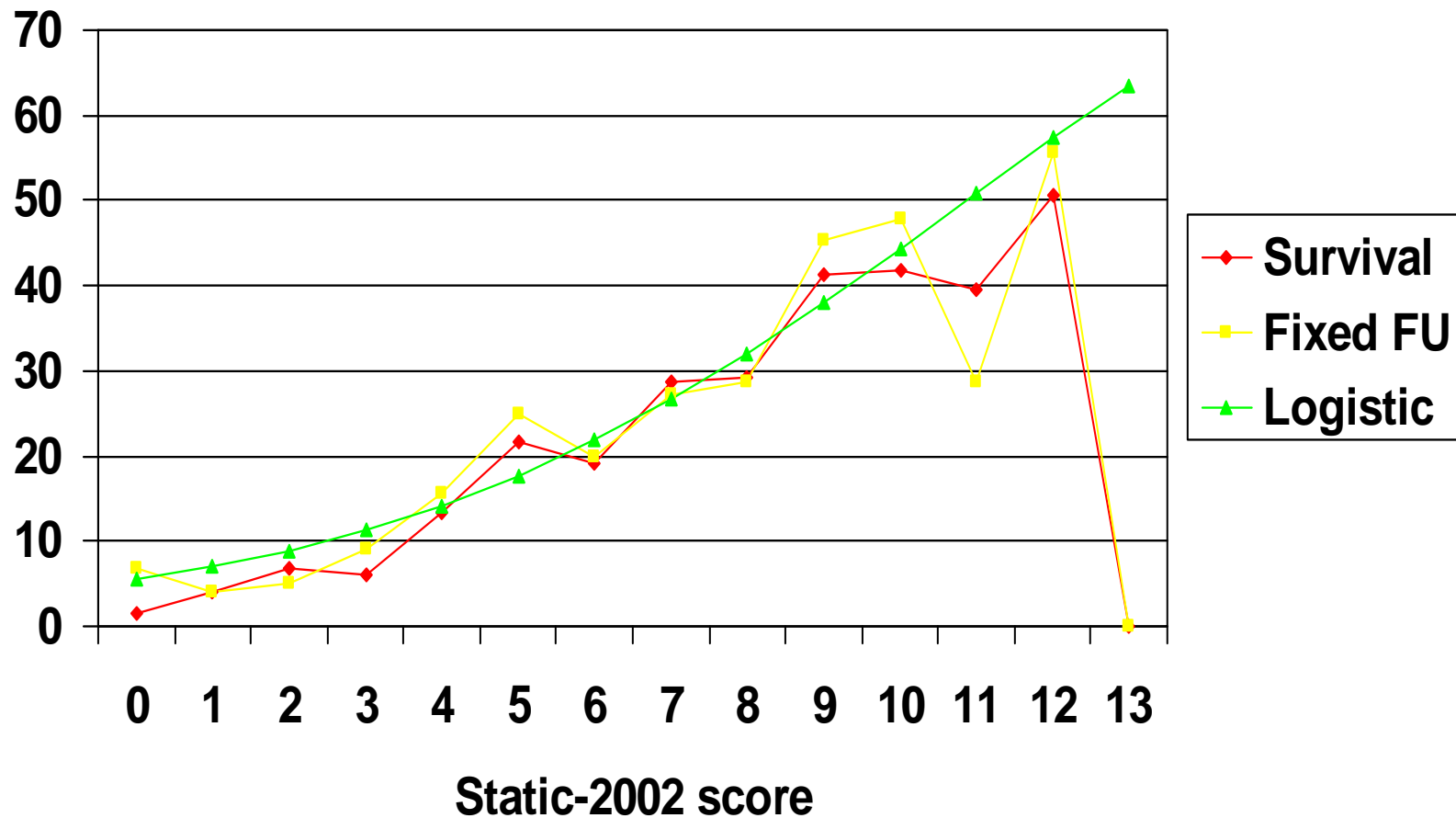
- 3) Predicted values from fitted logistic regression curves (**preferred option**)
 - Reduced overall sample size, requires logistic distribution
 - Corrects random fluctuations by using B1 (the whole dataset) to smooth the estimates



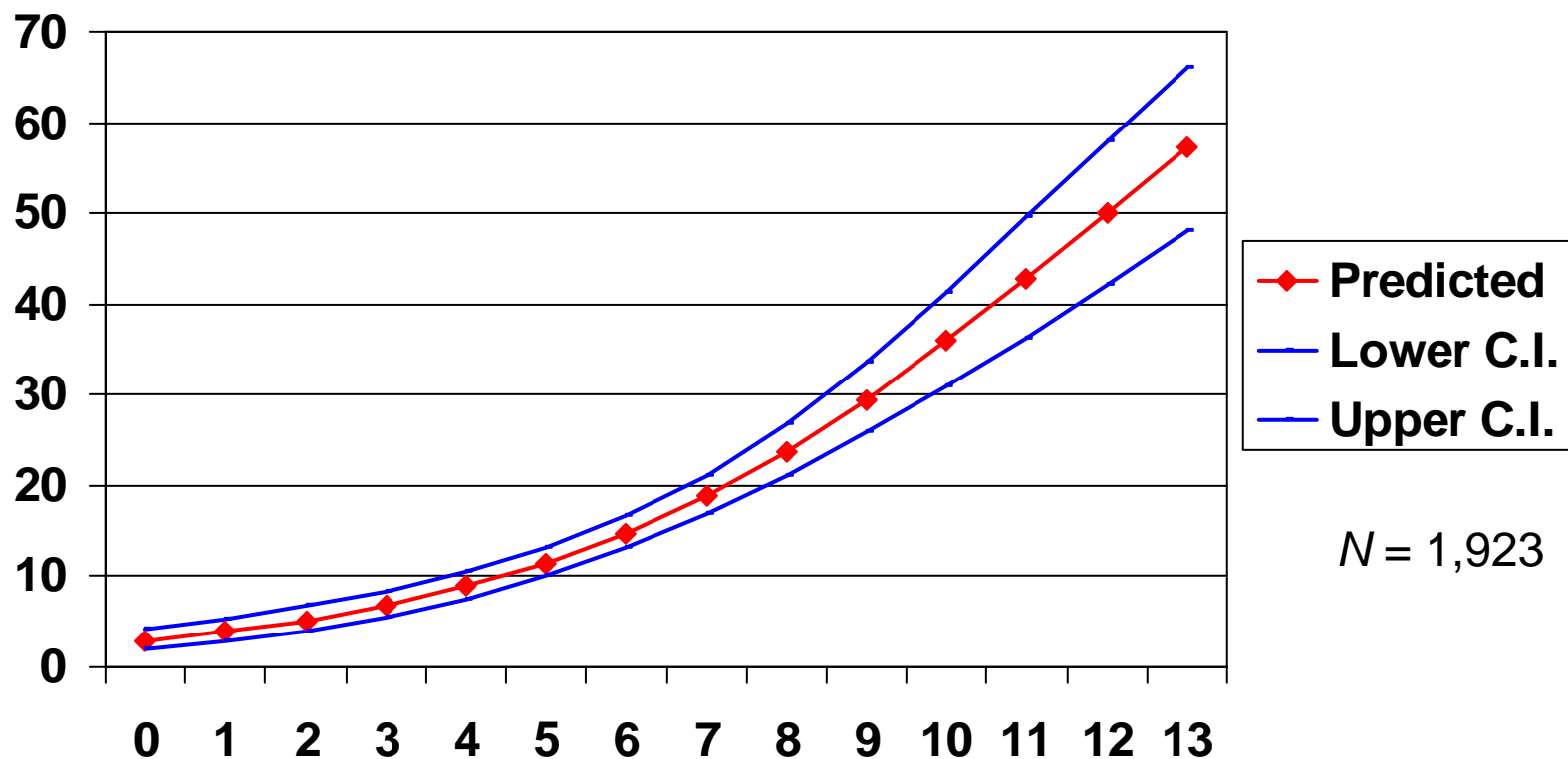
Example: 5 year Sexual Recidivism



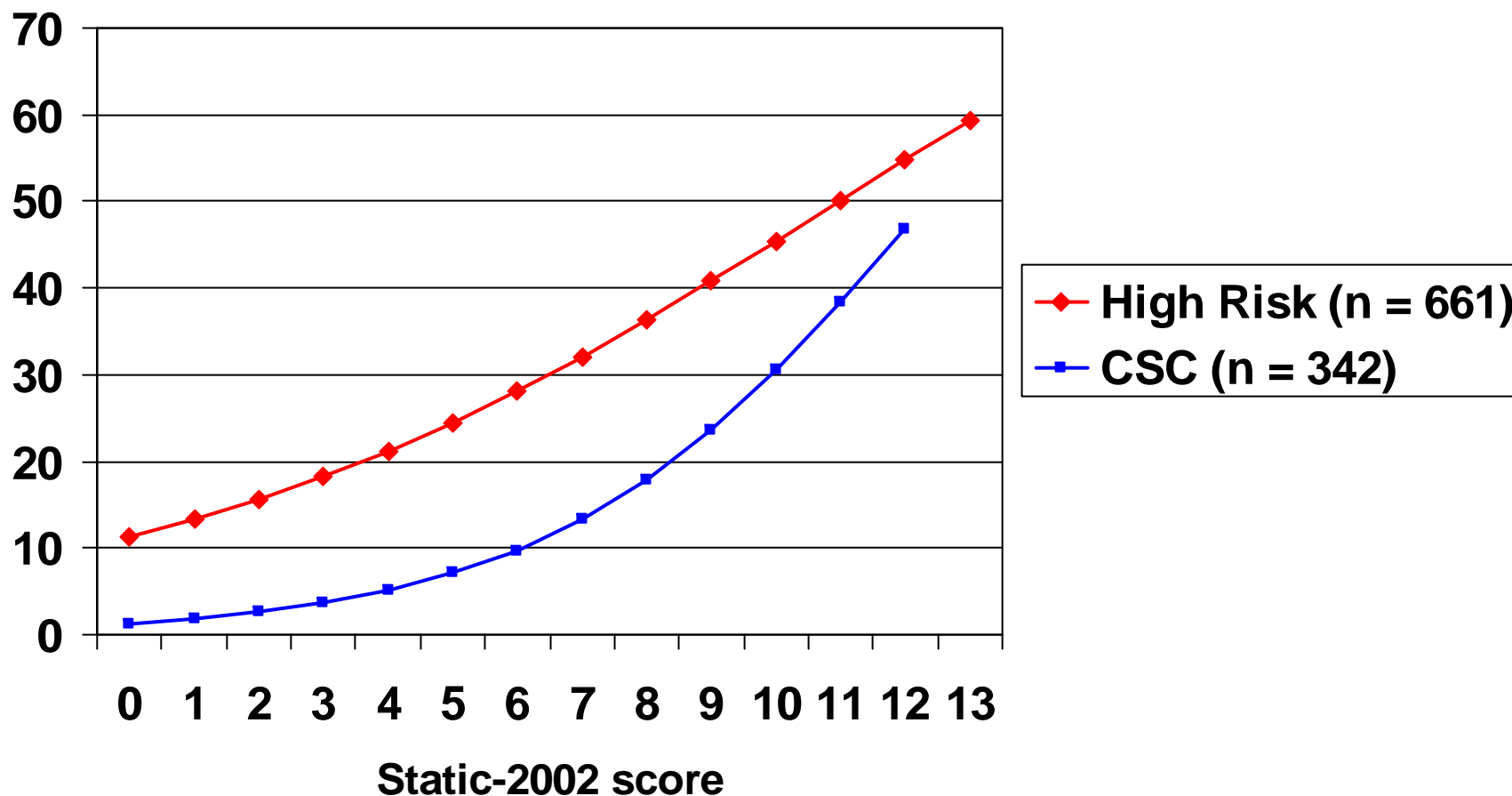
Example: 10 year Sexual Recidivism



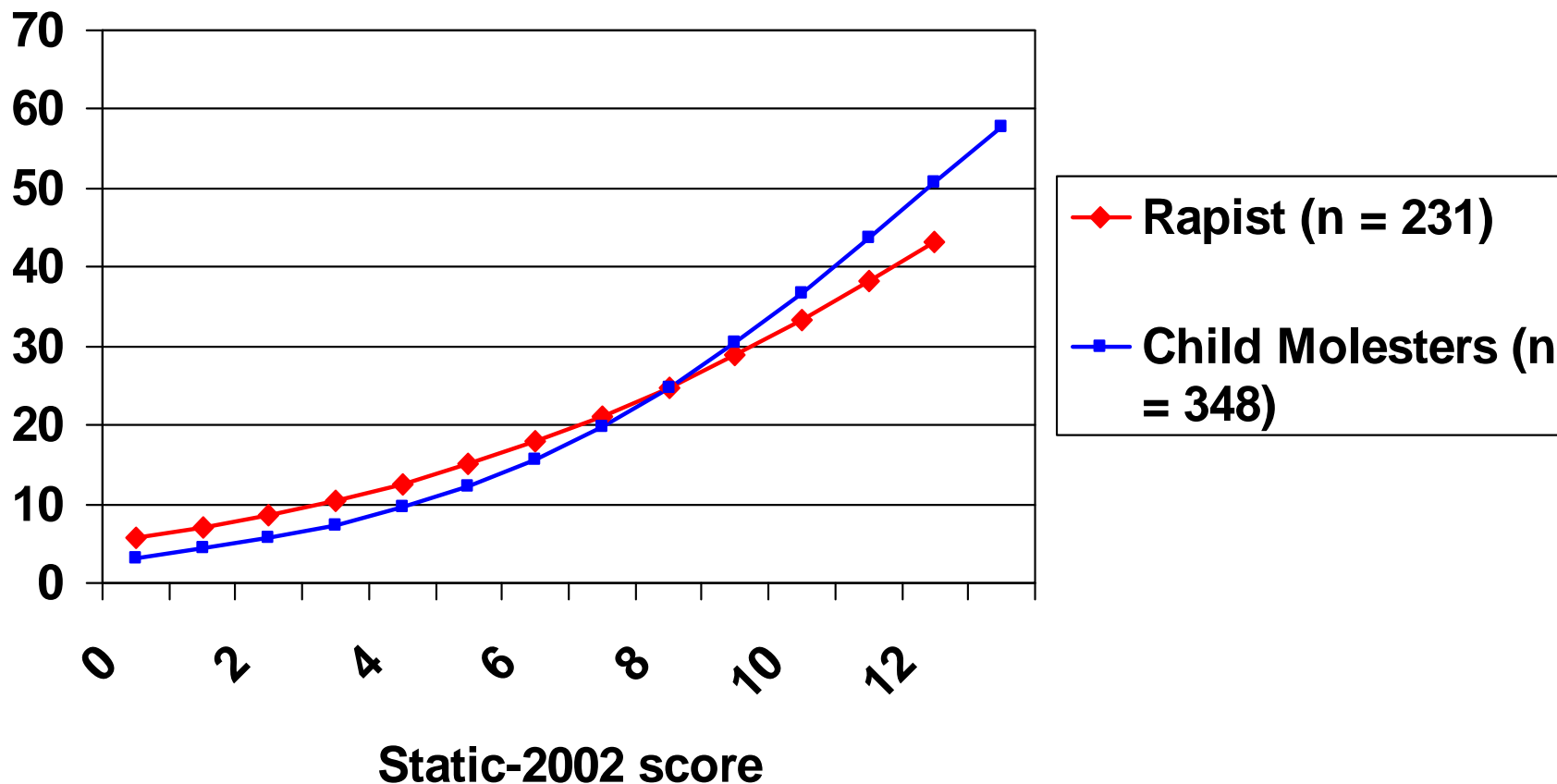
Example: 5 year Sexual Recidivism 95% Confidence Intervals for Logistic Regression Estimates



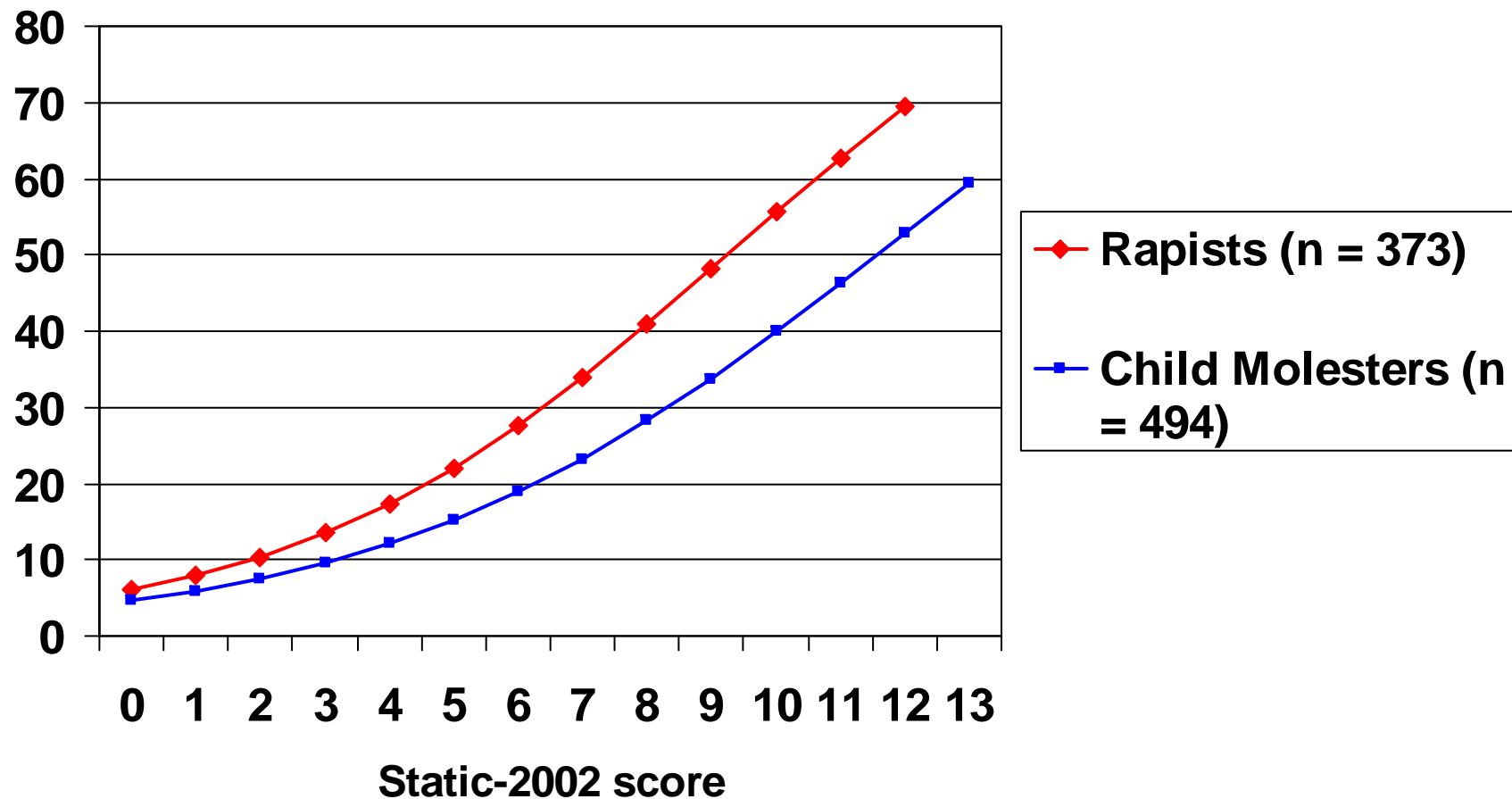
10 Year Sexual Recidivism Rates (from logistic regression estimates)



10 Year Sexual Recidivism Rates (from logistic regression estimates)



5 Year Violent Recidivism Rates (from logistic regression estimates)



Conclusions

- Static-2002 shows significant variability across samples
 - Likely due to base rate differences
- Use recidivism rates from smoothed logistic regression estimates (when it fits logistic distribution)
- May require separate estimates for routine CSC cases, rapists versus child molesters



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For more information on this presentation or on Static-2002 (e.g., for obtaining the Static-2002 recidivism tables), contact:

Leslie Helmus, Public Safety Canada

Leslie.helmus@ps.gc.ca

Static-2002 Coding Rules should be available within the next month.
Check:

www.static99.org



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