The Impact of Forensic Evidence in Sexual Assault Case Outcomes

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Project Overview

Goals:

1. To provide a detailed description of forensic evidence in sexual assault cases, including its timing relative to criminal justice outcomes;

2. To examine the relationship of forensic evidence to arrest; and

3. To analyze the impact of forensic evidence in key segments of the sample.
Sexual Assault Case Outcomes: Types of Evidence

• Sexual assault victims have a unique place in the criminal justice system: witnesses and crime scenes

• Evidence in sexual assault cases
  – Physical evidence – Photographs of injuries, property, clothing.
  – Forensic evidence – Fingerprints, hair, bodily fluids, fibers.

• Improvements in evidence collection
  – Examination techniques to improve injury identification
  – Analytical techniques to improve DNA extraction
  – Sexual Assault Nurse Examiners (SANE) programs to improve data collection
Sample

• Sampling Procedures
  – Random sample of cases in which a Provider Sexual Crime Report (PSCR) was collected between 2008 and 2010.
    • Original sample pool = 2,731
  – Final N = 528

• Data sources
  – PSCR database
    • Massachusetts Executive Office of Public Safety and Security
  – Crime laboratory reports
    • Massachusetts State Police Crime Lab
    • Boston Police Crime Lab
  – Police reports
Types of Data Collected

**PSCR Database**
- Victim age, sex, race/ethnicity
- Location of assault (city and surroundings)
- Location/date/time of exam
- Exam provider (SANE/non SANE)
- Number of assailants
- Assailant-victim relationship
- Weapon type
- Description of assault
- Reported to police
- Completion of evidence kit/toxicology

**Crime Laboratory Data**
- Injury type, frequency, location
- Type of examinations completed
- Type of evidence collected (physical, forensic)
- Date/time of evidence kit collected
- Date/time kit arrival to lab
- Date/time of report of lab results
- Laboratory results

**Police Outcome Data**
- Unfounded
- Arrest made/arrest date
- Charged/charge date
## Sample Characteristics

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>%/Median</th>
</tr>
</thead>
<tbody>
<tr>
<td>Victim Sex</td>
<td>95.9% Female</td>
</tr>
<tr>
<td>Victim Age</td>
<td>23</td>
</tr>
<tr>
<td>Victim Under 18</td>
<td>4.9%</td>
</tr>
<tr>
<td>Victim Race-Ethnicity</td>
<td>White 68.6%</td>
</tr>
<tr>
<td></td>
<td>Hispanic 17.1%</td>
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<tr>
<td></td>
<td>Black 9.1%</td>
</tr>
<tr>
<td>Victim-Assailant Relationship</td>
<td>Known assailant 68.2%</td>
</tr>
</tbody>
</table>
### Examination, Laboratory and Police Outcomes

<table>
<thead>
<tr>
<th>Result</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non-genital injuries</td>
<td>53.0%</td>
</tr>
<tr>
<td>Genital injuries</td>
<td>35.6%</td>
</tr>
<tr>
<td>Kits tested</td>
<td>77.6%</td>
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<tr>
<td>Biological evidence</td>
<td>84.2% of kits tested</td>
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<tr>
<td>DNA profile</td>
<td>28.3% of kits tested</td>
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<tr>
<td>DNA match to suspect</td>
<td>8.6% of kits tested</td>
</tr>
<tr>
<td>DNA match to CODIS-another case</td>
<td>2.0% of kits tested</td>
</tr>
<tr>
<td>DNA match to CODIS-convicted offender</td>
<td>4.7% of kits tested</td>
</tr>
<tr>
<td>Founding</td>
<td>64.6%</td>
</tr>
<tr>
<td>Arrest</td>
<td>42.2%</td>
</tr>
</tbody>
</table>
Case Attrition Rate

528 Cases with kit

174 (33.1%) – Unfounded
39 (7.2%) – Case not found/not reported
315 (59.7%) – Founded

184 (38.4%) – No Arrest
130 (24.6%) – Arrest*

*Note: Percentage increases to 27.8% (147 cases) when including Summons.
Timing of Evidence: Assault to Exam

- 35% had exam within 6 hours
- 50% had exam within 12 hours
- 76% had exam within 24 hours
- 94% had exam within 72 hours
Timing of Evidence: Exam to Lab

- 45% had kits arrive within 7 days
- 69% had kits arrive within 14 days
- 85% had kits arrive within 30 days
Timing of Evidence:
Lab to Reporting Results to Police

- 35% had lab results reported within 30 days
- 61% reported within 60 days
- 89% reported within 120 days

Number of Victims vs. Days from Arrival at Crime Lab to Reporting to Police
Time between Assault and Arrest

- 37% of arrests the same day as the assault
- 81% of arrests within 7 days of the assault
- 89% of arrests within 19 days

Days from Exam to Arrival at Crime Lab

Number of Victims
Timing of Arrest to Forensic Evidence

12 hours Forensic examination
8 days Kit arrival at crime lab
1 day Suspect arrested
43 days Crime lab reports results to police

Based on median times.
Relationship of Founding and Arrest to Testing Kits

- Unfounded: 62%
- Founded-No Arrest: 89%
- Arrest: 97%
Preliminary Multivariate Findings

• Case Unfounding
  – Police officers were more likely to indicate a crime occurred if . . .
    • Penetration occurred \( (p = .027, \text{ OR} = 1.77) \)
    • Physical force was used \( (p = .040, \text{ OR} = 1.61) \)

• Arrest
  – Suspects were more likely to be arrested when . . .
    • The suspect was an acquaintance, date or relative as compared to a stranger \( (p = .065, \text{ OR} = 2.00) \)
    • The suspect was an intimate/ex-intimate partner as compared to a stranger \( (p = .002, \text{ OR} = 4.86) \)
    • Genital injuries were noted \( (p = .045, \text{ OR} = 1.95) \)
  
  – Suspects were less likely to be arrested when . . .
    • The forensic medical exam occurred after 24 hours of the assault \( (p = .011, \text{ OR} = .32) \)
Cases where Arrest Followed Forensic Results Reporting

• 8 cases had arrests following forensic result reporting to the police by the crime lab
  – 3 had arrests within 15 days of the report

• 3 cases had arrests within a day or two of the report

• These cases accounted for 2.1% of the final sample \( (N=528) \), 8.5% of arrests \( (n=130) \) and 37.5% of those arrests that took place more than 7 days after the assault \( (n=24) \)
Cases where Arrest Followed Forensic Results Reporting (n=11)

- 10 cases had biological evidence found
  - Body swabs typically were the source of biological evidence (7 of 11 cases)
  - 2 cases clothes contained biological evidence
  - 3 cases other evidence contained biological evidence (hair combings, condoms, fingernail scrapings)

- 9 cases had specimens that tested positive for semen

- 8 cases had a DNA profile generated—significantly more than other arrests
  - 5 cases the DNA profile was confirmed to match the suspect. 1 case the match results were pending.
  - 3 cases the DNA profile matched another case in CODIS
    - These involved 2 stranger cases and one acquaintance case
  - 2 cases the DNA profile matched a convicted offender in CODIS

- 2 cases involved an intimate partner; 3 involved someone known to the victim; 4 strangers; 2 unknown relationship.
  - The 2 intimate partner cases involved victims under 15 years of age
Summary

• Confirmation of case attrition early on in the process.

• Confirmation that forensic results rarely precede arrests (e.g., Johnson et al., 2012).
  – When forensic results do precede arrest, it does appear to be impactful.

• Case founding associated with characteristics of so-called “real” rapes: penetration and force.

• Arrests associated with known offenders, injuries, and timely reporting.
  – Police were more likely to make arrests in cases involving known suspects, but these cases are often more difficult to prosecute.
  – Injuries and timely reporting may reflect need for corroborating evidence and case legitimacy.