Forensic Evidence in Sexual Assault Cases - Preliminary Findings

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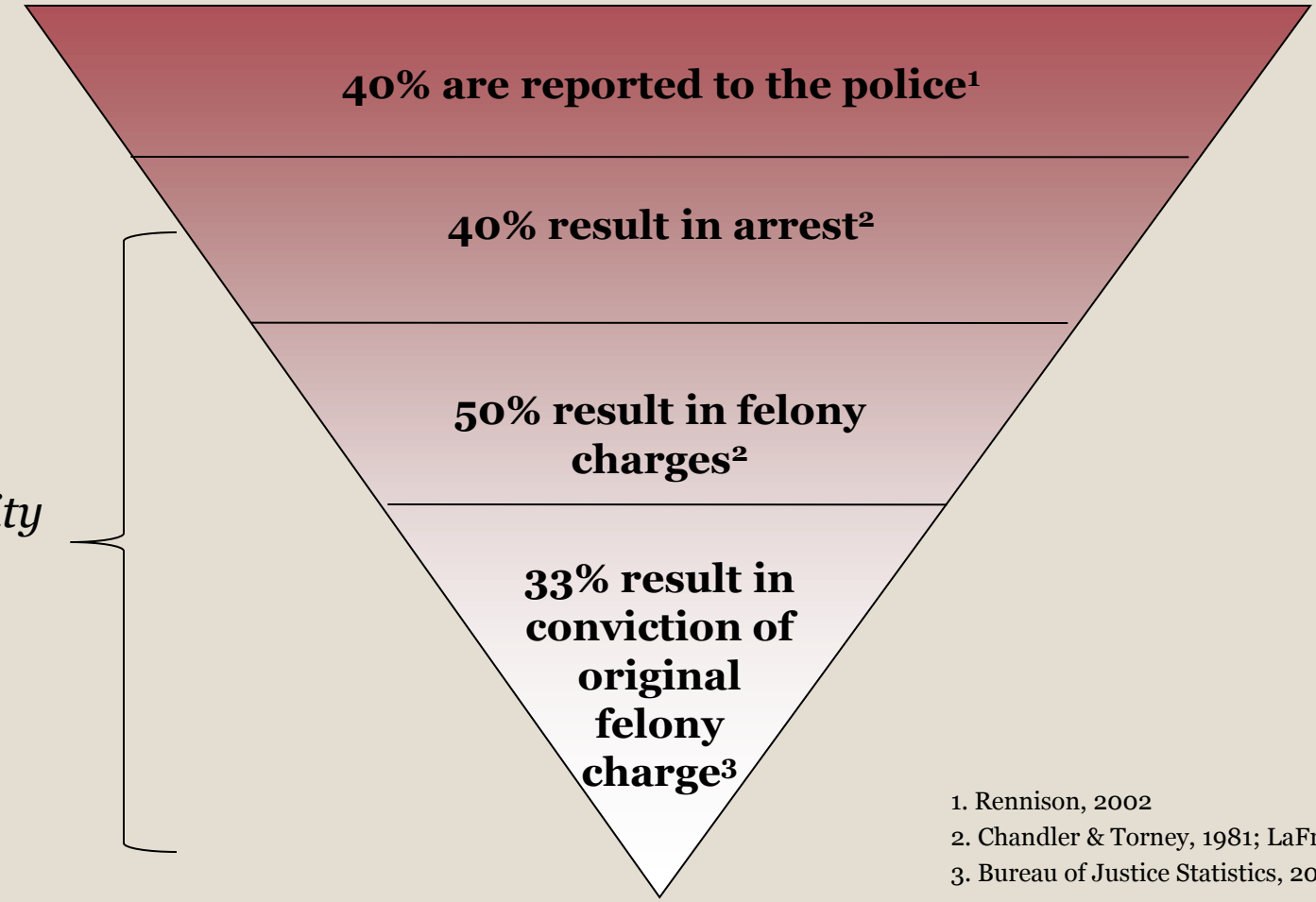
Project Overview

- Project 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 criminal justice outcomes; and
  3. To analyze the impact of forensic evidence in key segments of the sample: cases with child victims, cases with stranger assailants, and cases with SANEs conducting the examination.

Research Questions

- Goal 1: To provide a detailed description of forensic evidence in sexual assault cases, including its timing relative to criminal justice outcomes.
  (1) What are the characteristics of sexual assault examinations and do these differ by examiner type?
  (2) What is the injury identification rate and does this vary by victim, assault, and examiner?
  (3) What is the forensic evidence rate and does this vary by victim, assault, and examiner?
  (4) What is the timing related to the availability of forensic evidence?

Sexual Assault Case Outcomes: Case Processing



Convictability impacts attrition

1. Rennison, 2002
2. Chandler & Torney, 1981; LaFree, 1980
3. Bureau of Justice Statistics, 2010

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.
    - Cases involving persons 12 years of age or older.
    - Cases in which a forensic examination occurred in Massachusetts.
    - Original sample pool = 2,731
  - Final N = 587; 21.5% of the original sampling pool
- Data sources
  - Provider Sexual Crime Report (PSCR)
    - Massachusetts Executive Office of Public Safety and Security
  - Crime laboratory reports
    - Massachusetts State Crime Lab
    - Boston Police Crime Lab

Data Collection

Crime Laboratory Data

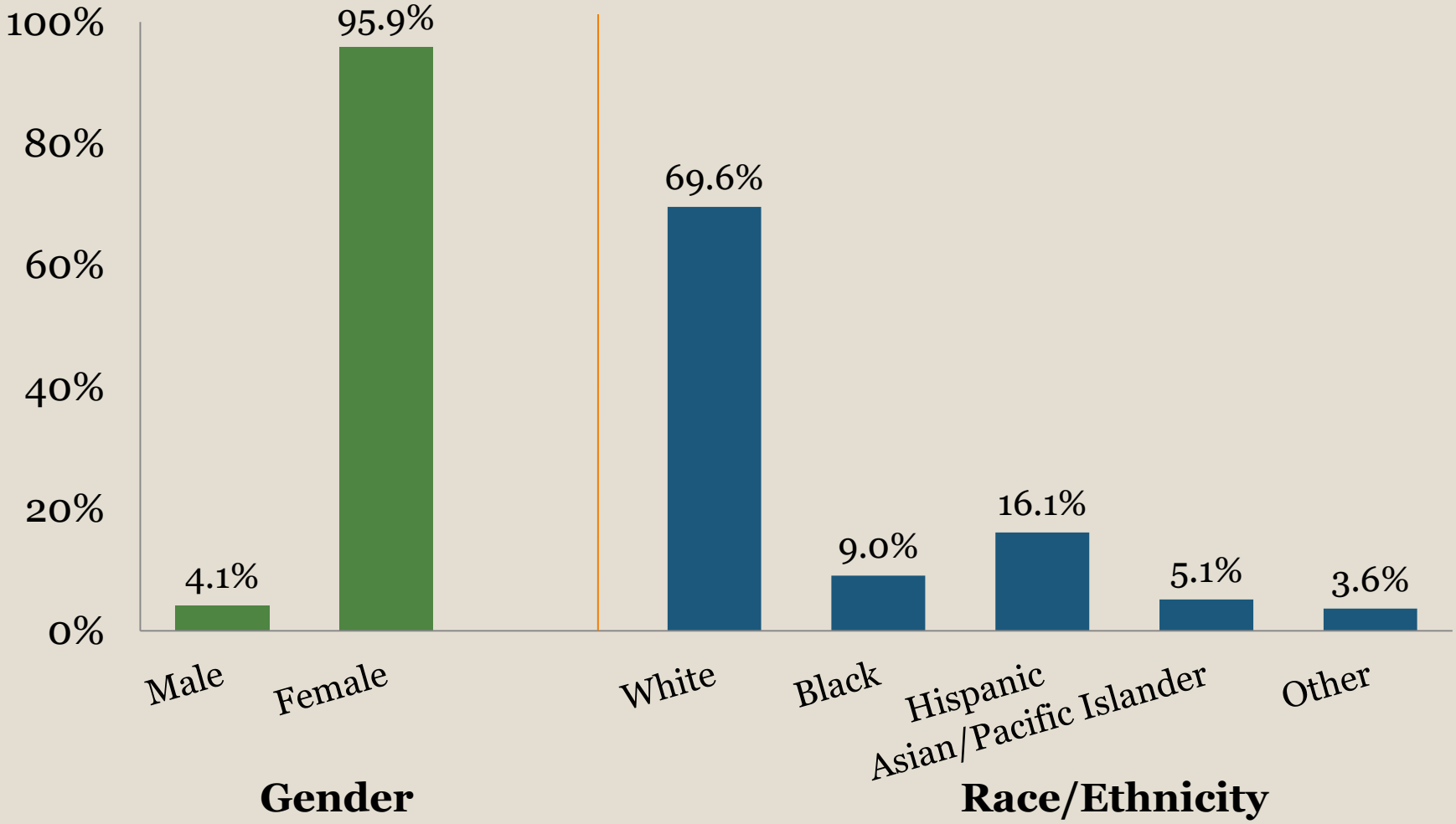
- Injury type, frequency, location*
- Type of examinations completed*
- Type of evidence collected (physical, forensic)*
- Date/time of evidence kit collected
- Date/time kit arrival to lab
- Date/time of report of lab results
- Laboratory results

*Reflects information obtained from the forensic examination forms available at the crime lab

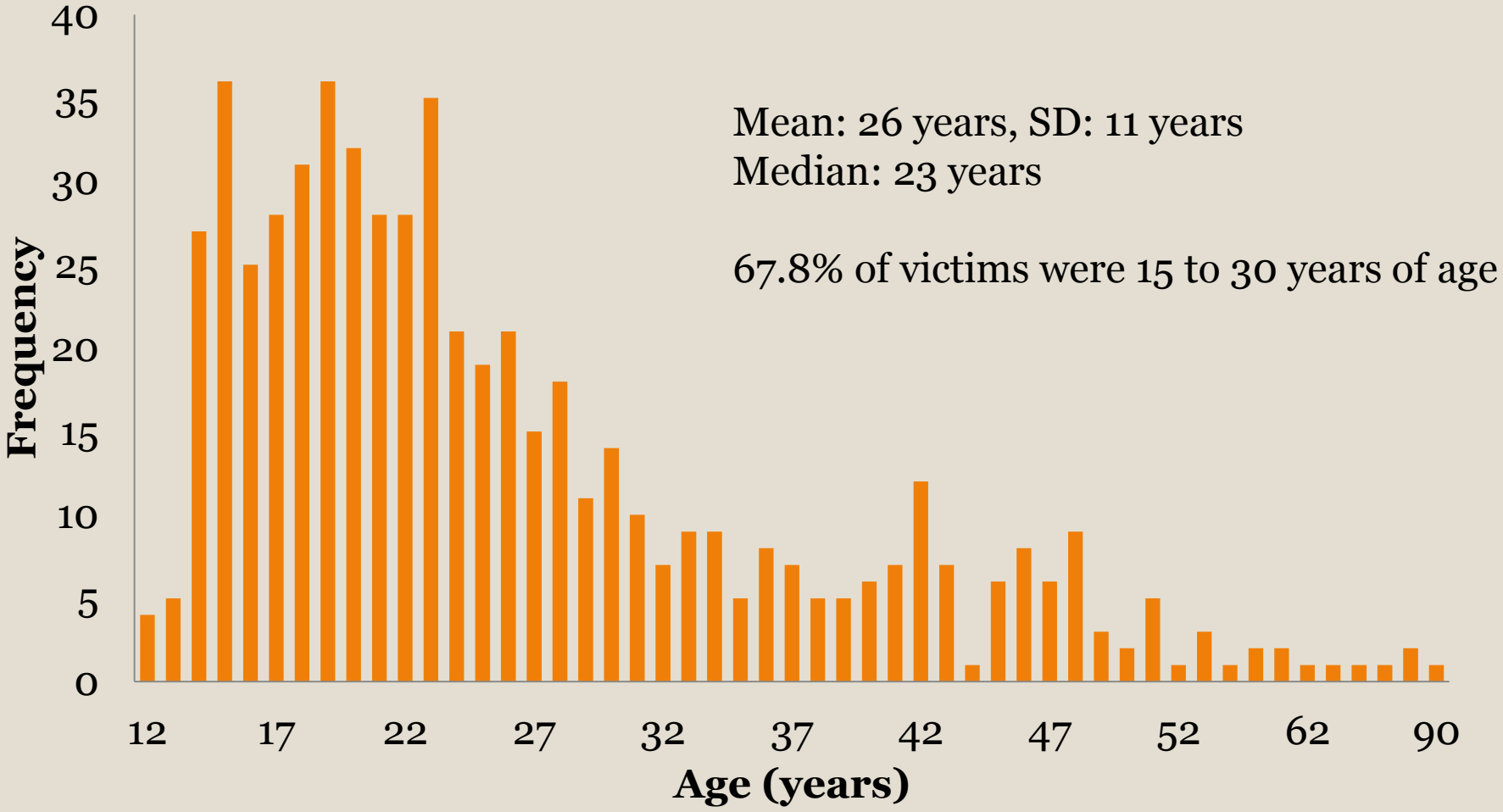
PSCR Database

- 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

Victim Characteristics



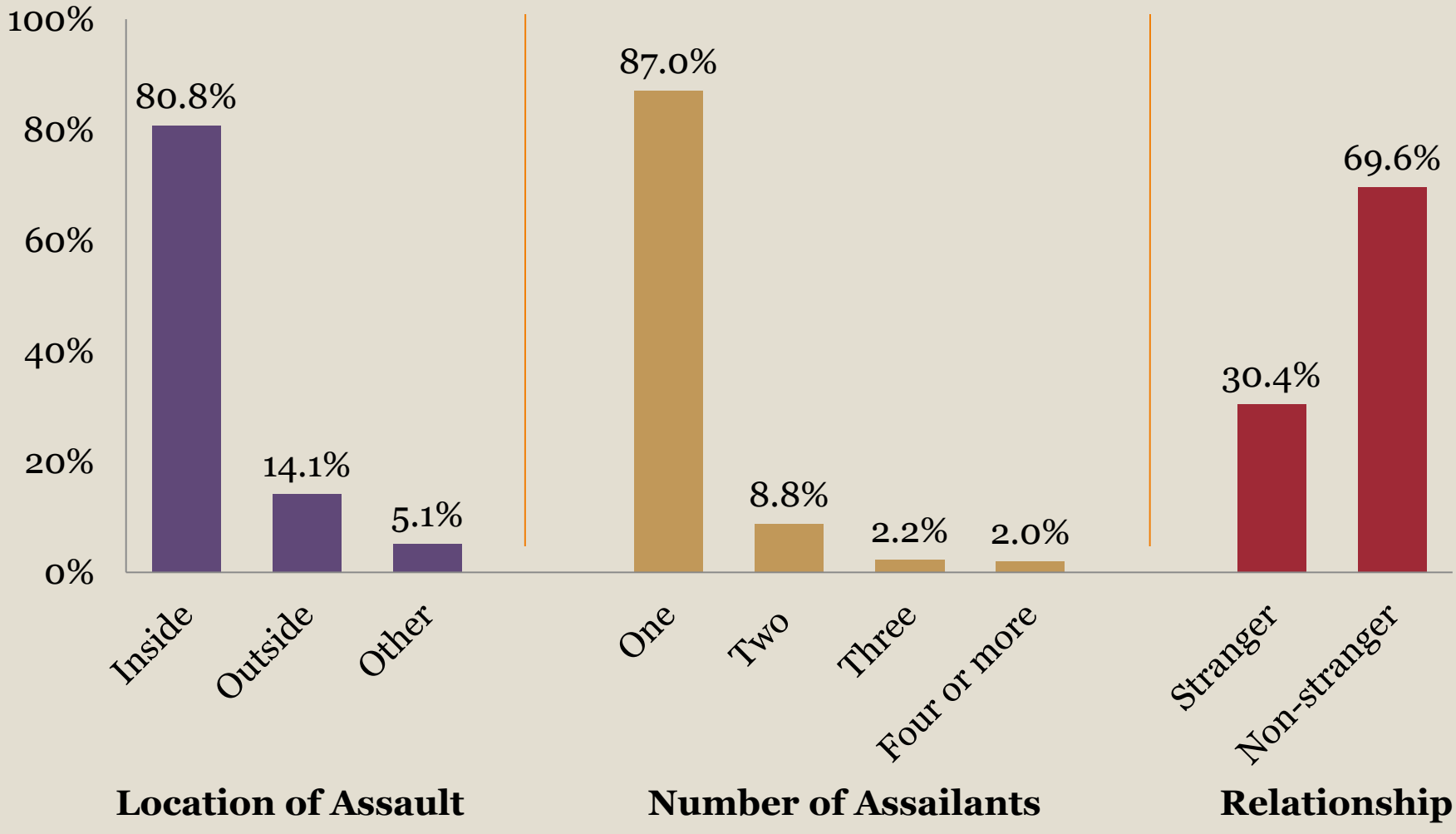
Victim Characteristics



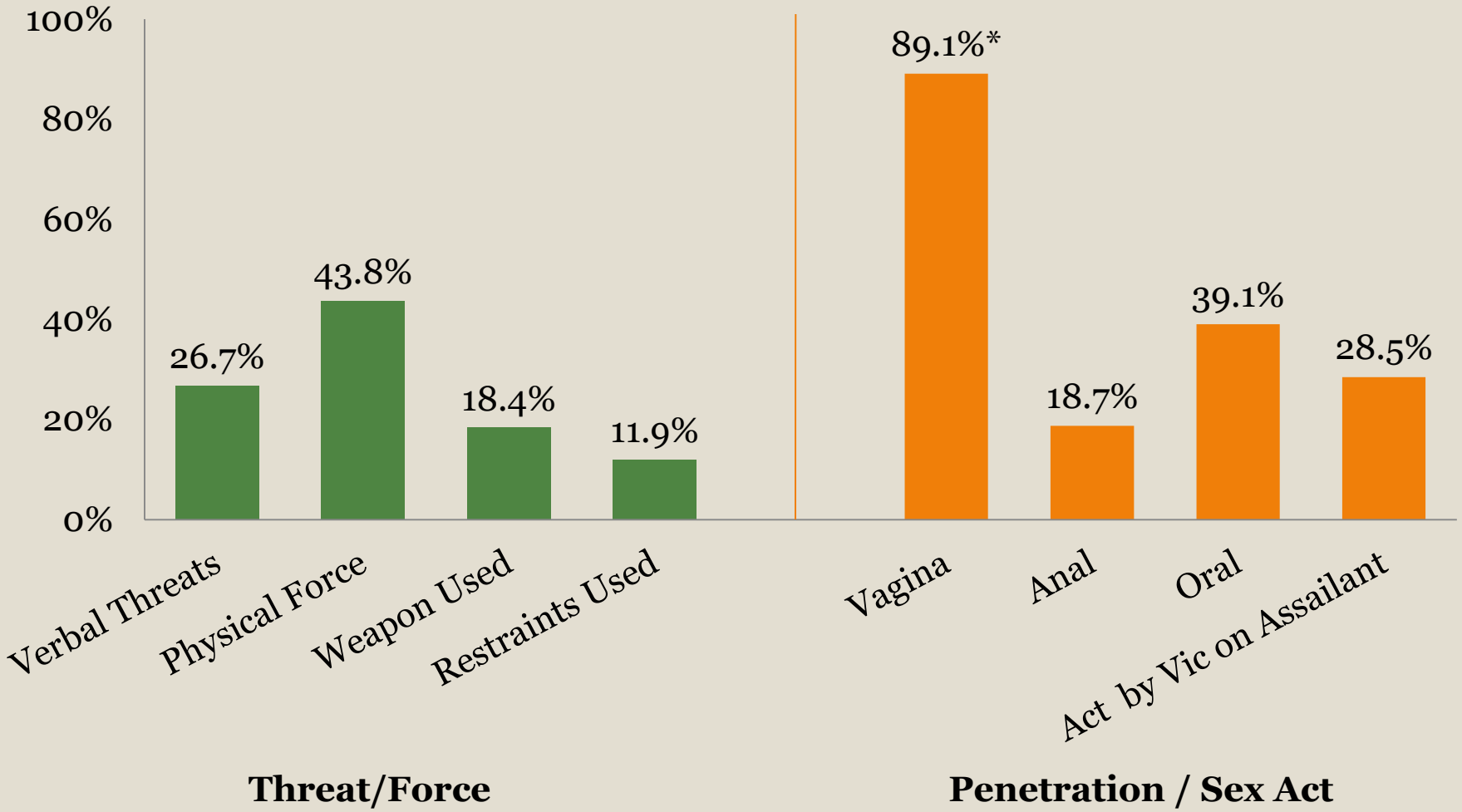
Mean: 26 years, SD: 11 years
Median: 23 years

67.8% of victims were 15 to 30 years of age

Assault Characteristics

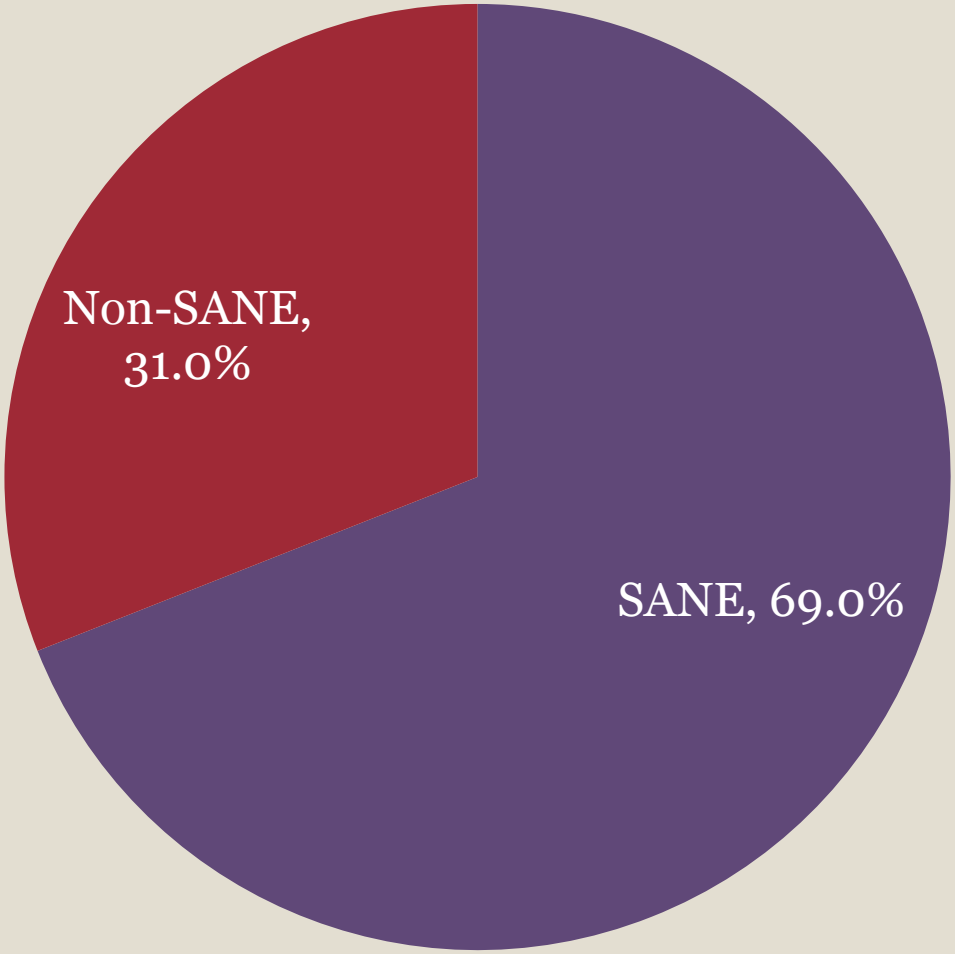


Assault Characteristics



* Females only

Exam Characteristics



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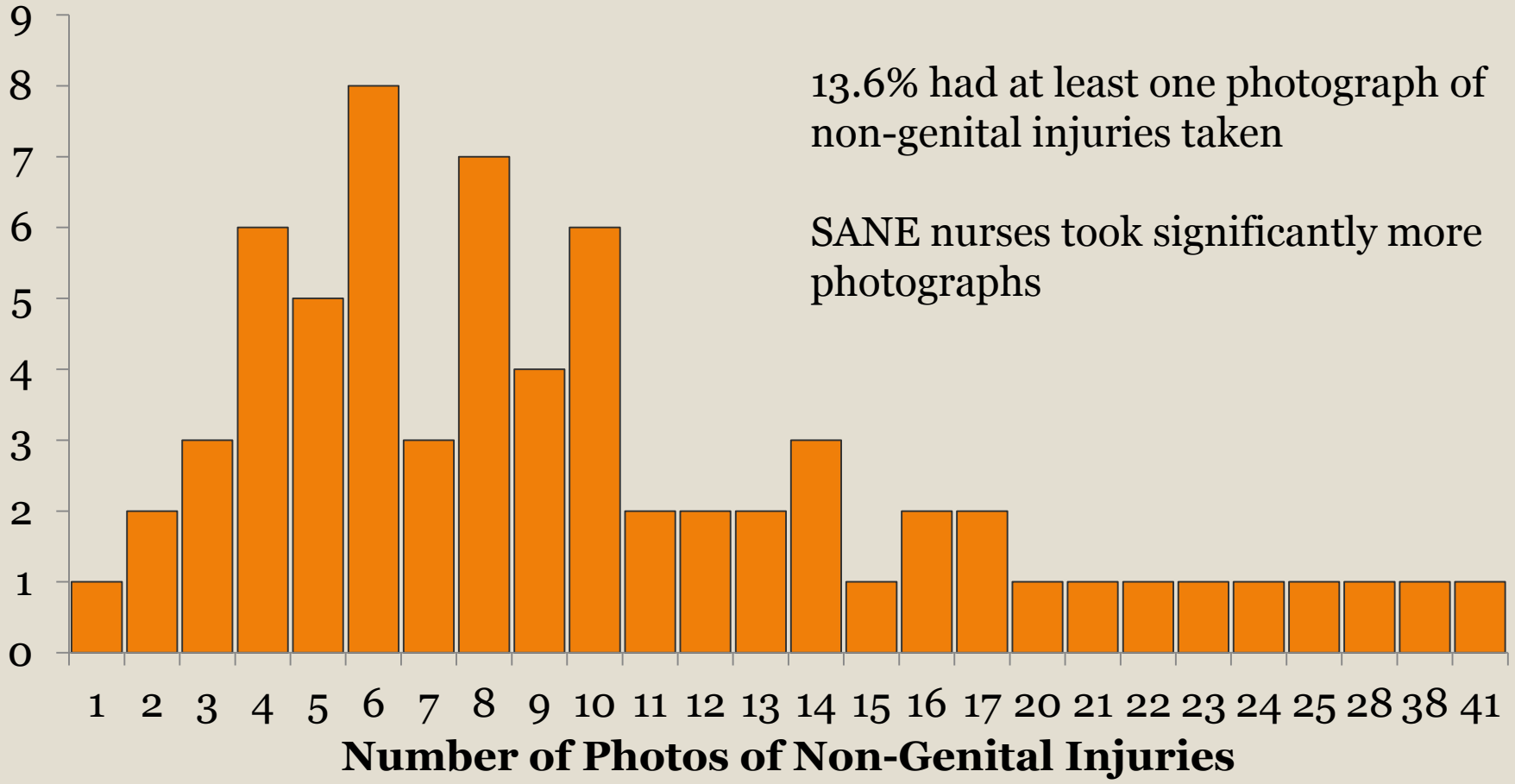
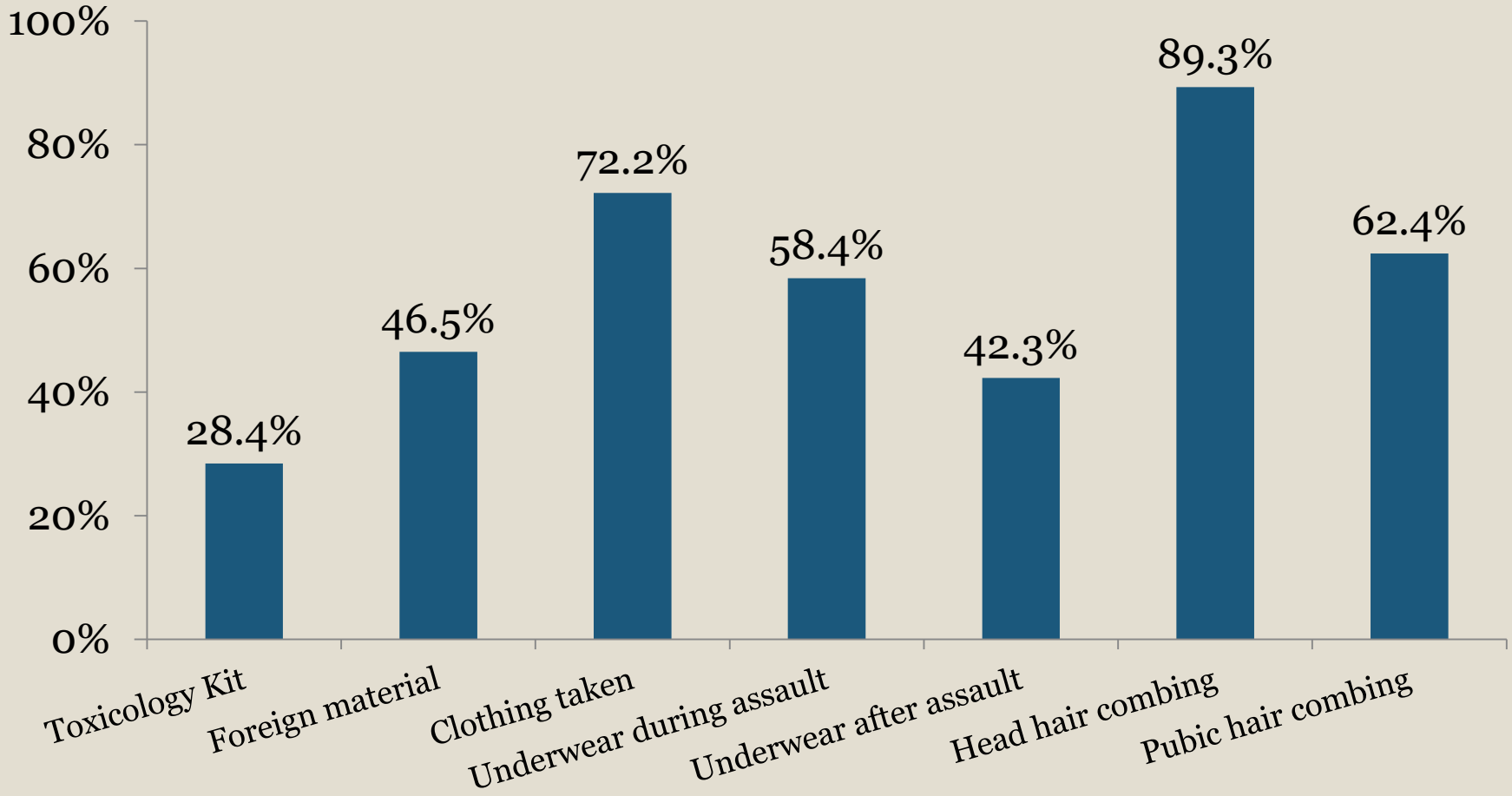


13.6% had at least one photograph of non-genital injuries taken

SANE nurses took significantly more photographs

Exam Characteristics



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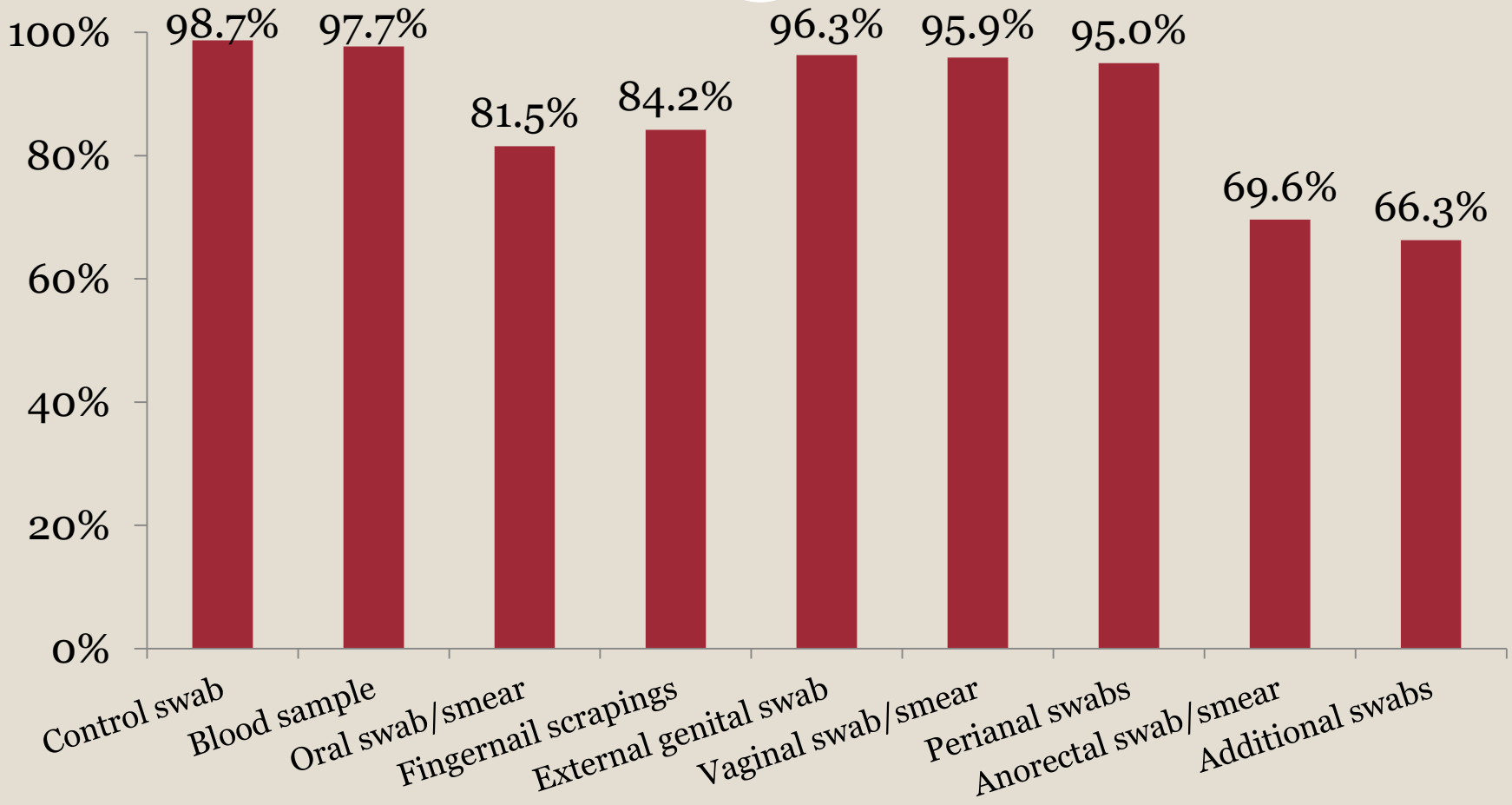

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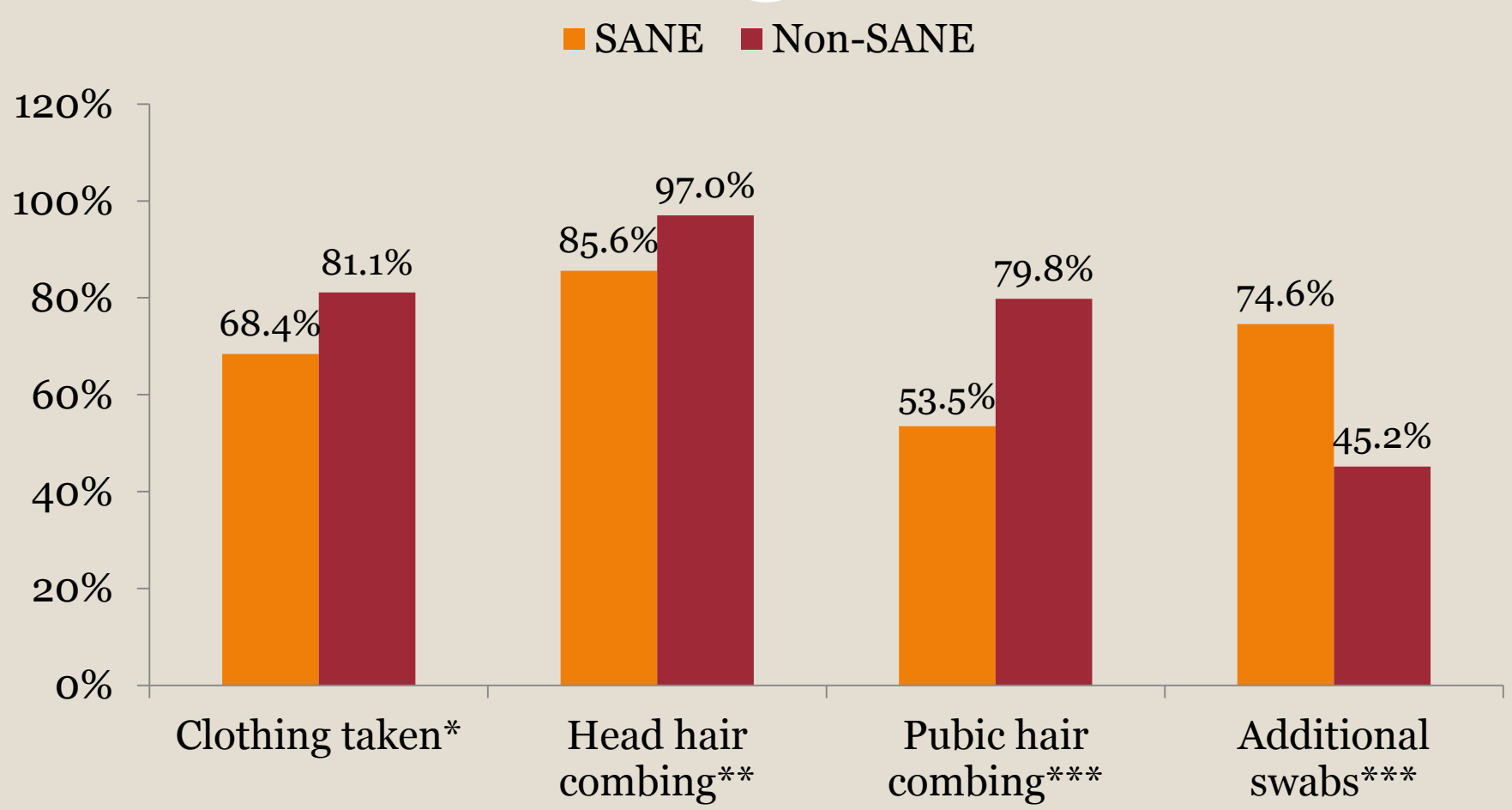
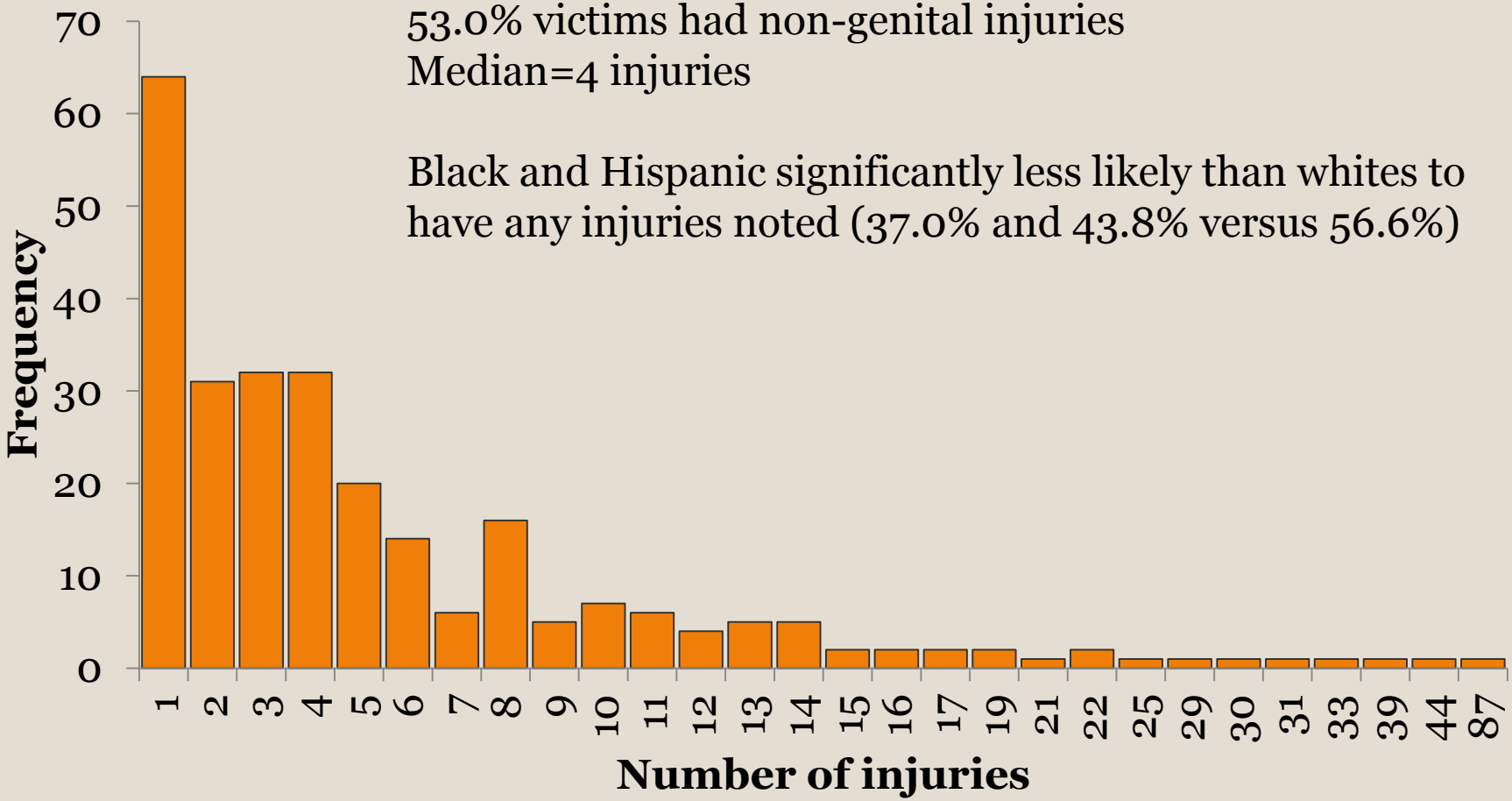


* $p = \leq .05$; ** $p = \leq .01$; *** $p = \leq .001$

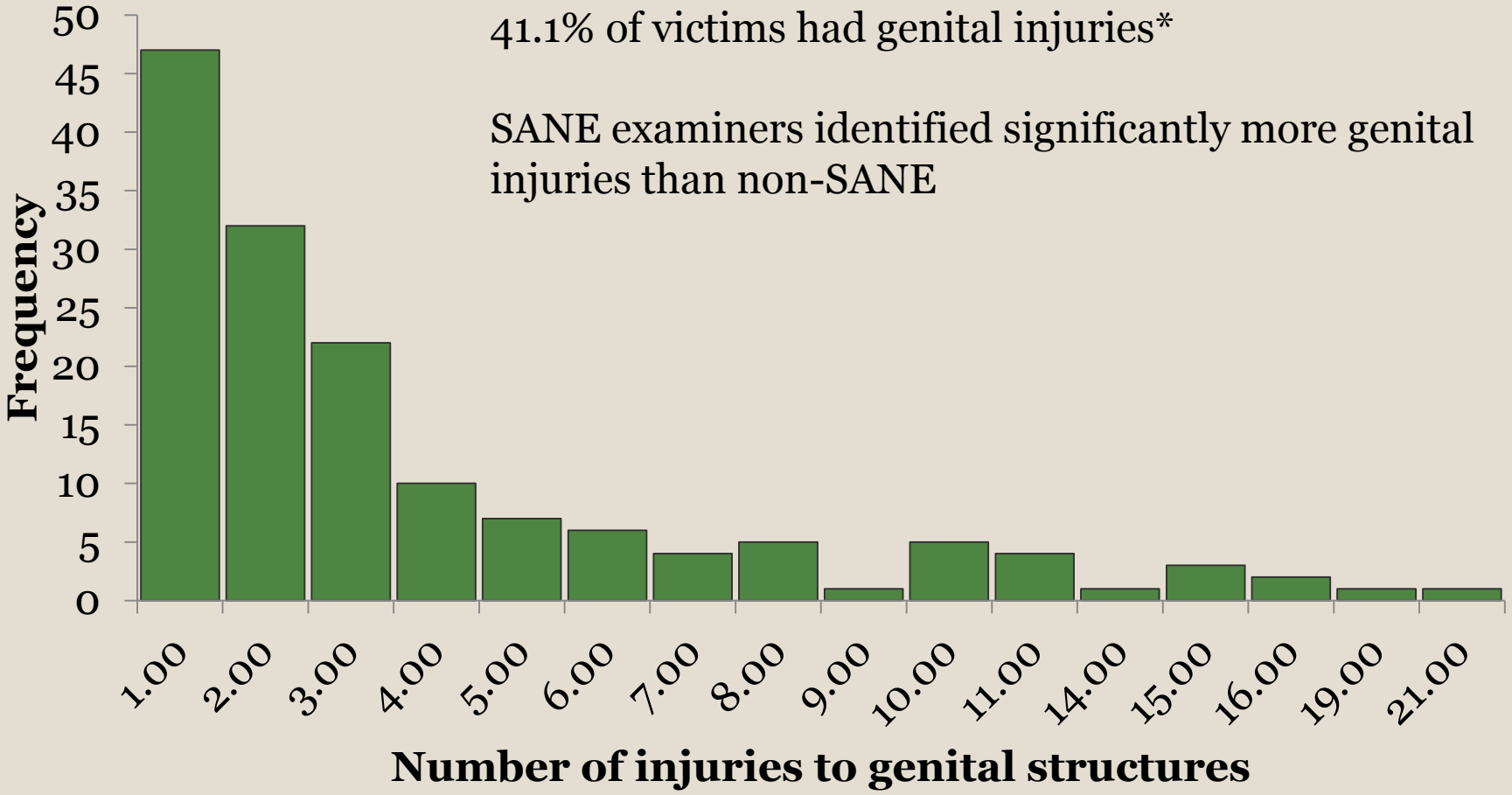
Injury Identification – Non-Genital Injuries

53.0% victims had non-genital injuries
Median=4 injuries

Black and Hispanic significantly less likely than whites to have any injuries noted (37.0% and 43.8% versus 56.6%)

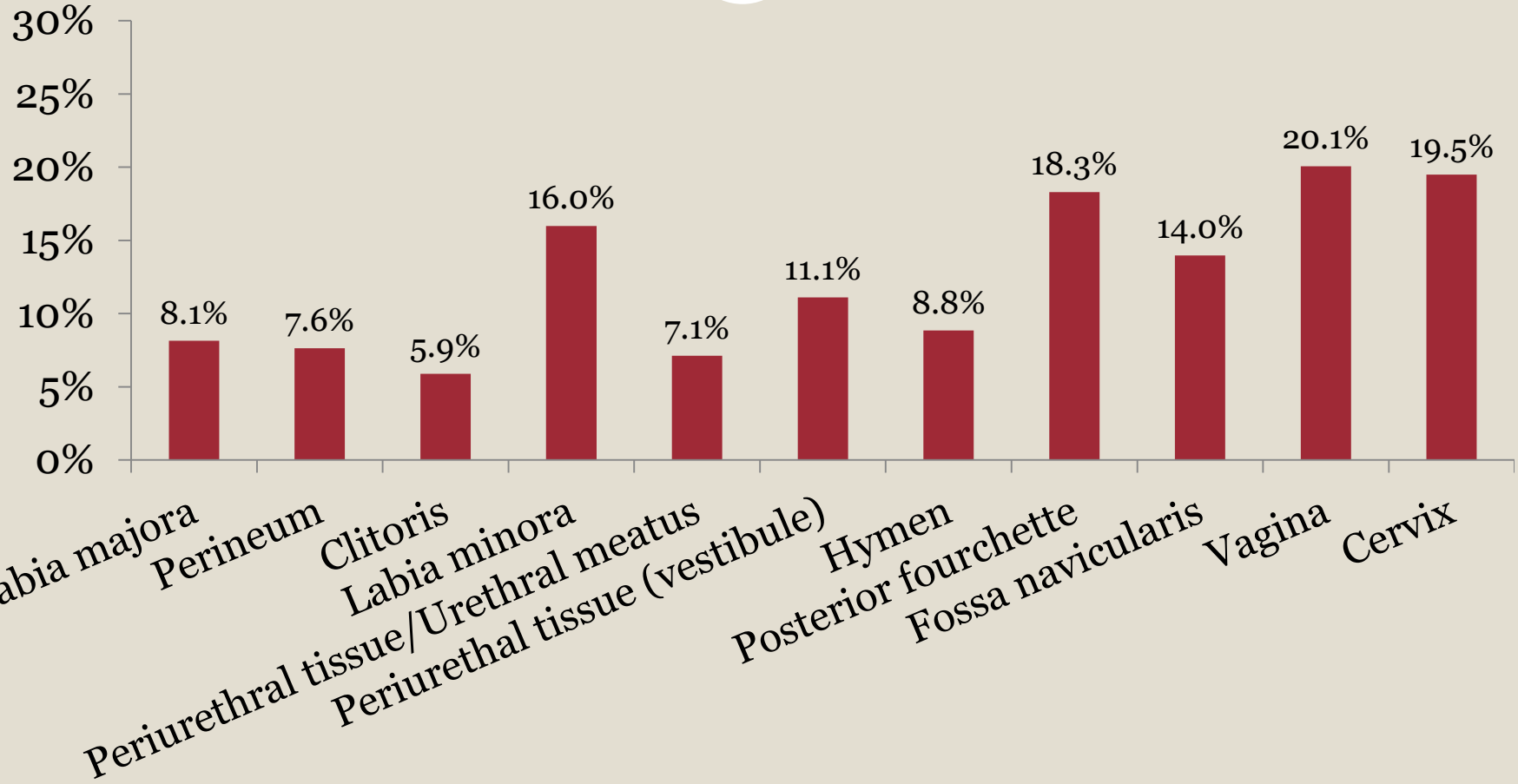


Injury Identification – Genital Injuries



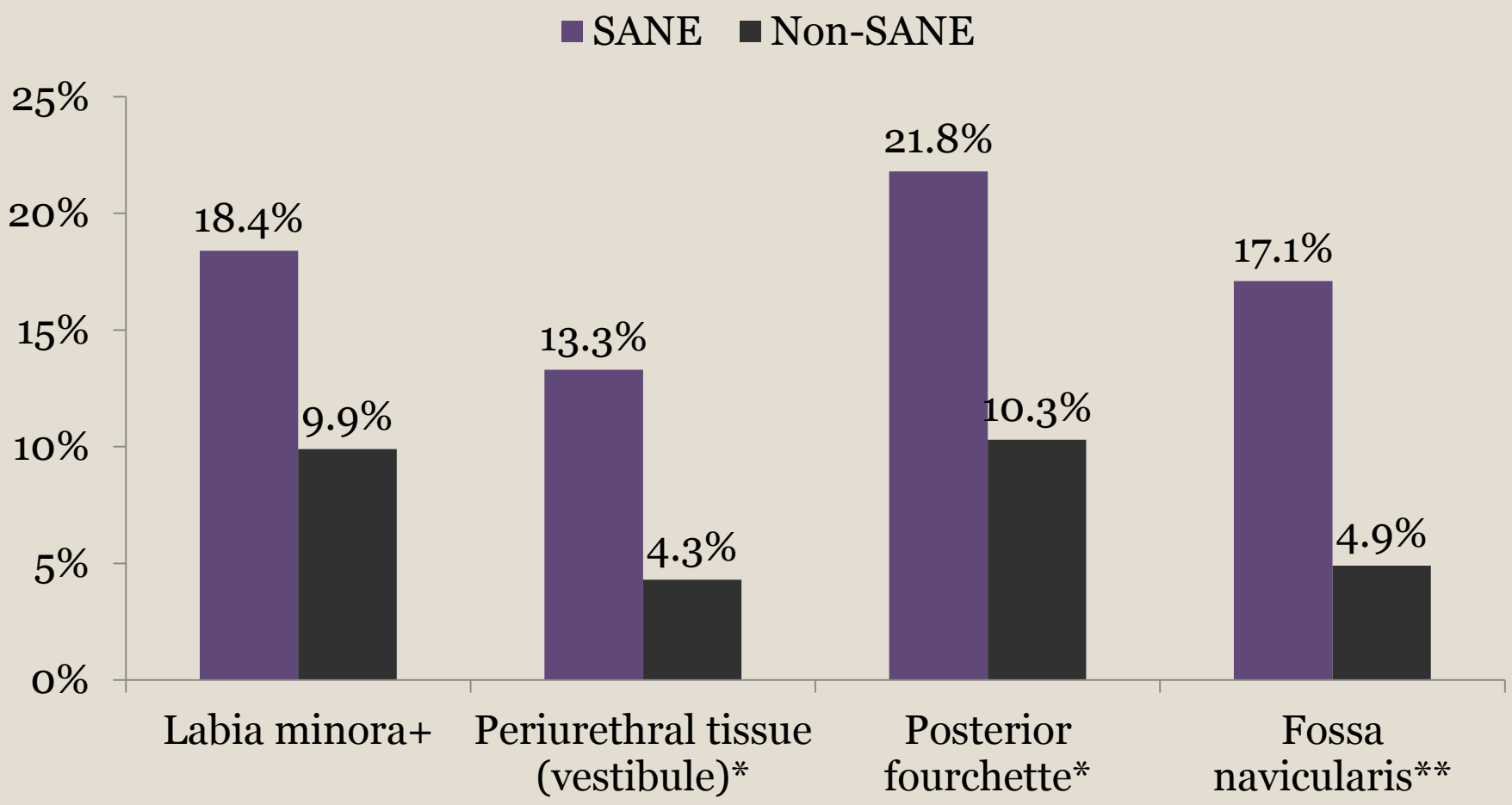
*Includes: Swelling, redness, abrasion, or tearing to any genital structure

Injury Identification – Female Genital Injuries



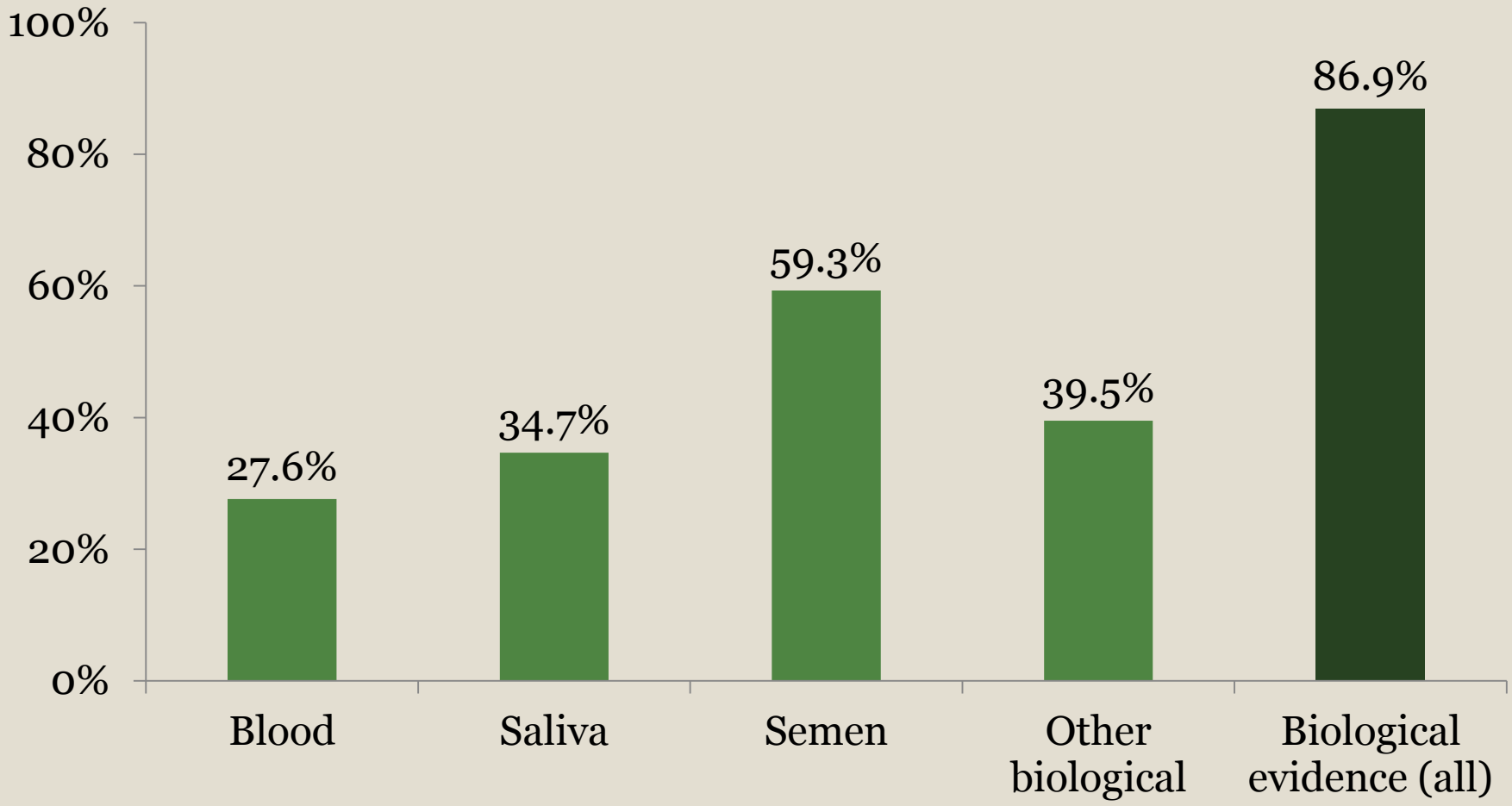
Injury to Specific Female Genital Structures

Injury Identification – Genital Injuries



$^{+}p = .051$; $^{*}p \leq .05$; $^{**}p \leq .01$.

Availability of Forensic Evidence



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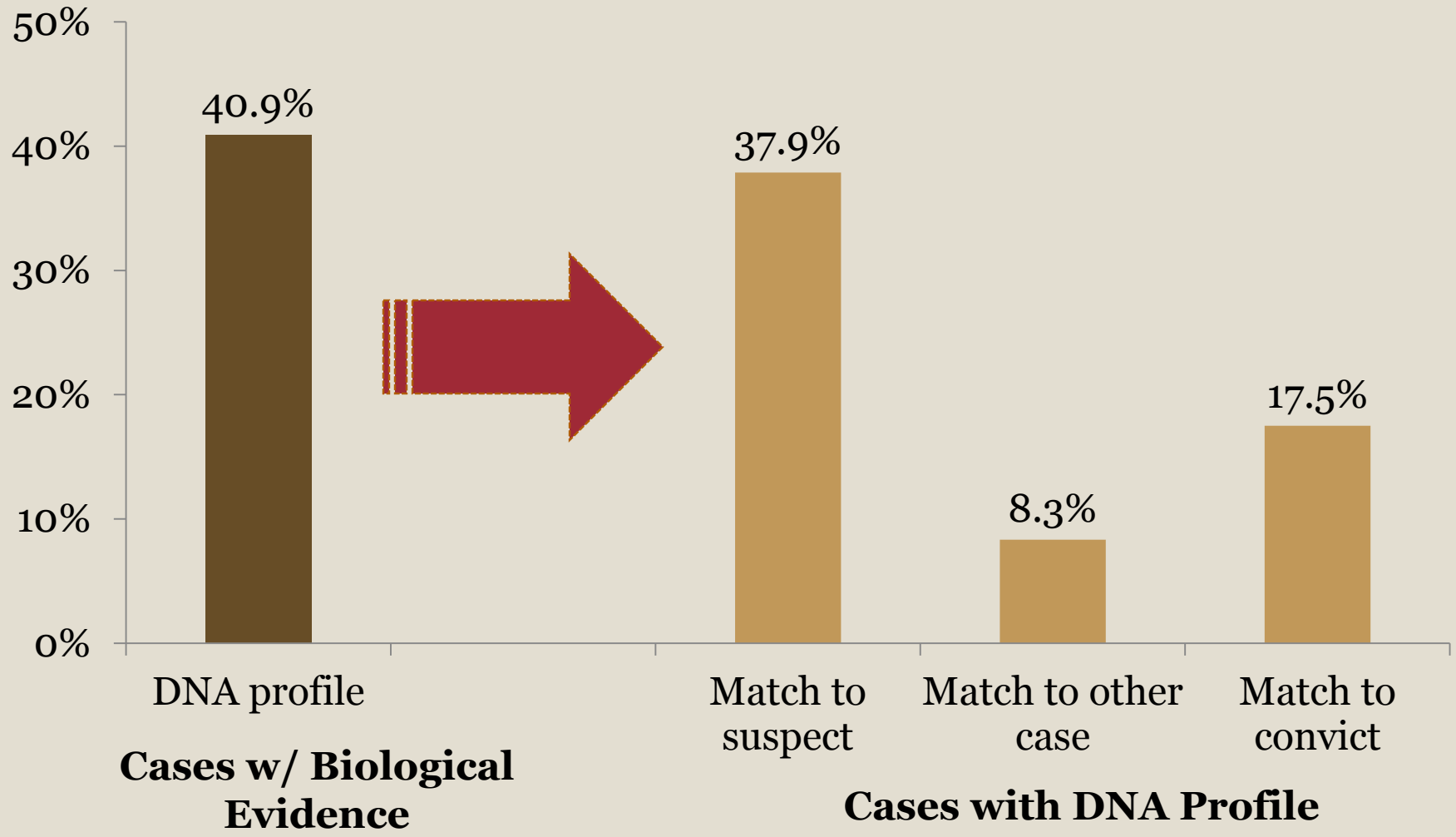

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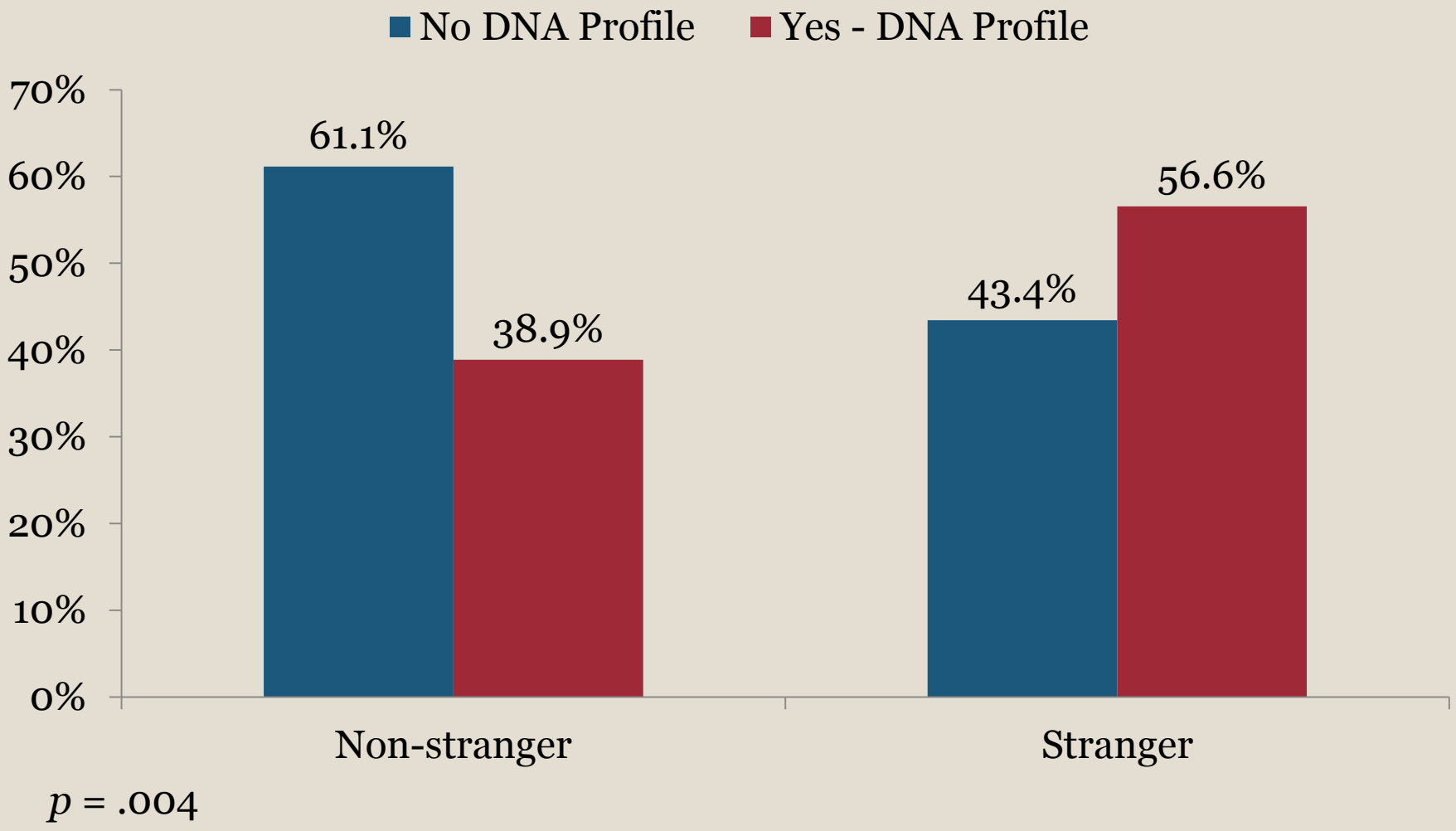
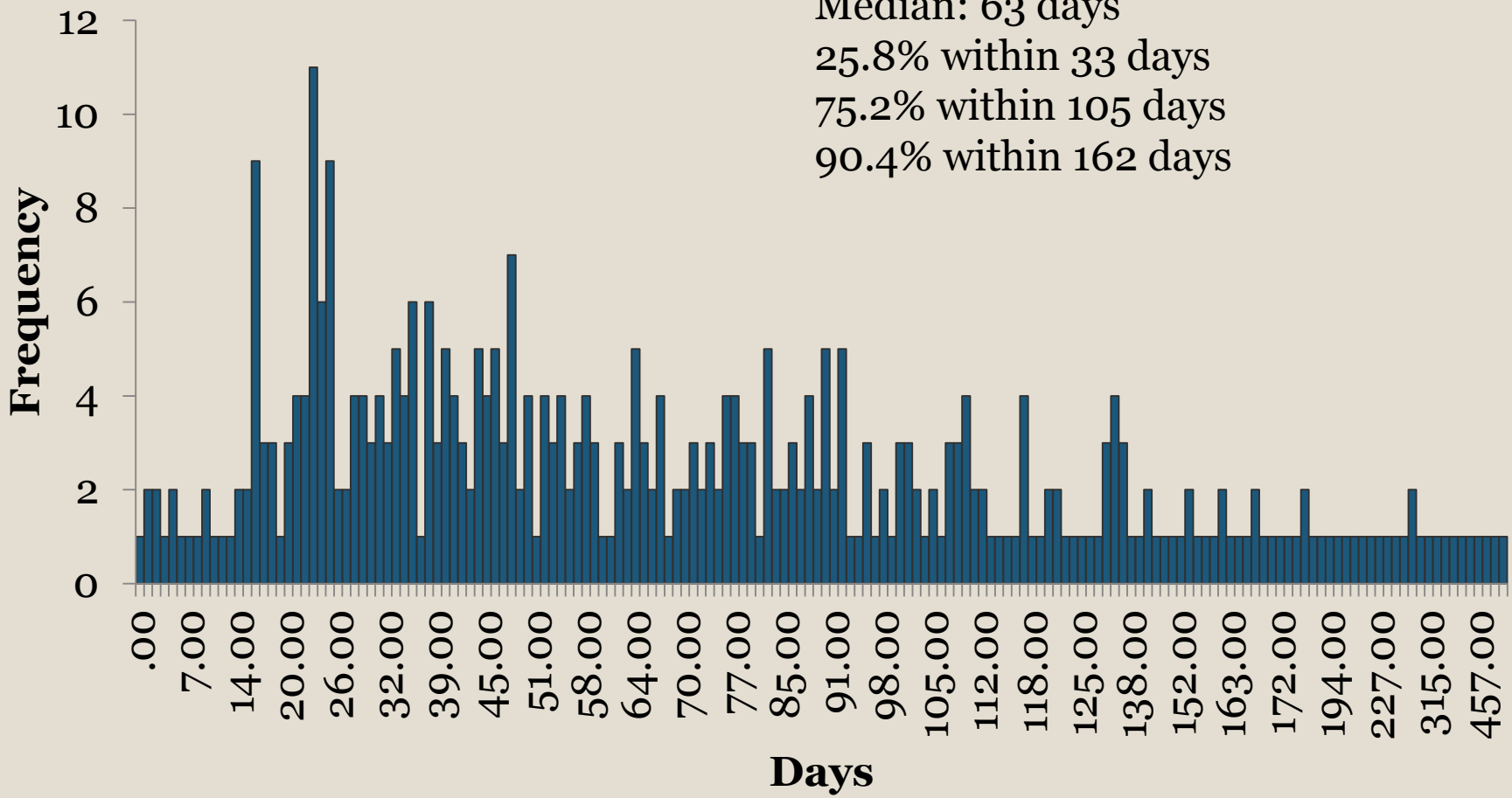
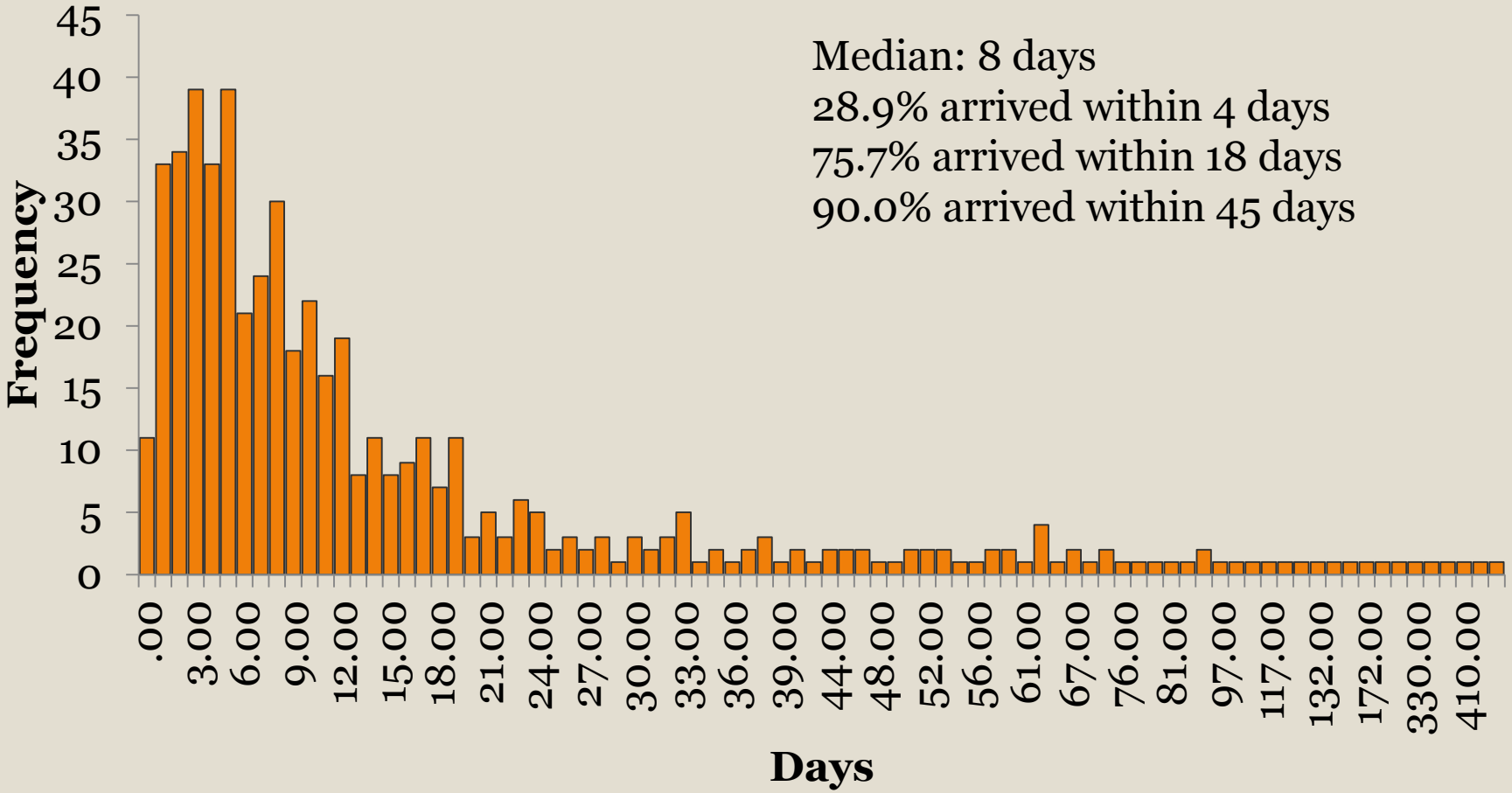


$p = .004$

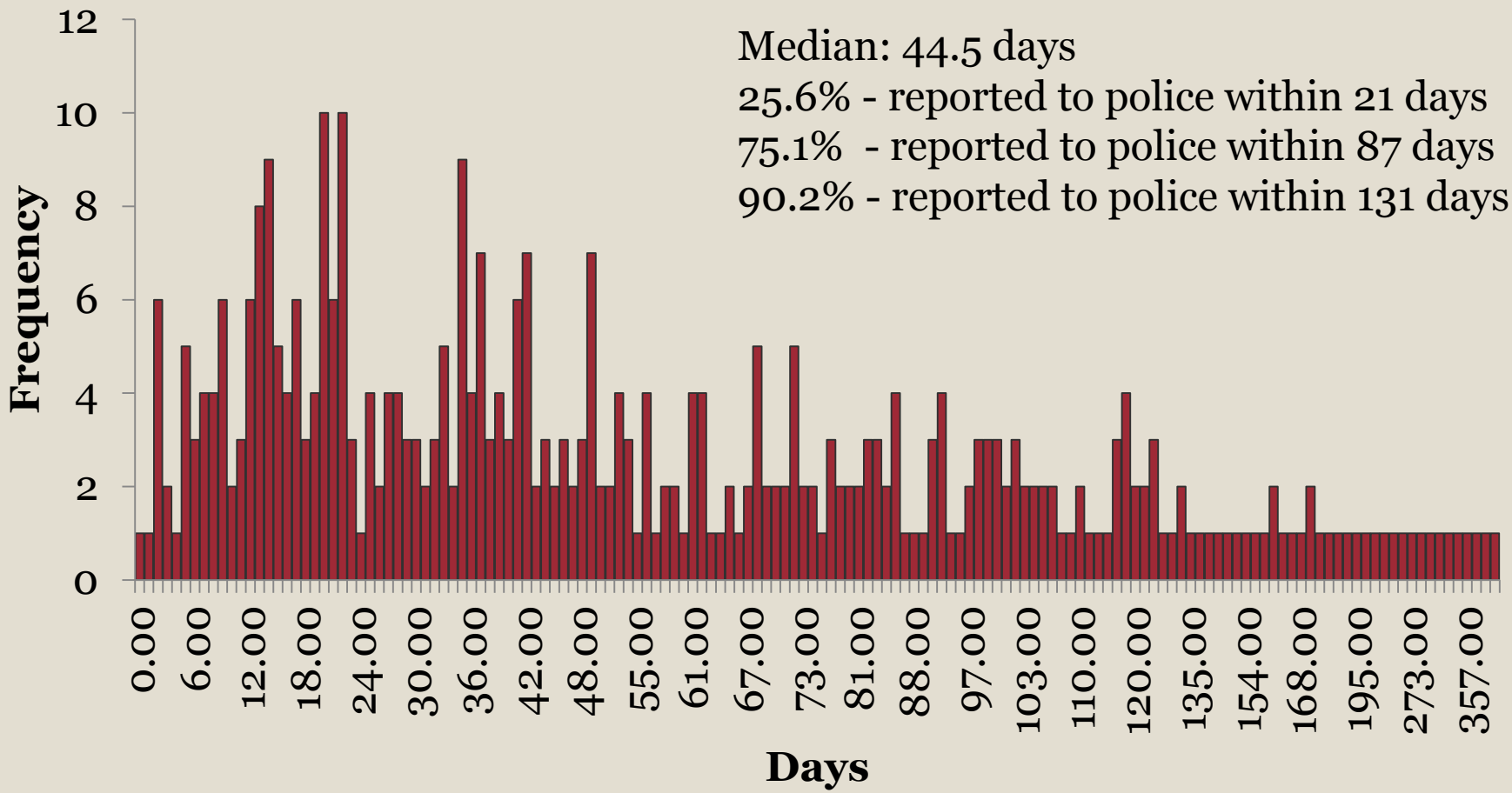
Time from Exam to Police Report



Time from Exam to Arrival at Lab



Time from Arrival at Lab to Report to Police



Discussion

- **Examination Completeness**
  - SANE nurses photographed more often and were significantly more likely to complete additional swabs during the exam.
  - Non-SANE medical personnel were more likely to include hair and pubic hairs combings and include clothing.

- **Injuries**
  - Non-Genital Injuries—53.0% of cases
    - No differences by examiner type, but differences by race/ethnicity.
  - Genital Injuries—41.1% of cases
    - SANE nurses were significantly more likely to identify genital injuries overall.
    - SANE nurses were significantly more likely to identify injuries on several specific female genital structures.

Discussion

- **Forensic Evidence**
  - 86.9% of cases had biological evidence
  - 40.9% of cases with biological evidence had DNA profile generated
    - DNA matched the suspect in 27.9% of these cases (7.6% of total sample with data available)
  - Cases involving strangers were more likely to have a DNA profile generated by the crime labs.
  - Short time periods between examination, arrival at the lab, and reporting back to the police appear to be the norm.

Next Steps

1. Continuing to exam the evidence collected in these sexual assault cases.

2. Examining the relationship of forensic evidence to criminal justice outcomes.
   - Linking the forensic and medical examination data to the Massachusetts NIBRS data and Boston Police data

3. Examining the effect of forensic evidence in key segments of the sample: cases with child victims, cases with stranger assailants, and cases with SANEs conducting the examination.

Contact Information

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