Error Rates, Likelihood Ratios, and Jury Evaluation of Forensic Evidence

Lead Researchers: Brandon L. Garrett J.D., William E. Crozier, Ph.D. and Rebecca Grady, Ph.D.
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OVERVIEW
Forensic examiner testimony regularly plays a role in criminal cases — yet little is known about the weight of testimony on jurors’ judgment. Researchers set out to learn more: What impact does testimony that is further qualified by error rates and likelihood ratios have on jurors’ conclusions concerning fingerprint comparison evidence and a novel technique involving voice comparison evidence?

THE HYPOTHESES
1. Participants would place less weight on voice comparison testimony than they would on fingerprint testimony, due to cultural familiarity and perceptions.
2. Participants who heard error rate information would put less weight on forensic evidence — voting guilty less often — than participants who heard traditional and generic instructions lacking error rates.
3. Participants who heard likelihood ratios would place less weight on forensic expert testimony compared to testimony offering an unequivocal and categorical conclusion of an ID or match.

APPROACH AND METHODOLOGY
WHO
• 900 participants read a mock trial about a convenience store robbery with 1 link between defendant and the crime
WHAT
• 2 (Evidence: Fingerprint vs. Voice Comparison) x 2 (Identification: Categorical or Likelihood Ratio) x 2 (Instructions: Generic vs. Error Rate) design
HOW
• Participants were randomly assigned to 1 of the 8 different conditions
• After reading materials + jury instructions, participants decided whether they would vote “beyond-a-reasonable-doubt” that the defendant was guilty
Participants considering fingerprint evidence were more likely to find the defendant not guilty when provided instruction on error rates. When the fingerprint expert offered a likelihood ratio, the error rate instructions did not decrease guilty verdicts.

Error rate information appears particularly important for types of forensic evidence that people may already assume as highly reliable.

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Researchers found, overall, that presenting an error rate moderated the weight of evidence only when paired with a fingerprint identification.