



# Using Randomized Controlled Trials in Criminal Justice

Gipsy Escobar, PhD

Michael D. White, PhD

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# Webinar Agenda

- Welcome
- Introduction to experimental design
  - Key features of Randomized Controlled Trials
  - Advantages and disadvantages
  - Methodological, ethical, and practical considerations
- Policing interventions and the RCT
  - Examples from the real world
- Conclusions
  - Biggest challenges
  - Why is it important
- Dr. Brenda Buren, Director, Tempe Police Department
  - Practitioner perspective on rigorous research designs

# Why are RCTs Important?

- 21<sup>st</sup> century policing is evidence-based policing
- Rigorous research tells us what works and what doesn't
- Filling the “Tool Box” with tools that work
  - Crimesolutions.gov
  - George Mason Evidence-Based Policing Matrix

# Introduction to Experimental Design

# What is an Experiment?

- Experiments are a natural way of learning
- The basic idea of an experiment is the same no matter what you are investigating:
  - The researcher collects evidence to assess whether any change in the outcome of interest is due to the intervention and not other causes

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*True Experimental Designs:*

4. Pretest-Posttest Control Group Design

R	O	X	O
R	O		O

As in Campbell & Stanley (1967).  
*Experimental and Quasi-  
Experimental Design for Research.*

# Randomized Controlled Trials Principles



Random assignment of participants or cases to control and experimental groups

Implementation of treatment or intervention to the experimental group

No treatment (or implementation of standard treatment) to control group

Comparison of outcomes on a dependent variable for the experimental and control groups, pre- and post-implementation

# Cause and Effect: What are the Standards?

- Maryland Scientific Method Scale (SMS) (Sherman et al., 1997)

Level  
1

- Correlation between intervention and an outcome (e.g., crime) at one point in time.

Level  
2

- Measures of outcome before and after intervention, with no comparable control conditions

Level  
3

- Measures of outcome before and after intervention in two conditions (1 that received intervention, 1 that did not)

Level  
4

- Measures of outcome before and after intervention in treatment and comparison units, controlling for other variables

Level  
5

- Random assignment of intervention to treatment and control conditions

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Level  
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- Random assignment of intervention to treatment and control conditions



# The Gold Standard

- RCTs are considered the gold standard of scientific research (level 5 in SMS)
  - Random assignment makes treatment and control groups equivalent
  - Thus we can safely assume that changes in the outcome variable are due to the intervention

# When is RCT a Good Option?

Can the variables of interest be manipulated practically? Ethically?

Would an experimental intervention distort the object of the investigation?

Is the research more concerned with causal processes or outcomes?

Can cases, subjects, areas or participants be randomly assigned?

# Advantages and Disadvantages of RCTs

Feature	Advantage	Disadvantage
Random assignment	Controls for factors external to the intervention.	Many research topics are not susceptible to random assignment.
Manipulable variables	Presence, duration, and intensity of intervention are determined by researchers.	Many variables are impossible or difficult to manipulate (ethical?).
Effectiveness	Better at investigating short-term, relatively uncomplicated interventions.	Long-term effects may be obscured by the history threat to validity.

# Advantages and Disadvantages of RCTs

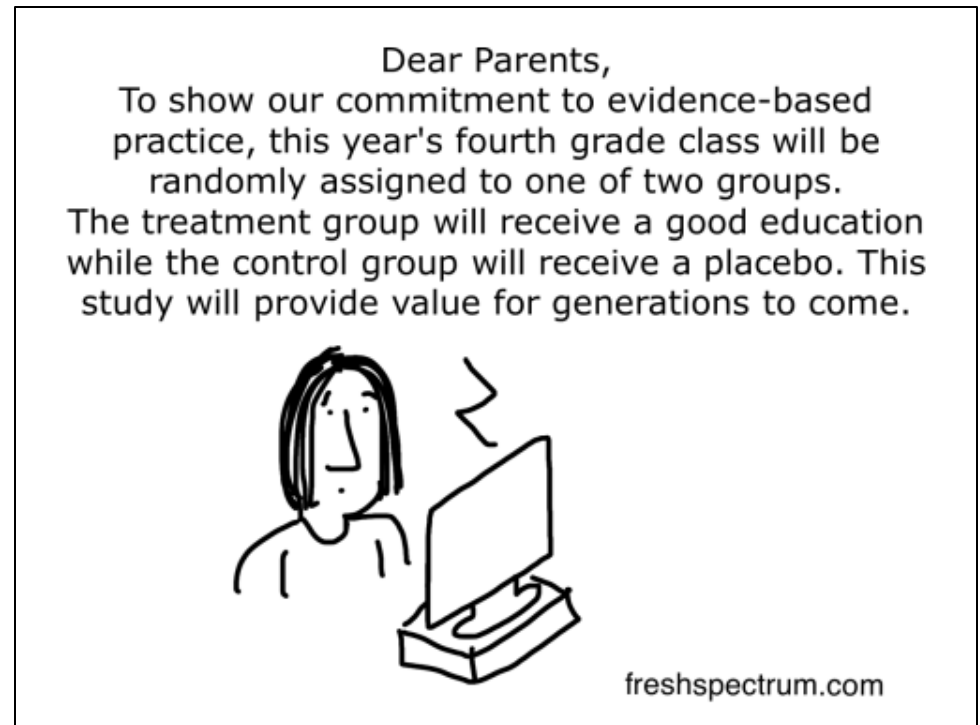
Feature	Advantage	Disadvantage
Artificiality of treatments	Keeps contaminating influences to a minimum.	Can be too distinct from real-world complexities (too short-term and too mild).
Validity	Best for internal validity of conclusions.	Often less strong for external validity or generalizability.
Causation	Often the strongest design for identifying causal outcomes.	Often less effective at discovering causal processes.

# Methodological Considerations

- Fidelity:
  - Was the intended intervention actually delivered?
  - Was it delivered according to the specifications in the design?
- Conduct manipulation checks:
  - Was the intervention strong enough or consistent enough to have the intended effect?
- Statistical power:
  - Was the size of the experimental and control groups large enough to estimate statistical significance?

# Ethical and Practical Considerations

- RCTs in institutional settings
- Cost and buy-in
- Withholding treatment from needy populations
- Contamination and spill-over effects



# Stop and Talk

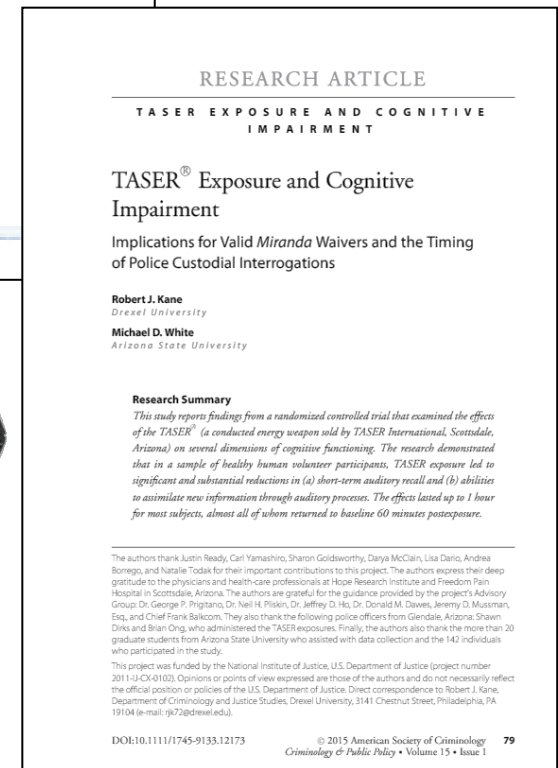
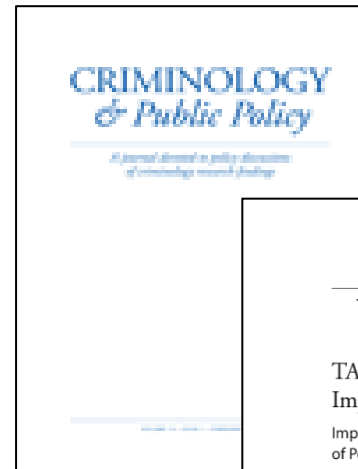
Questions?  
Comments?



# Ethical and Practical Considerations

## An Illustrative Example

- Effect of TASER exposure on cognitive functioning
  - How do you ethically and practically “taze” college students?





# Policing Interventions and RCT: Examples from the Real World

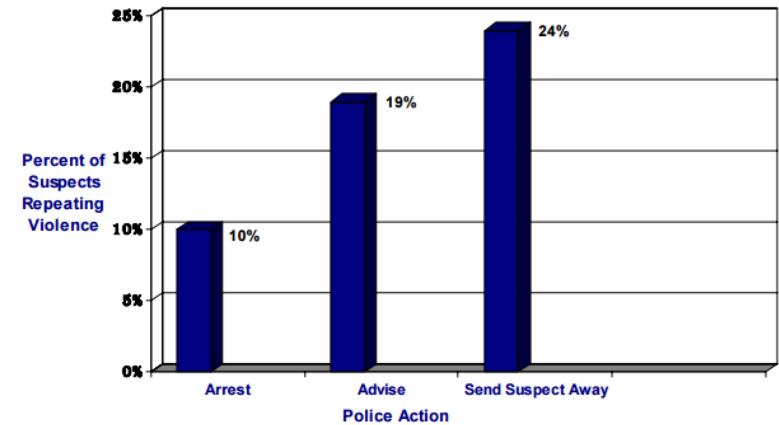
# The RCT Principles

- What can be randomized?
  - Most commonly places and people
- What can be a “treatment” or intervention?
  - Just about anything: body-worn cameras, use of DNA in property crime investigations, a policing strategy (POP, COP), types or levels of patrol, formal activity (arrest, mediation, etc.)
- What can be the outcome of interest (or dependent variable)?
  - Examples: arrests (recidivism), clearance, crime, use of force, citizen satisfaction, police legitimacy

# Minneapolis Domestic Violence Experiment

- What was randomized?
  - Domestic violence calls
- What was the treatment?
  - Case outcomes: arrest, separation, counseling (color-coded pad)
- What was the outcome of interest?
  - Recidivism of offenders (future domestic violence)
  - Does arrest decrease likelihood of subsequent domestic violence arrests/offenses?
- Findings...

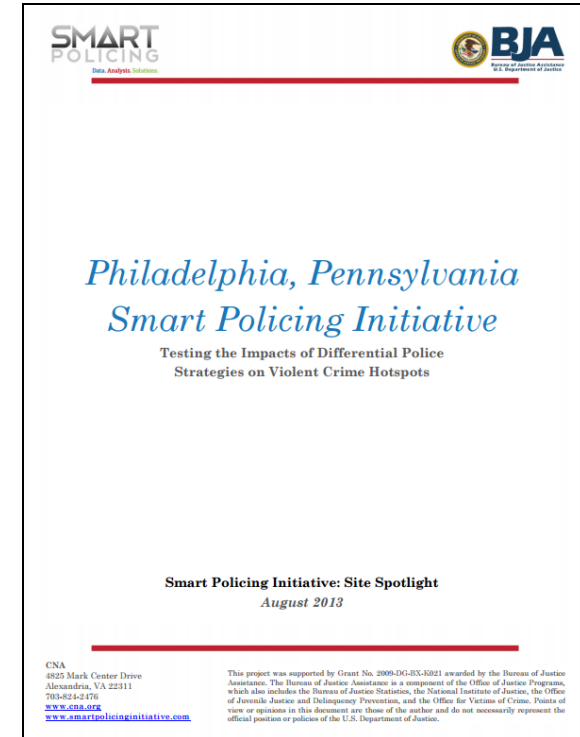
Figure 1. Percentage of Repeat Violence Over Six Months for Each Police Action  
Official Records: N = 314



Source: Sherman & Berk 1984

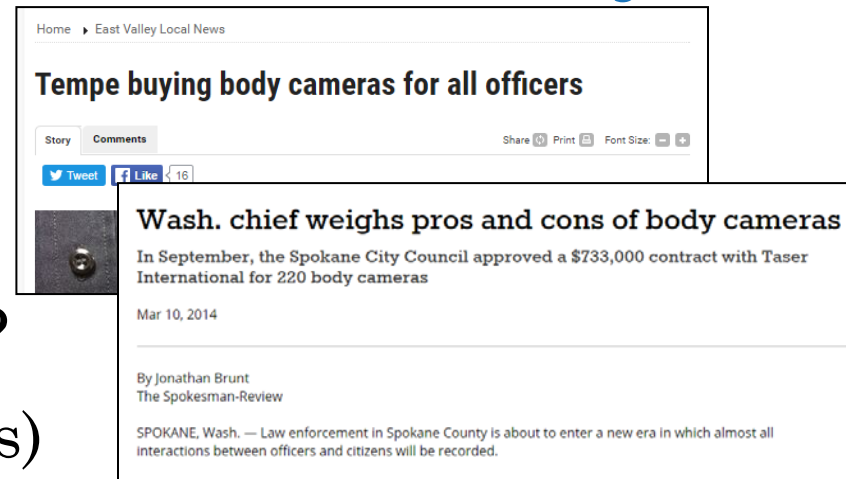
# Philadelphia Smart Policing Initiative

- What was randomized?
  - Crime hot spots
- What was the treatment?
  - Police officer activity—POP, targeted offenders, foot patrol (what should cops do in hot spots)?
- What was the outcome of interest?
  - Crime
- Findings...



# Spokane/Tempe Body-Worn Camera Study

- What was randomized?
  - Police officers
- What was the treatment?
  - Body-worn cameras (BWCs)
- What was the outcome of interest?
  - Use of force, citizen complaints, citizen perceptions of procedural justice
  - Do BWCs lead to reduced levels of force and citizen complaints? And higher levels of procedural justice?
- Findings...



# Returning to the Challenges

- Is randomization practical? Ethical?
  - People are deprived of the intervention for the sake of science
- Contamination
  - Control people/places are exposed to the treatment
- Implementation
  - Are the protocols followed by the officers?

# Discussion: The Practitioner Perspective on Rigorous Research Designs



Dr. Brenda Buren  
Director  
Tempe Police Department

# Stop and Talk

Questions?  
Comments?

