Randomized Controlled Trials (RCTs)

Remember, everything causal is correlated, but not all correlation is causal

Does shaking hands with a presidential candidate at a rally increase the chances a person will vote in the election?

Options to answer this question

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- There could be differences between 'shakers' and 'non-shakers'
  - Motivation
  - Money
  - Commitment to a candidate
  - etc.

Problems in Assessing Causation

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We can merely approximate it.

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$Y_i = 1$ if the individual (i) voted, 0 otherwise

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(The handshake either happened or did not happen)

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Avg Treatment Effect $= \text{Avg}(Y_{D=1}) - \text{Avg}(Y_{D=0})$

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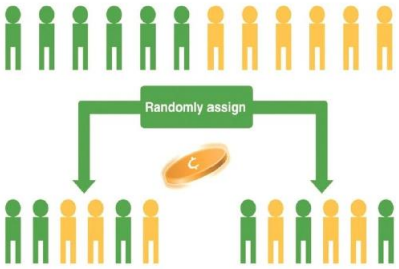

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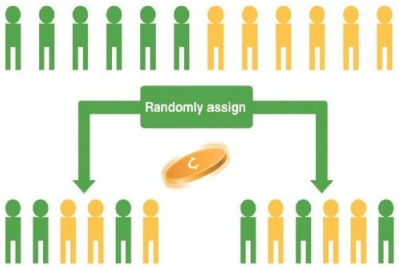

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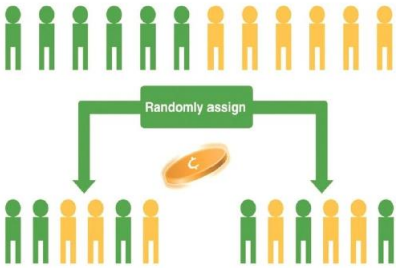

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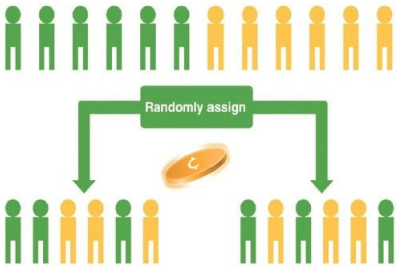

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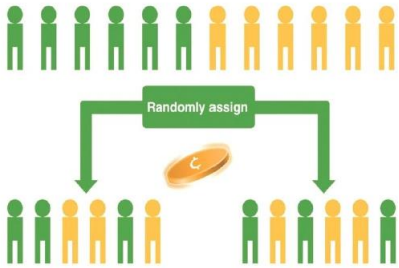

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Effect of Handshake = Avg($Voting_{Handshake=1}$) - Avg($Voting_{Handshake=0}$)

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Larger samples mean we are likely to create very similar groups with random assignment alone.

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- Generalizability (*external validity*)

Examples

GOTV Experiment

Gerber, Green & Latimer (2008)

Given what we know about *social desirability bias*, can we increase turnout in elections?

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Treatment Group 1 – "Neighbor Shaming"

Received a letter in the mail saying that it is a civic duty to vote.
Included a locally-adjusted message:

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Dear Registered Voter:

WHAT IF YOUR NEIGHBORS KNEW WHETHER YOU VOTED?

Why do so many people fail to vote? We've been talking about the problem for years, but it only seems to get worse. This year, we're taking a new approach. We're sending this mailing to you and your neighbors to publicize who does and does not vote.

The chart shows the names of some of your neighbors, showing which have voted in the past. After the August 8 election, we intend to mail an updated chart. You and your neighbors will all know who voted and who did not.

DO YOUR CIVIC DUTY — VOTE!

MAPLE DR	Aug 04	Nov 04	Aug 06
9995 JOSEPH JAMES SMITH	Voted	Voted	_____
9995 JENNIFER KAY SMITH		Voted	_____
9997 RICHARD B JACKSON		Voted	_____
9999 KATHY MARIE JACKSON		Voted	_____

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Control Group – No Letter

Registered voters were randomly assigned to a group

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- Average Treatment Effect (ATE)

‘Smaller’ Experiments in Political Science

“In the Lab”

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  - Kuo, Malhotra & Mo: Recorded political opinions. Later, recorded them again, but the survey contained a micro-aggression

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Red Cross Estimates 1,000 Dead in U.S. Nuclear Strike against Al Qaeda Atomic Bomb Lab in Syria

United States used nuclear weapons to ensure destruction of deeply buried facility

The Associated Press

A new International Red Cross report estimates that the total death toll from the U.S. nuclear strike against an Al Qaeda atomic bomb lab in Syria will eventually reach 1,000 civilians, including long term deaths due to the strike. An additional 1,200 people are still being treated in local hospitals for non-life threatening injuries, primarily burns suffered during the attack.

Two American nuclear-tipped cruise missiles struck targets near the town of As-Safih in northern Syria yesterday in what the U.S. officials have called an act of self-defense against an imminent terrorist nuclear attack.

Since the strike, high ranking government sources from the United States and Russia have confirmed that the U.S. military operation destroyed an underground Al Qaeda weapons facility in which the components for at least two nuclear weapons were being assembled. Last week, Russian intelligence agents intercepted a shipment of approximately 70 pounds of nuclear weapons-grade uranium being smuggled from Russia to the Al Qaeda camp. The seized uranium would have been sufficient to fuel a crude nuclear bomb.

> "We decided to use nuclear weapons to destroy Al Qaeda's nuclear weapons before Bin Laden could use them against us."

Russian officials determined that the suspects in the smuggling operation were employed at a Russian nuclear facility, and that an additional 150 pounds of weapons-grade uranium were missing from the site. The suspects confirmed under questioning that an earlier shipment of uranium was successfully delivered to the Al Qaeda weapons lab, where two nuclear weapons were being assembled.

The Al Qaeda facility was comprised of a series of deeply buried caves and tunnels, which made destruction of the facility difficult. Speaking to reporters, Pentagon Spokesman John Harkins said, "We did everything possible to minimize the loss of life in Syria, but we decided to use nuclear weapons to destroy Al Qaeda's nuclear weapons before Bin Laden could use them against us."

According to Dr. David Wright, an expert on military operations and weapons at the Union of Concerned Scientists, an independent think-tank based in Washington, D.C., the U.S. had few other options. "It would have been very difficult to destroy the deeply buried bunkers without using nuclear weapons," he said. Wright also warned that the Al Qaeda bombs, while crude, would have caused catastrophic damage if used in a crowed urban area. "If a bomb of this size exploded in New York City, it could easily kill 50,000 – 70,000 people," he said.

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Survey Experiments:

For instance:

- Hainmueller & Hiscox (2014)
- Respondents were presented with multiple pairs of hypothetical people—the characteristics of whom were randomly varied.
- Could vote on which immigrant in the pair should be allowed to enter.