Data-Driven Safety Training

Introduction

Part I

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Outline

- **Background/motivation**
- **Subjective vs. objective safety**
- Complexity of traffic crashes & data
- Regression to the mean bias
- Review of statistics
- Use and application of data-driven safety methods

Data-Driven Safety Tool Examples

- Highway Safety Manual (HSM)
- Data-driven safety software tools
  - HSM spreadsheets
  - Interactive Highway Safety Design Model (IHSDM)
  - Enhanced Interchange Safety Analysis Tool (ISATe)

Interactive Highway Safety Design Model (IHSDM)

Motivation for Data-Driven Safety

- Reduce crashes in Missouri, decrease crash severity
- Compare/analyze safety of transportation projects, scenarios, and conditions
- Prioritize and optimize use of available transportation funds

MoDOT Tangible Results

- **Moving Missourians Safely**
- Providing Outstanding Customer Service
- Delivering Efficient and Innovative Transportation Projects
- Operating a Reliable Transportation System
- Managing our Assets
- Stabilizing Resources and Engaging our Workforce
- Building a Prosperous Economy for All Missourians

Subjective vs. Objective Safety

- subjective – perception of how safe a person feels while traveling
  - many people have valid perceptions of safety
  - e.g. the traveling public, highway workers, the media

- objective – use of data/quantitative measures to assess safety
  - independent of the observer or his/her feelings

Example of Subjective vs. Objective Safety

- Assume an aggressive media campaign on DUI during holiday weekend + highly visible police checkpoints

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Example of Subjective vs. Objective Safety

- Assume an aggressive media campaign on DUI during holiday weekend + highly visible police checkpoints
- What is the most likely outcome?
  A. increase in subjective safety, increase in objective safety
  B. decrease in subjective safety, increase in objective safety
  C. increase in subjective safety, decrease in objective safety
  D. decrease in subjective safety, decrease in objective safety

Example of Subjective vs. Objective Safety

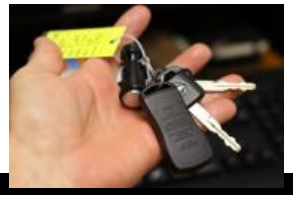
Possible outcomes

- Subjective safety decreased
  - people might feel less safe because they are made more aware of drunk drivers
- Subjective safety increased
  - people feel safer because of greater police presence

Example of Subjective vs. Objective Safety

Possible outcomes

- Objective safety increased
  - people made aware and designate drivers or use ridesharing after drinking, e.g. # of viewings
  - drunk drivers are being caught and taken off roads, e.g. # of arrests
  - people are more vigilant and practice defensive driving, e.g. survey of awareness and defensive driving



Example of Subjective vs. Objective Safety

Possible outcomes

- Objective safety remains similar
  - people not react significantly to campaign
  - limited # of checkpoint/times not having major impact

Example of Subjective vs. Objective Safety

- Various outcomes are possible
- Main point -> there could be a difference between subjective & objective safety
  - Data-driven safety methods help to improve objective safety
  - Data-driven safety methods could even supply the data/stats to assist in improving subjective safety