Example Midterm Presentation

Ryan Miller

Introduction

- Cannabis is among the most frequently detected drugs in fatally injured drivers in the US
  - Driving after using cannabis is also on the rise as legal availability increases
- The purpose of this analysis is to share results from a driving simulator study aimed at evaluating the impacts of acute cannabis use on driving performance during distraction tasks

Data Collection

- Researchers at the University of Colorado recruited healthy adults aged 25-45 who drove at least 20 miles per week
  - Based upon their self-reported cannabis use, enrolled participants were placed into one of three groups:

1) Daily users (using at least once per day over the past 30 days)
2) Occasional users (using at least once per week but not more than twice per week over the past 30 days)
3) Non-users (no use in the past 30 days)

Data Collection

Subjects engaged in four different driving scenarios in a NADS-Minisim

Data Collection

- The first two scenarios were used to establish baseline performance
- Cannabis users then smoked their own self-procured cannabis flower for 15-minutes before completing the remaining two scenarios
- Each scenario contained between 0 and 3 repetitions of a distraction task where the subject was prompted to select an app from a 4x5 grid on a mounted tablet

Data Collection

- Analyses focuses on two explanatory variables:
  - Usage group (daily, occasional, or non-user)
  - Dosing condition (baseline period, or post-use period)
- Results are presented for three outcomes related to driving performance during distraction tasks:
  - Lane departures (binary categorical)
  - Standard deviation of lateral position (quantitative)
  - Change of speed prior to the task (quantitative)

Univariate Results

Distraction tasks by usage group:

Summary Statistics

	Count	Proportion
control	190	0.399
occasional	113	0.237
frequent	173	0.363
Total	476	1.000

In total, the 30 non-users, 25 occasional users, and 31 daily users engaged 476 distraction task repetitions

Univariate Results (lane departures)

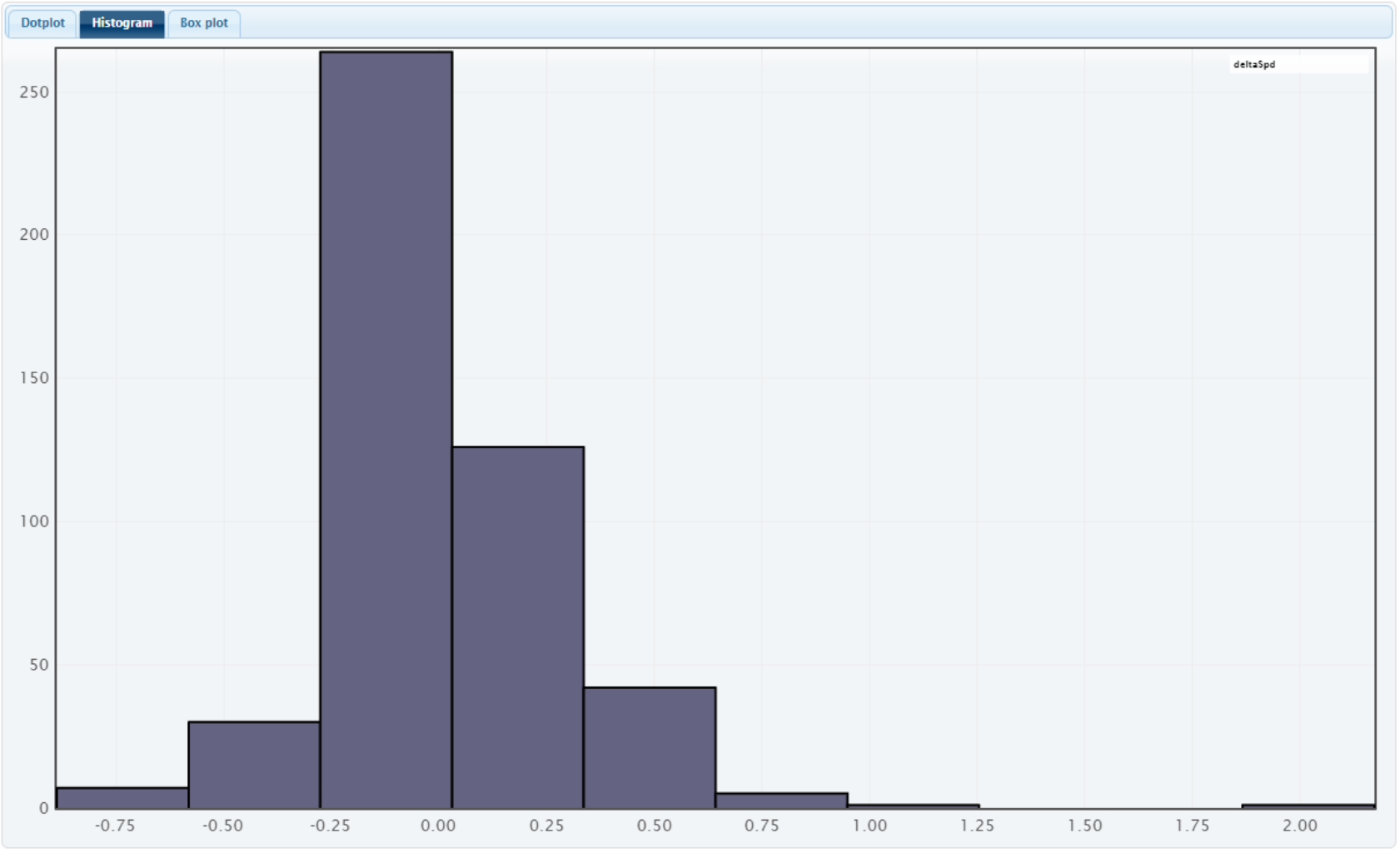
Lane departures during task periods:

Summary Statistics

	Count	Proportion
0	399	0.838
1	77	0.162
Total	476	1.000

Departures were observed in 16.2% of 476 distraction tasks

Univariate Results



Drivers tended to slightly decrease speed prior to most tasks (median = -0.012 mph)

Bivariate Results

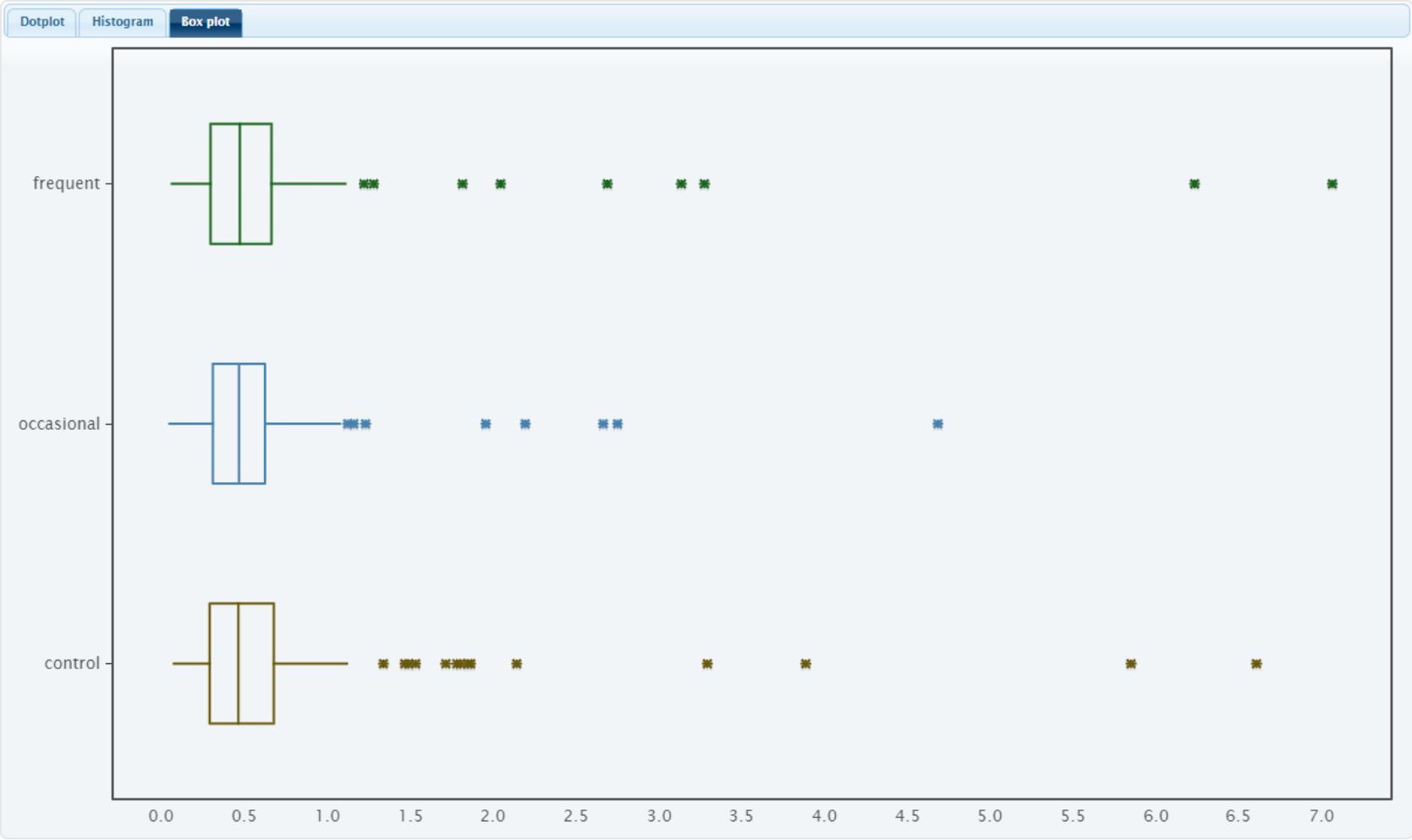
Lane departures by usage group:

Proportions Row | Column | Overall

condition \ dept	0	1	Total
control	0.821	0.179	1
occasional	0.805	0.195	1
frequent	0.879	0.121	1
Total	0.838	0.162	1

Lane departures were most prevalent for occasional cannabis users

Bivariate Results



Median SDLP during task periods was similar for each group

Multivariate Results

Lane departures (% of tasks) by dosing condition and usage group:

	Baseline	Post-use
Non-user	0.200	0.153
Occasional	0.094	0.283
Daily	0.111	0.133

- Occasional users experienced a large increase in departures post-use
- Daily users experienced only a small increase

Multivariate Results (SDLP)

Mean SDLP (ft) by dosing condition and usage group:

	Baseline	Post-use
Non-user	0.619	0.626
Occasional	0.466	0.692
Daily	0.625	0.629

- Occasional users were the only group to experience a substantial increase post-use
  - However, these changes seem to be due to a lower baseline SDLP

Conclusion

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- Deleterious effects of acute cannabis use on driving performance during distraction tasks appear to be most pronounced among occasional users
- Some evidence (not presented) indicates daily users may compensate by reducing speed

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Limitations:

- Data are observational, as precise levels of intoxication were not assigned
- The short duration of tasks and the number of repetitions per subject are additional limitations