

Impaired Driving and Co-occurring Problem Behaviours Among Adolescents: Results from the Ontario Student Drug and Health Survey (OSDUHS)

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Problem Behaviour Theory

- both risk and protective behaviours, internal and external,
- certain behaviours often co-occur and cluster together,
- adolescents who engage in 1-2 risk-taking behaviours are likely to develop more over time. Involvement may not compromise young adult outcomes (ie. Work, family, health, etc).

www.Colorado.edu/ibs/jessor/pb_theory.html

Purpose

To examine the relationship of impaired driving with other problematic behaviours in a provincially representative sample of high school students living in Ontario

- Alcohol driving vs. cannabis driving - Rates?
- What problematic behaviours are related?
- Do these behaviours differ between alcohol and cannabis driving?

Ontario Student Drug Use and Health Survey

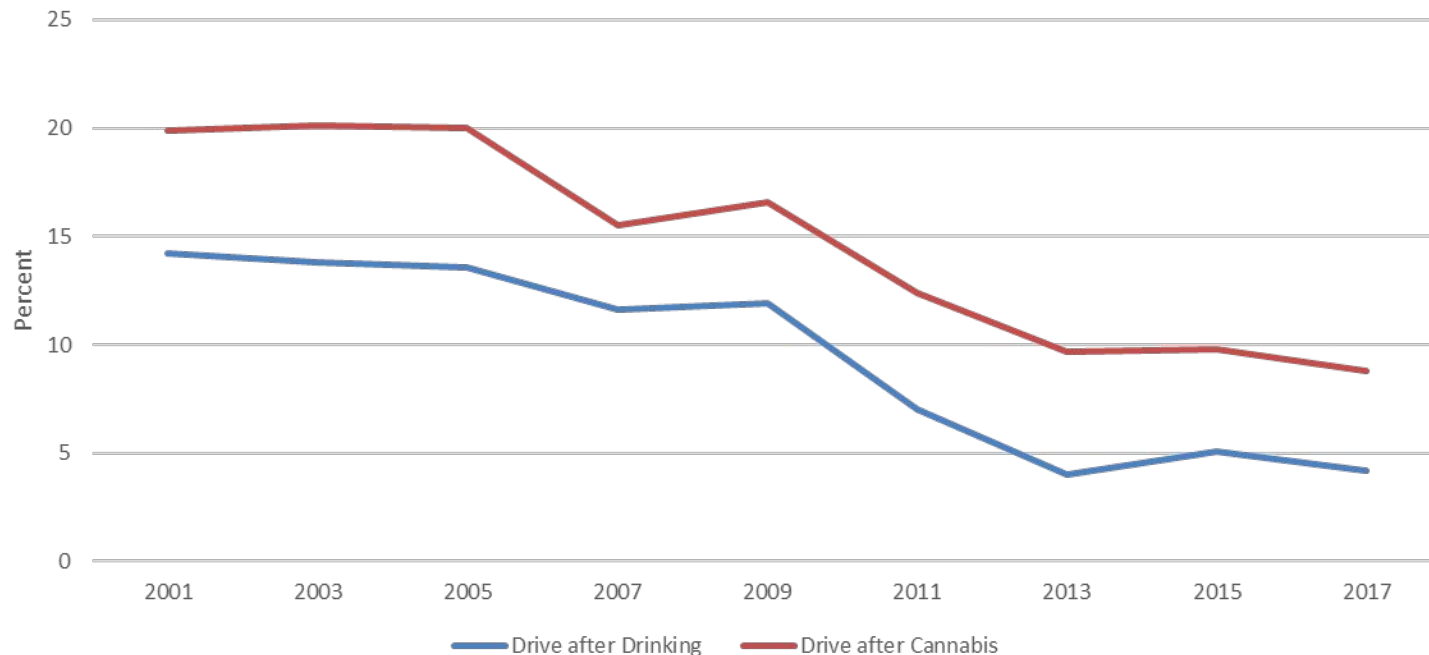


- A cross-sectional, anonymous in-class survey : 2015 and 2017 cycles used
- Uses a probability stratified cluster design with post stratification weights.
- Completion rate varied from 59 to 61%

Further details are available at:

<https://www.camh.ca/en/science-and-research/institutes-and-centres/institute-for-mental-health-policy-research/ontario-student-drug-use-and-health-survey---osduhs/>

Self-Reported Impaired Driving Rates among Ontario Students (OSDUHS) (Grades 7-12)



Boak A, Hamilton HA, Adlaf EM, Mann RE. Drug Use Among Ontario Students, 1977-2017: Detailed Findings from the Ontario Drug Use and Health Survey (OSDUHS). (CAMH Research Document No. 46). Toronto, ON: Centre for Addiction and Mental Health.

Sample

- Full sample: 21,861 students surveyed in grades 7-12 from, 214 schools, and 764 classes.
- Subsample: 2,770 students who reported having at least a G2 licence, aged 16-19, and who answered questions from Form A of the survey



Outcome Variables:

- **Diving after Alcohol Use:** “In the last 12 months have you driven a vehicle within an hour of drinking 2 or more drinks of alcohol?” (yes/no)
- **Driving after Cannabis use:** “In the last 12 months have you driven a vehicle within an hour of using marijuana or hashish?” (yes/no)



Antisocial Behaviour Indicator

Youth report in the last 12 months any of the following behaviours:

- joyriding (taking car without owner's permission),
- damaged property on purpose,
- sold marijuana/hashish,
- stealing (< \$50), stealing (>\$50),
- broken into a locked building,
- ran away from home,
- set something on fire
- beat up/hurt anyone on purpose,
- carried a weapon.

Sum of each behaviour (range: 0-10). Factor analysis (oblim rotation): retained factor of 1 with variance of 3.13017. Sample Reliability: Cronbach's $\alpha = 0.7444$

Psychiatric Distress

- **Kessler-6 (K6)** screener for non-specific psychological distress - represents symptoms associated with anxiety and depression¹
- **High psychiatric distress 18+ cutoff:** (no = 0-17, yes =18-24): “How often in past 30 days respondents have felt: nervous, hopeless, restless or fidgety, so depressed that nothing could cheer you up, that everything was an effort, and worthless.”

¹Kessler, R. C., Barker, P. R., Colpe, L. J., Epstein, J. F., Gfroerer, J. C., Hiripi, E., ... & Zaslavsky, A. M. (2003). Screening for serious mental illness in the general population. *Archives of general psychiatry*, 60(2), 184-189.

Bullying & School Suspensions

- **Bullied others:** Since September, how often have you taken part in bullying others at school? (yes/no)
- **Ever Suspended:** Have you ever been suspended? (yes/no)



Alcohol & Cannabis Use/Abuse

- **Hazardous drinking:** (no=0-7, yes=8-40): Alcohol Use Disorders Identification Test (**AUDIT**) **8+** cutoff ($\alpha = .86$)¹

¹Saunders, J. B., Asland, O. G., Babor, T. F., De La Fuente, J. R., & Grant, M. (1993). Development of the Alcohol Use Disorders Identification Test (AUDIT): WHO collaborative project on early detection of persons with harmful alcohol consumption-II. *Addiction*, 88(6), 791-804. doi:10.1111/j.1360-0443.1993.tb02093.x

- **CRAFFT Drug Use Problem Screener** (no= 0-1) (yes=2-6): Measures a drug use problem that may require intervention (past 12 months) ($\alpha = .79$)²

²Knight, J. R., Shrier, L. A., Bravender, T. D., Farrell, M., Vander Bilt, J., & Shaffer, H. J. (1999). A new brief screen for adolescent substance abuse. *Archives of Pediatrics & Adolescent Medicine*, 153(6), 591-596. doi:10.1001/archpedi.153.6.591

Socio-Demographic

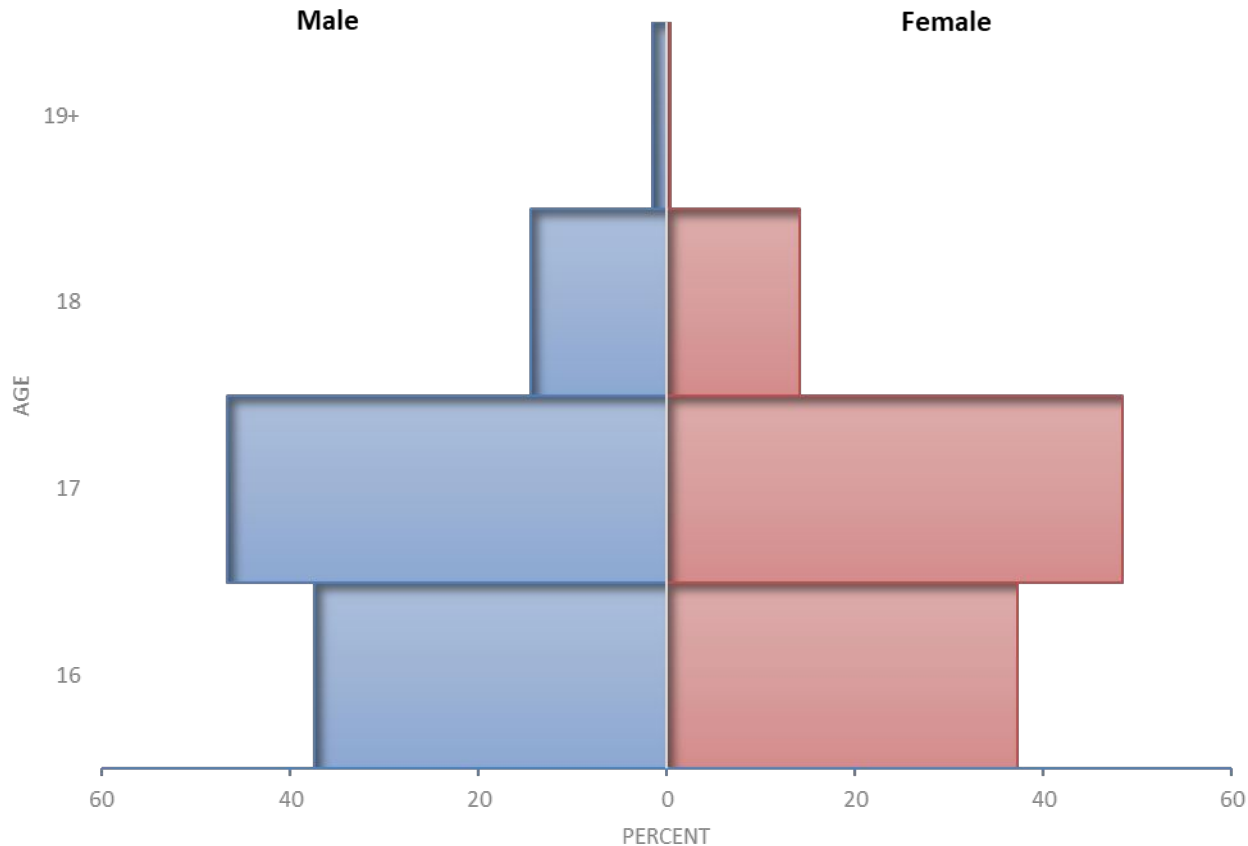
- Age: 16-19
- Sex: Male, Female

Analyses

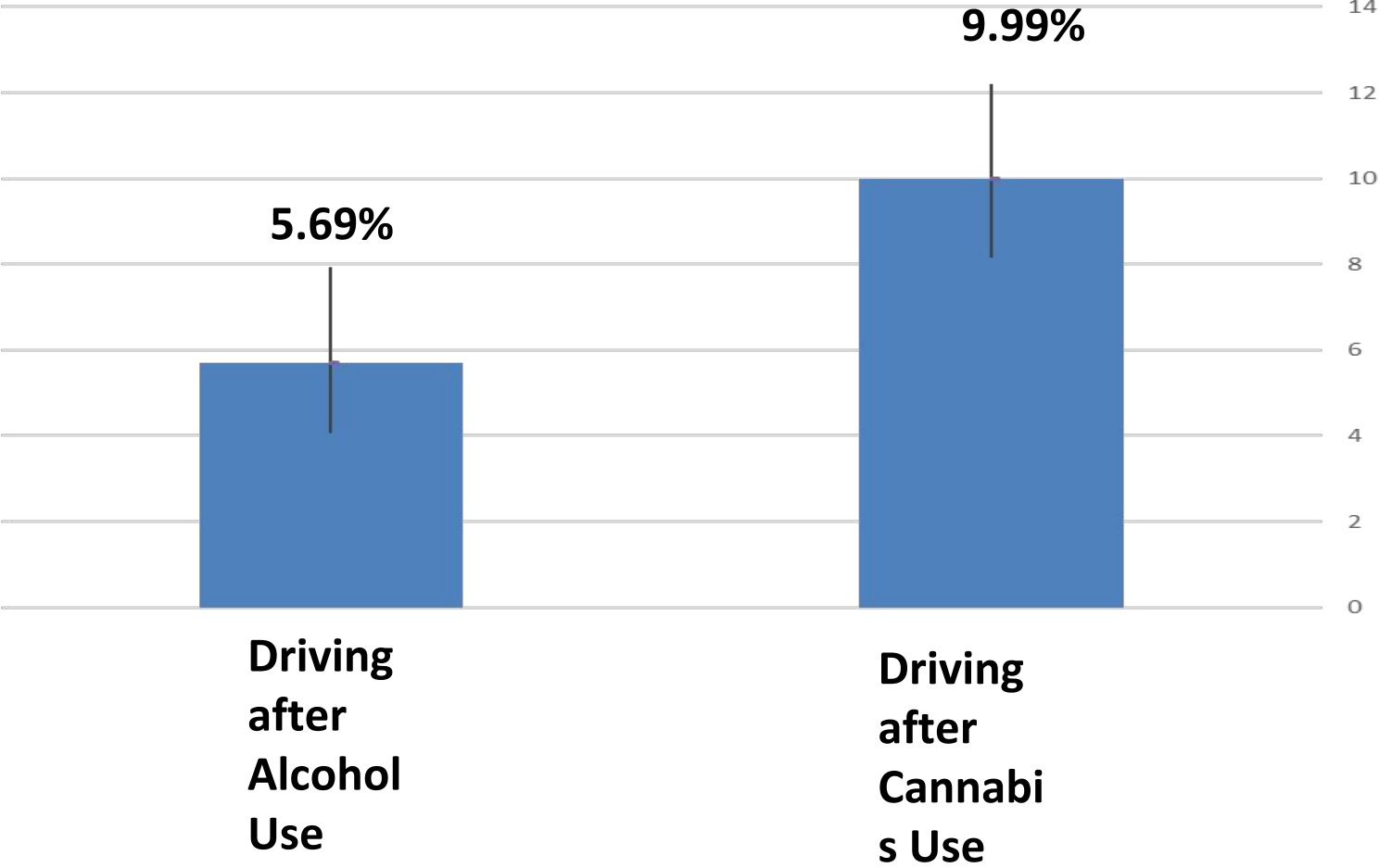
- Analyses were conducted using Stata 15.1. All estimates and statistical tests were corrected for the sampling design
- Analyses are weighted to be representative of the Ontario population. Weighted sample size was used when reporting percentages
- Missing data are excluded from analyses.



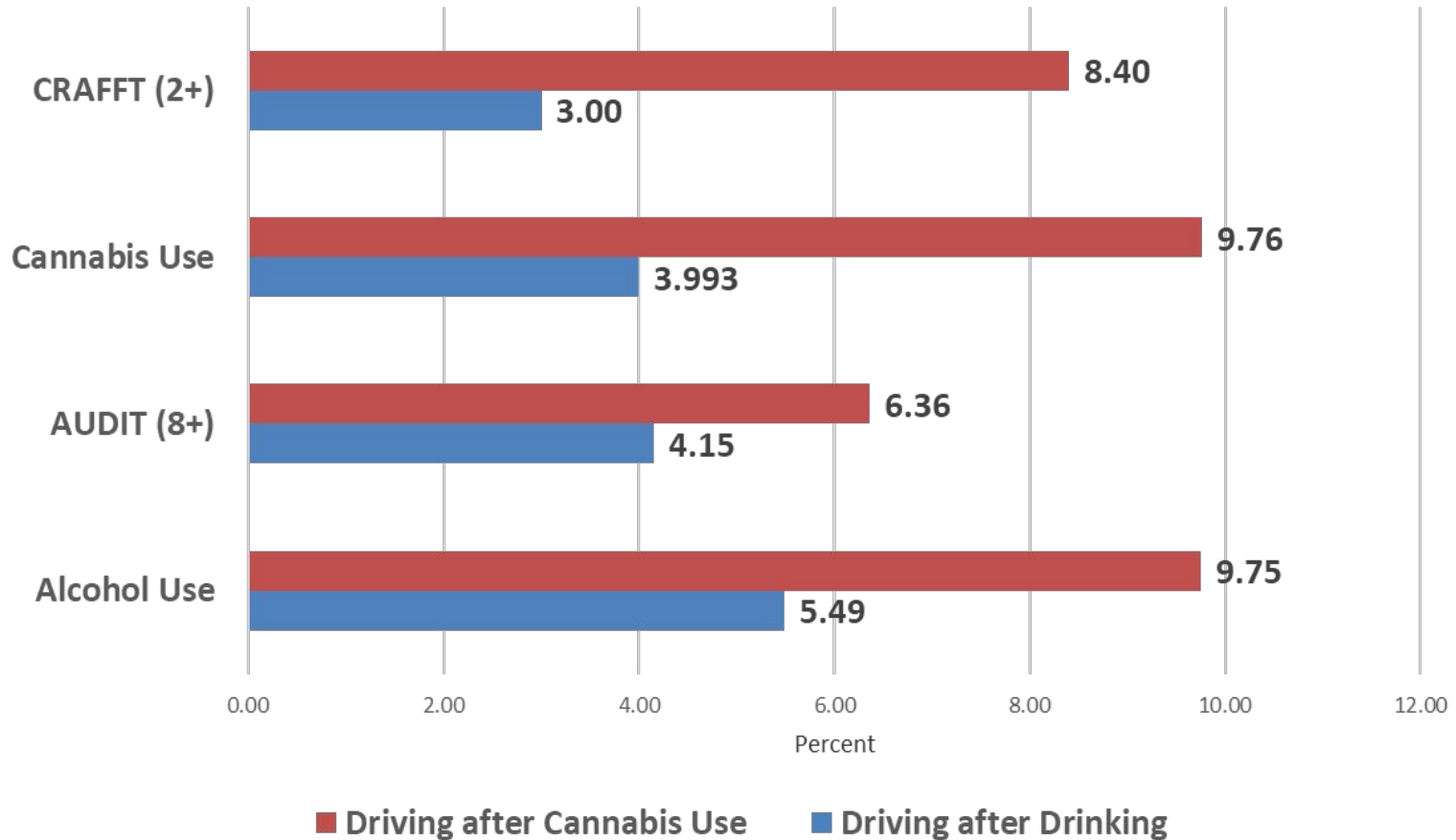
Mostly 16 & 17 Year Olds Responded With Few Older Students



Rates for Cannabis Use and Driving Almost Double that of Alcohol Use and Driving

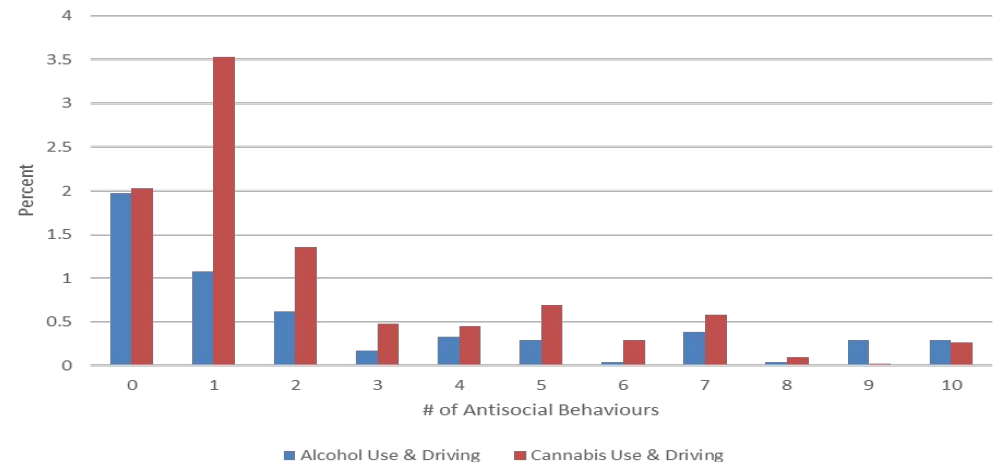


Impaired Driving & Substance Use Rates

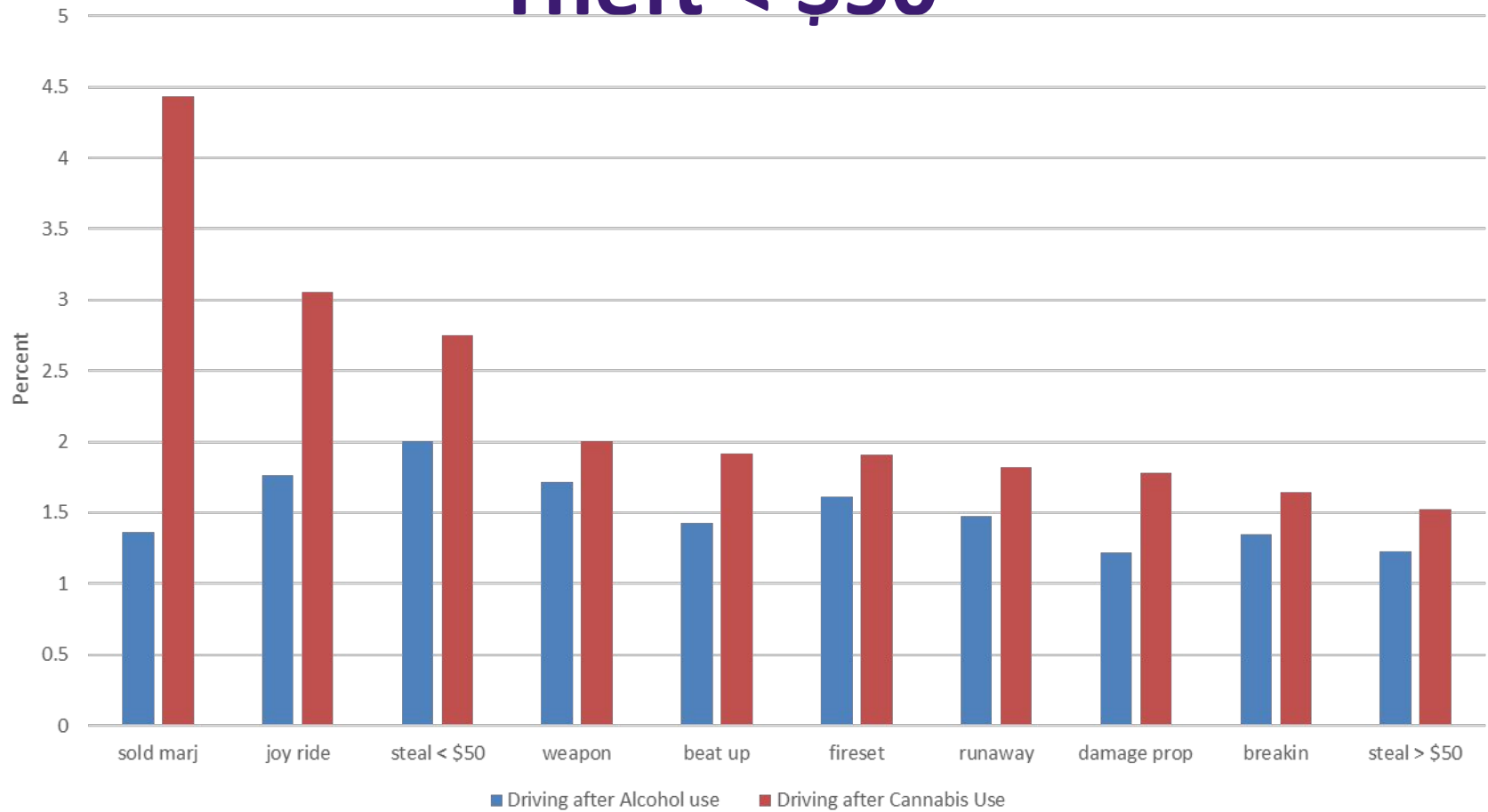


Students With a Greater # of Antisocial Behaviours Were Significantly More Likely To Drive Impaired

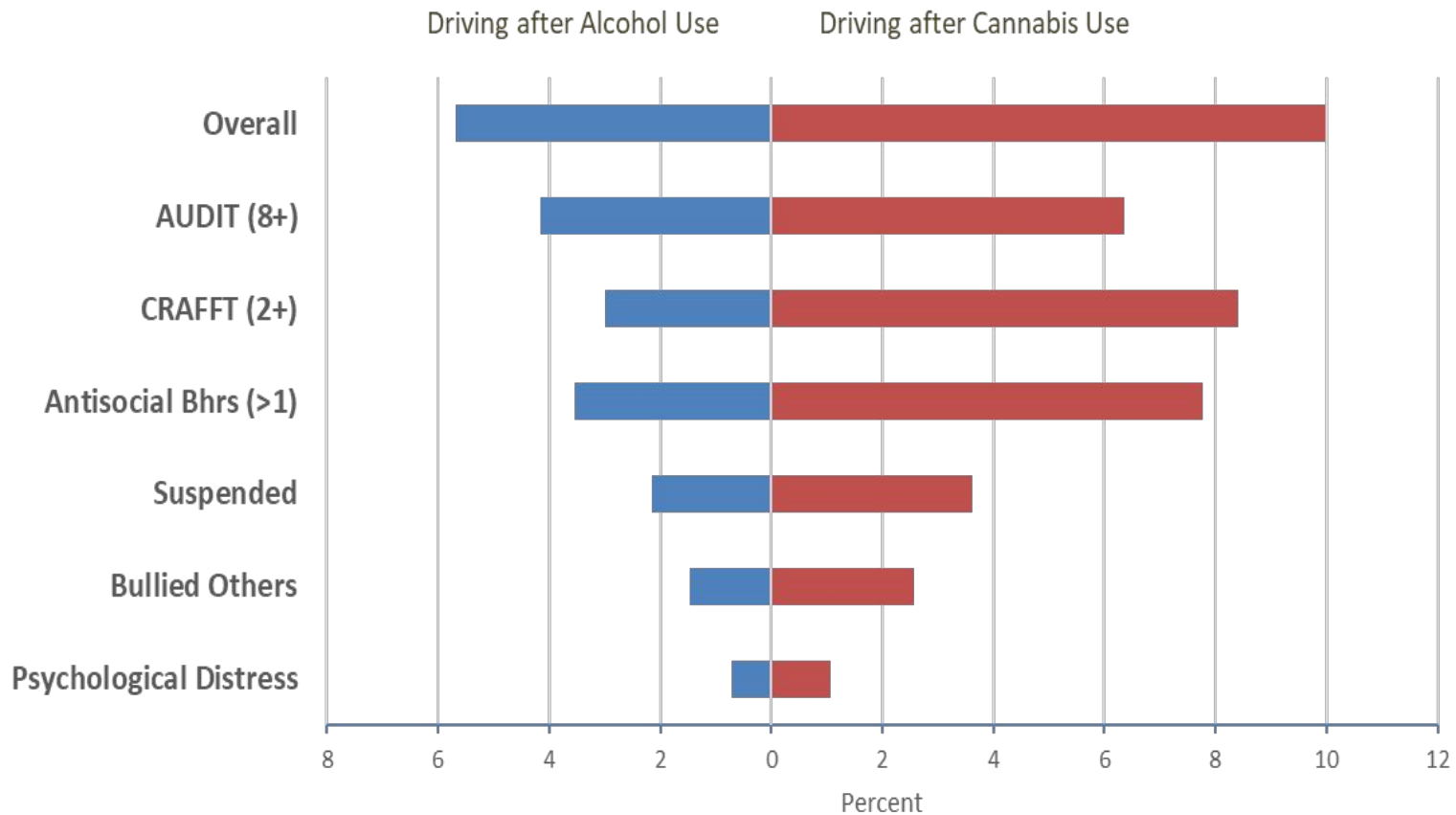
- On average, youth who drink and drive report **2.49** antisocial behaviours, but those who do not report **0.66** antisocial behaviours. ($F(5.30, 1117.75)=14.7768$, $p < 0.001$)
- On average, youth who use cannabis and drive report **2.49** antisocial behaviours, but those who do not report **0.59** antisocial behaviours. ($F(7.17, 1512.59)=24.7010$, $p < 0.001$)



Most Common Antisocial Behaviours Were Selling Marijuana, Joy Riding & Theft < \$50



Prevalence Rates of Behaviours For Those Who Reported Driving Impaired



Driving after Alcohol Use Logistic Regression Model

	OR	95% CIs
Age	1.75*	1.03-2.97
Sex (ref. = male)	1.65	0.78-3.52
Psychiatric distress	1.88	0.70-5.06
Antisocial behaviour	1.66	0.80-3.45
Suspended	0.80	0.37-1.71
Bullied others	1.82	0.91-3.62
CRAFFT	1.61*	1.02-2.55
AUDIT	4.56***	2.03-10.23
F(8, 198)= 7.20, P<0.001		

* $p < .05$, ** $p < .01$, *** $p < .001$

CIs=95% confidence intervals; OR = Odds Ratio; Ref. = reference category

Driving after Cannabis Use Logistic Regression Model

	OR	95% CIs
Age	1.67**	1.23-2.66
Sex (ref. = male)	1.29	0.79-2.11
Psychiatric distress	1.00	0.35-2.78
Antisocial behaviour	3.07***	1.75-5.38
Suspended	1.00	0.53-1.91
Bullied others	1.46	0.72-2.99
CRAFFT	12.81***	7.34-22.36
AUDIT	1.98*	1.16-3.37
F(8, 198)= 29.90, P<0.001		

* $p < .05$, ** $p < .01$, *** $p < .001$

CIs=95% confidence intervals; OR = Odds Ratio; Ref. = reference category

Conclusions: What behaviours are related to impaired driving?

- Older teens
- Problematic/Hazardous substance use
- Antisocial behaviours for cannabis use and driving
- Psychiatric distress, bullying others, school suspensions and sex were not a factor.

Driving after alcohol use vs. cannabis use

- Cannabis use and driving rates almost double that of drinking and driving.
- Antisocial behaviours was significant for cannabis use and driving, but not for drinking and driving.
- Problematic drug use overwhelming a predictor for cannabis use and driving compared to hazardous drinking for drinking and driving

Problem Behaviour Theory

- Youth who are more likely to drive impaired:
 - report a higher number of antisocial behaviours
 - have more severe problem behaviours
 - and who report antisocial behaviours are likely to develop more/severe problem behaviours over time.
- Psychiatric distress, bullying and school suspensions do not seem to be predictors.

Limitations

- Screeners,
- The OSDUHS is a self-reported, cross-sectional survey,
- Some small cell sizes.

Discussion

- Problems: measurement of behaviours, self-report
- Next steps:
 - Will cannabis use and driving behaviours change?
 - Examining student perceptions of cannabis vs. alcohol and driving



Questions?



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