projectextramile
PREVENTING ALCOHOL-RELATED HARM

RESEARCH SUMMARY
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Key takeaways from included research:

- Following the passing of Senate Bill 571 in Maryland, hours of sale of alcohol for bars/taverns in a Baltimore neighborhood were reduced from 6a-2a to 9a-10p with the goal of reducing violent crime in the neighborhood. Researchers studied the impacts of this and found that violent crime density decreased by 23% per year in the neighborhood this was implemented. This suggests that alcohol policies that reduce hours of sale could aid cities and municipalities in decreasing violent crime.
- Researchers examined the association between reduced alcohol consumption and the risk of major adverse cardiovascular events (MACEs) in people who drink heavily. They found that individuals who sustained heavy drinking during the experiential period had a significantly higher incidence of MACEs than those who decreased their consumption. This suggests that reducing alcohol consumption is associated with decreased risk of future cardiovascular disease.
- A study examined the trajectories of alcohol and cannabis use in months leading up to, during, and following the months of an individual's 21st birthday. Researchers found that generally, alcohol use as well as simultaneous alcohol and cannabis use showed sharp increases a month prior to the 21st birthday and decreases a month following. Whereas for cannabis use alone there was a significant increase in the month prior to the 21st birthday and no significant changes the month after.
- A research team examined sleep in children with prenatal alcohol exposure and found that children (aged 6-10) with prenatal alcohol exposure showed greater intraindividual sleep variability and parents reported more sleep problems related to sleeping behavior. Researchers concluded that difficulties with sleep may be related to other cognitive and behavioral outcomes.

INTERRUPTED TIME SERIES ANALYSIS OF BAR/TAVERN CLOSING HOURS AND VIOLENT CRIME

April 2024

Importance: It is well established that alcohol outlets (ie, places that sell alcohol) attract crime, particularly during late-night hours.

Objective: To evaluate the association of Maryland Senate Bill 571 (SB571), which reduced the hours of sale for bars/taverns in 1 Baltimore neighborhood from 6 am to 2 am to 9 am to 10 pm, with violent crime within that neighborhood.

Design, Setting, and Participants: This controlled interrupted time series analysis compared the change in violent crime density within an 800-ft buffer around bars/taverns in the treatment neighborhood (ie, subject to SB571) and 2 control areas with a similar mean baseline crime rate, alcohol outlet density, and neighborhood disadvantage score in the City of Baltimore between May 1, 2018, and December 31, 2022. The interrupted time series using Poisson regression with overdispersion adjustment tested whether the violent crime density differed before vs after the policy change in the treatment neighborhood and whether this difference was localized to the treatment neighborhood.

Exposure: Statutory reduction of bar/tavern selling hours from 20 to 13 hours per day in the treatment neighborhood.

Main Outcomes and Measures: The primary outcome was all violent crime, including homicide, robbery, aggravated and common assault, and forcible rape. Secondary outcomes were homicides and assaults. All violent crime measures summed the monthly incidents within 800 ft of bars/taverns from 8 pm to 4 am. For each outcome, a level change estimated the immediate change (first month after implementation), and a slope change estimated the sustained change after implementation (percent reduction after the first month). These level and slope changes were then compared between the treatment and control neighborhoods.

Results: The treatment neighborhood included 26 bars/taverns (mean [SD] population, 524.6 [234.6] residents), and the control neighborhoods included 41 bars/taverns (mean [SD] population per census block, 570.4 [217.4] residents). There was no immediate level change in density of all violent crimes the month after implementation of SB571; however, compared with the control neighborhoods, the slope of all violent crime density decreased by 23% per year in the treatment neighborhood after SB571 implementation (annualized incidence rate ratio, 0.77; 95% CI, 0.60-0.98; P = .04). Similar results were seen for homicides and assaults. Several sensitivity analyses supported the robustness of these results.

Conclusions and Relevance: This study's findings suggest that alcohol policies that reduce hours of sale could be associated with a reduction in violent crimes. Given these findings, SB571 may serve as a model for other cities looking to create safer neighborhoods.

Source: Rosen, E. M., Trangenstein, P. J., Fullem, P. L., Yeh, J. C., Jernigan, D. H., & Xuan, Z. (2024). Interrupted Time Series Analysis of Bar/Tavern Closing Hours and Violent Crime. *JAMA Internal Medicine*. https://jamanetwork.com/journals/jamainternalmedicine/article-abstract/2817044

In the News: Boggs, Justin. (2024, April 2). Study suggests closing bars early reduces late-night crime. *KMTV.* https://www.3newsnow.com/study-suggests-closing-bars-early-reduces-late-night-crime

REDUCED ALCOHOL CONSUMPTION AND MAJOR ADVERSE CARDIOVASCULAR EVENTS AMONG INDIVIDUALS WITH PREVIOUSLY HIGH ALCOHOL CONSUMPTION

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Importance: Cardiovascular benefits of mild to moderate alcohol consumption need to be validated in the context of behavioral changes. The benefits of reduced alcohol consumption among people who drink heavily across different subtypes of cardiovascular disease (CVD) are unclear.

Objective: To investigate the association between reduced alcohol consumption and risk of major adverse cardiovascular events (MACEs) in individuals who drink heavily across different CVD subtypes.

Design, Setting, and Participants: This cohort study analyzed data from the Korean National Health Insurance Service–Health Screening database and self-reported questionnaires. The nationally representative cohort comprised Korean citizens aged 40 to 79 years who had national health insurance coverage on December 31, 2002, and were included in the 2002 to 2003 National Health Screening Program. People who drank heavily who underwent serial health examinations over 2 consecutive periods (first period: 2005-2008; second period: 2009-2012) were included and analyzed between February and May 2023. Heavy drinking was defined as more than 4 drinks (56 g) per day or more than 14 drinks (196 g) per week for males and more than 3 drinks (42 g) per day or more than 7 drinks (98 g) per week for females.

Exposures: Habitual change in heavy alcohol consumption during the second health examination period. People who drank heavily at baseline were categorized into 2 groups according to changes in alcohol consumption during the second health examination period as sustained heavy drinking or reduced drinking.

Main Outcomes and Measures: The primary outcome was the occurrence of MACEs, a composite of nonfatal myocardial infarction or angina undergoing revascularization, any stroke accompanied by hospitalization, and all-cause death.

Results: Of the 21 011 participants with heavy alcohol consumption at baseline (18 963 males [90.3%]; mean [SD] age, 56.08 [6.16] years) included in the study, 14 220 (67.7%) sustained heavy drinking, whereas 6791 (32.2%) shifted to mild to moderate drinking. During the follow-up of 162 378 person-years, the sustained heavy drinking group experienced a significantly higher incidence of MACEs than the reduced drinking group (817 vs 675 per 100 000 person-years; log-rank P = .003). Reduced alcohol consumption was associated with a 23% lower risk of MACEs compared with sustained heavy drinking (propensity score matching hazard ratio [PSM HR], 0.77; 95% CI, 0.67-0.88). These benefits were mostly accounted for by a significant reduction in the incidence of angina (PSM HR, 0.70; 95% CI, 0.51-0.97) and ischemic stroke (PSM HR, 0.66; 95% CI, 0.51-0.86). The preventive attributes of reduced alcohol intake were consistently observed across various subgroups of participants.

Conclusions and Relevance: Results of this cohort study suggest that reducing alcohol consumption is associated with a decreased risk of future CVD, with the most pronounced benefits expected for angina and ischemic stroke.

Source: Kang, D. O., Lee, D. I., Roh, S. Y., Na, J. O., Choi, C. U., Kim, J. W., ... & Jung, J. M. (2024). Reduced Alcohol Consumption and Major Adverse Cardiovascular Events Among Individuals With Previously High Alcohol Consumption. *JAMA Network Open*, *7*(3), e244013-e244013. https://doi.org/10.1001/jamanetworkopen.2024.4013

IS THE 21ST BIRTHDAY A TURNING POINT FOR ALCOHOL AND CANNABIS USE? A MONTHLY STUDY OF YOUNG ADULTS

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Background: An important life-course event with respect to alcohol and cannabis use is turning 21 years of age, which may be associated with increases in use of these substances due to celebrations during the month and easier access to them on and following this birthday. We examined the trajectories of alcohol and cannabis use behaviors in the months leading up to, during, and following the 21st birthday month. We also examined whether the use trajectories vary by college status and baseline levels of use.

Methods: We used data from 203 young adults recruited from the Greater Seattle region who turned 21 during the course of the study. Surveys were administered each month for 24 consecutive months. Measures included the typical number of drinks per week for the past month, the frequency of heavy episodic drinking, the number of cannabis use days, and any simultaneous alcohol and cannabis use. Multilevel spline models were run that estimated linear slopes over time at four intervals: (1) up to 1 month before the 21st birthday month; (2) from 1 month before to the month of the 21st birthday; (3) from the 21st birthday month to 1 month following; and (4) from 1 month following the 21st birthday month through all following months.

Results: Alcohol use, generally, and simultaneous alcohol and cannabis use showed sharp increases from the month before the 21st birthday month to the 21st birthday month and decreases following the 21st birthday month. For cannabis use, there were significant increases in the months leading up to the 21st birthday and no other significant changes during other time intervals. Patterns differed by baseline substance use and college status.

Conclusions: Findings from the current study have implications for the timing and personalization of prevention and intervention efforts. Event-specific 21st birthday interventions may benefit from incorporating content targeting specific hazardous drinking behaviors in the month prior to the 21st birthday.

Source: Rhew, I. C., Gilson, M. S., Fleming, C. B., Walukevich-Dienst, K., Guttmannova, K., Patrick, M. E., & Lee, C. M. Is the 21st birthday a turning point for alcohol and cannabis use? A monthly study of young adults. *Alcohol, clinical & experimental research*. https://doi.org/10.1111/acer.15307

CHARACTERISTICS OF SLEEP IN CHILDREN WITH HEAVY PRENATAL ALCOHOL EXPOSURE

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Background: Sleep plays an important role in neurodevelopment. However, the effects of prenatal alcohol exposure on sleep quality have been understudied, despite reports of sleep disturbance in infants prenatally exposed to alcohol and elevated levels of sleep problems reported by caregivers of children with fetal alcohol spectrum disorders. The current study characterizes sleep in children with prenatal alcohol exposure using both objective (actigraphy) and subjective (questionnaires, sleep diaries) methods.

Methods: Participants aged 6–10 years, with and without prenatal alcohol exposure, were included in the study (alcohol-exposed [AE]: n = 35; control [CON]: n = 39). Objective sleep was measured via 24-h actigraphy for 2 weeks. Parents completed sleep diaries and sleep questionnaires (Children's Sleep Habits Questionnaire, Pediatric Sleep Questionnaire). Multivariate analysis of variance was used to characterize the sleep profile (objective, subjective) and examine group differences.

Results: There were no group differences on actigraphy metrics averaged across 2 weeks. However, the AE group showed significantly greater intraindividual variability on most actigraphy measures, particularly total sleep time, percent sleep, wake after sleep onset, and number of wake bouts.

Parents reported significantly more sleep problems in the AE group than in the CON group, primarily driven by night wakings, parasomnias (e.g., sleepwalking), snoring, and daytime sleepiness. These effects were more severe in children >8.5 years of age.

Conclusions: Despite similar 2-week average sleep outcomes, children with prenatal alcohol exposure showed greater intraindividual sleep variability and parents reported more sleep problems related to sleep behavior and snoring. These difficulties with sleep may be related to other cognitive and behavioral outcomes. Importantly, sleep is a modifiable behavior, and interventions that focus on variability in sleep, particularly in sleep duration, can impact the quality of life in children with prenatal alcohol exposure and their families.

Source: Inkelis, S. M., Soja, J., Mattson, S. N., Chambers, C. D., Bhattacharjee, R., & Thomas, J. D. (2024). Characteristics of sleep in children with heavy prenatal alcohol exposure. *Alcohol: Clinical and Experimental Research*. https://doi.org/10.1111/acer.15303