

RESEARCH SUMMARY
Date Compiled: July 2022

Key takeaways from included research:

- Researchers conducted a systematic review to examine 15 fatal nontraffic injuries that involve high levels of alcohol intoxication in order to update alcohol-attributable fractions and improve public health impact estimates. They found the following meta-analyzed alcohol-attributable fractions by cause of injury: aspiration (0.24), drowning (0.31), fall injuries (0.37), fire injuries (0.34), firearm injuries (0.24), homicide (0.29), hypothermia (0.29), motor vehicle nontraffic crashes (0.42), other road vehicle crashes (railroad trespasser injuries) (0.63), poisoning (not alcohol) (0.20), suicide (0.21), and water transport (0.27), yielding an overall median alcohol-attributable fraction of 0.27 [partial list]. These results show that excessive alcohol consumption is associated with substantial proportions of violent and nonviolent injury deaths. These results ought to be used to inform and plan future evidence-based strategy implementation.
- A study measured the impact of taxes and prices on rising alcohol consumption in low- and middle-income countries. As has been shown in previous studies, the researchers found alcohol taxes to be an effective tool in reducing alcohol use and can expect an increase in tax revenue. Therefore, utilizing this evidence-based strategy is an effective way to save lives and reduce harms in our communities.
- A group of researchers wanted to assess the dose-response relationship of volume and patterns of alcohol consumption with alcohol-related antisocial behaviors and whether these patterns are consistent across sociodemographic subgroups. They found that average daily alcohol consumption and frequency of heavy episodic drinking are predictors of the probability of perpetrating alcohol-related antisocial behaviors (ASB). This was particularly visible among younger and single respondents.
- An Australian study examined parent and peer alcohol supply and as it relates to adverse alcohol outcomes. The researchers concluded that earlier supply of whole alcoholic drinks, especially by peers, was associated with increased risk of early adulthood adverse alcohol outcomes. Whereas minimal supply represented the least risk.

ALCOHOL CONSUMPTION AND 15 CAUSES OF FATAL INJURIES: A SYSTEMATIC REVIEW AND META-ANALYSIS

May 2022

Introduction: The proportion of fatal nontraffic injuries that involve high levels of alcohol use or alcohol intoxication was assessed by cause of injury to generate alcohol-attributable fractions. Updated alcohol-attributable fractions can contribute to improved estimates of the public health impact of excessive alcohol use.

Methods: Peer-reviewed and gray literature for 1995–2019 on 15 causes of fatal nontraffic injuries in the U.S., Canada, or Mexico were systematically reviewed, and state data systems were queried for available estimates of fatalities with recorded blood alcohol concentration levels and proportions of decedents with blood alcohol concentrations ≥ 0.10 g/dL by cause of injury. For each injury cause, alcohol-attributable fractions across studies were synthesized by meta-analysis of single proportions using generalized linear mixed models.

Results: In total, 60 published studies and 40 additional population-level data points from 6 state data systems were included. The meta-analyzed alcohol-attributable fractions by cause of injury are as follows: air-space transport (0.03), aspiration (0.24), child maltreatment (0.09), drowning (0.31), fall injuries (0.37), fire injuries (0.34), firearm injuries (0.24), homicide (0.29), hypothermia (0.29), motor vehicle nontraffic crashes (0.42), occupational and machine injuries (0.08), other road vehicle crashes (railroad trespasser injuries) (0.63), poisoning (not alcohol) (0.20), suicide (0.21), and water transport (0.27), yielding an overall median alcohol-attributable fraction of 0.27.

Discussion: Excessive alcohol use is associated with substantial proportions of violent and nonviolent injury deaths. These findings can improve the data used for estimating alcohol-attributable injury deaths and inform the planning and implementation of evidence-based strategies (e.g., increasing alcohol taxes, regulating alcohol outlet density) to prevent them.

Source: Alpert, H. R., Slater, M. E., Yoon, Y. H., Chen, C. M., Winstanley, N., & Esser, M. B. (2022). Alcohol consumption and 15 causes of fatal injuries: a systematic review and meta-analysis. *American journal of preventive medicine*.

THE EFFECTS OF MODEST DRINKING ON LIFE EXPECTANCY AND MORTALITY RISKS: A PRICES, TAXES AND ALCOHOL USE: A SYSTEMATIC UMBRELLA REVIEW

June 2022

Aim: To measure the impact of taxes and prices on alcohol use with particular attention to the different context of rising alcohol consumption in low- and middle-income countries.

Methods: Systematic review: we searched MEDLINE, Embase, EconLit and LILACS, grey literature, hand-searched five specialty journals and examined references of relevant studies. We considered all reviews that included studies that quantitatively examined the relationship between alcohol prices or taxes and alcohol use. At least two reviewers independently screened the articles and extracted the characteristics, methods and main results and assessed the quality of each included study. We identified 30 reviews.

Results: There was overwhelming evidence that higher alcohol prices and taxes were associated with lower total alcohol consumption and that price responsiveness varied by beverage type. Total own-price elasticities of alcohol demand were consistently negative and substantial enough to be policy meaningful; total own-price elasticities for beer, wine and spirits were found to be approximately -0.3 , -0.6 and -0.65 . Reviews generally concluded that higher taxes and prices were associated with lower heavy episodic drinking and heavy drinking, although the magnitude of these associations was generally unclear. Reviews provided no evidence that alcohol price responsiveness differed by

socioeconomic status, mixed and contradictory evidence with respect to age and sex and limited evidence that price responsiveness in low- and middle-income countries was approximately the same as in high-income countries.

Conclusions: Taxes are effective in reducing alcohol use. Moreover, increasing the price of alcohol by increasing taxes can also be expected to increase tax revenue, because the demand for alcohol is most certainly inelastic.

Source: Guindon, G. E., Zhao, K., Fatima, T., Garasia, S., Quinn, N., Baskerville, N. B., & Paraje, G. R. Prices, taxes and alcohol use: a systematic umbrella review. *Addiction*.

ALCOHOL CONSUMPTION, HEAVY EPISODIC DRINKING AND THE PERPETRATION OF ANTISOCIAL BEHAVIOURS IN AUSTRALIA

June 2022

Aims: This study aims to understand the dose-response relationship of the volume and patterns of alcohol consumption with alcohol-related antisocial behaviours (ASB) in the general population and assess whether these relationships are consistent across various sociodemographic subgroups.

Methods: We used data from 30,275 respondents aged (14–69) from two waves (2013 and 2016) of the National Drug Strategy Household Survey (NDSHS). Average daily alcohol consumption and heavy episodic drinking (HED) frequencies were treated as the main independent variables and self-reported ASB perpetration as the dependent variable. Bivariable and multivariable logistic regression models predicting ASB with interaction terms between alcohol consumption and various sociodemographic variables were estimated.

Findings: Compared with low-risk drinking (0.01–20 g of alcohol/day), respondents drinking at risky (20.01–40 g of alcohol/day) and high risk (>40 g of alcohol per day) levels had an increased prevalence of ASB perpetration with adjusted odds ratios of 3.63 (95% CI 2.98–4.42) and 8.07 (6.72–9.71). Increasing frequency of HED was also linked to increased self-report of ASB perpetration in bivariable and multivariable models. In our interaction models, we found higher probabilities of ASB perpetration among younger and unmarried respondents for a given level of drinking.

Discussion and conclusions: Both average daily alcohol consumption and frequency of HED predict the probability of perpetrating alcohol-related ASB. Unsurprisingly, the risk of alcohol-specific ASB increased more quickly with consumption levels for younger and single respondents, suggesting interventions to reduce consumption among younger and unmarried persons will significantly impact ASB.

Source: Marzan, M., Callinan, S., Livingston, M., & Jiang, H. (2022). Alcohol consumption, heavy episodic drinking and the perpetration of antisocial behaviours in Australia. *Drug and Alcohol Dependence*, 235, 109432. <https://doi.org/10.1016/j.drugalcdep.2022.109432>

TRAJECTORIES OF PARENTAL AND PEER SUPPLY OF ALCOHOL IN ADOLESCENCE AND ASSOCIATIONS WITH LATER ALCOHOL CONSUMPTION AND HARMS: A PROSPECTIVE COHORT STUDY

July 2022

Background: Supply of alcohol to adolescents is associated with increased alcohol consumption and harms including alcohol use disorder (AUD). We aimed to identify: (1) trajectories of alcohol supply to adolescents; (2) sociodemographic characteristics associated with supply trajectory; (3) patterns of alcohol consumption by supply trajectory; and (4) supply trajectory associations with adverse alcohol outcomes.

Methods: We used Australian longitudinal survey data (N = 1813) to model latent trajectories of parent and peer alcohol supply over five annual follow-ups (Waves 2–6; Mage 13.9–17.8 years). Regression models assessed associations between supply trajectories and Wave 1 (Mage=12.9 years) sociodemographic factors and associations between supply trajectories and Wave 7 (Mage=18.8 years) alcohol outcomes.

Results: We identified five alcohol supply classes: (1) minimal supply (n = 739, 40.8%); (2) early parent sips, late peer/parent whole drinks (n = 254, 14.0%); (3) late peer/parent whole drinks (n = 419, 23.1%); (4) early parent sips, mid peer/parent whole drinks (n = 293, 16.2%); (5) early peer/parent whole drinks (n = 108, 6.0%). Compared to minimal supply, the other classes were 2.7–12.9 times as likely to binge drink, 1.6–3.0 times as likely to experience alcohol-related harms, and 2.1–8.6 times as likely to report AUD symptoms at age 19.

Conclusion: Earlier supply of whole drinks, particularly from peers, was associated with increased risk of early adulthood adverse alcohol outcomes. While minimal supply represented the lowest risk, supplying sips only in early-mid adolescence and delaying supply of whole drinks until late adolescence is likely to be less risky than earlier supply of whole drinks.

Source: Aiken, A., Chan, G., Yuen, W. S., Clare, P. J., Hutchinson, D., McBride, N., ... & Peacock, A. (2022). Trajectories of Parental and Peer Supply of Alcohol in Adolescence and Associations With Later Alcohol Consumption and Harms: A Prospective Cohort Study. *Drug and Alcohol Dependence*, 109533.