



RESEARCH SUMMARY
Date Compiled: December 2021

Key takeaways from included research:

- In one study, researchers looked at alcohol tax elasticity and determined that alcohol consumption tends to increase with income. They also found that current per capita alcohol consumption will be higher in 2027, relative to 2017, if alcohol taxes are not increased over the next decade. Researchers suggest annual alcohol tax increases of 1.0-1.5%.
- Another study sought to understand the impacts of acute alcohol consumption and the magnitude of prospective memory difficulties. Acute intoxication was found to lead to significant impairment of all prospective memory tasks. Furthermore, results showed that even a moderate dose of alcohol substantially impairs acute prospective memory function.
- Researchers looked at potential triggers of atrial fibrillation (AF) (caffeine, reduced sleep, alcohol, exercise, dehydration, etc.) and found that only acute exposure to alcohol was associated with significantly heightened risks of AF events.
- The link between cancer and alcohol consumption is still not widely known, therefore the US National Cancer Institute convened a workshop to identify knowledge gaps. They concluded that interdisciplinary research and implementation efforts are needed to increase knowledge as well as develop effective interventions to improve awareness. They also highlighted that reducing harmful consumption will have positive impacts on the alcohol-related cancer burden which is currently an estimated 4.1% of new cancer cases.

ROLE OF ALCOHOL TAXES IN MODERATING ALCOHOL CONSUMPTION: CURRENT AND FUTURE POTENTIAL IMPACTS

October 2021

Abstract

Introduction: There is a substantial literature on the price elasticity of demand for alcoholic beverages, but the literature on the tax elasticity and the way tax rates impact the evolution of alcohol consumption through time is more limited.

Methods: A two-level Bayesian hierarchical model is used to estimate tax and income elasticity values. The estimates from five different forecast methods are then averaged, and combined with the tax elasticity estimate, to investigate consumption for different scenarios. The sample consists of 30 high-income and upper-middle-income countries.

Results: The alcohol tax elasticity estimate is approximately -0.4 and the alcohol income elasticity estimate approximately 0.2 . If alcohol taxes evolve the way they have in the past, there is little evidence to suggest that per capita alcohol consumption will be higher in 2027, relative to 2017; but if alcohol taxes remain constant over the next decade, it is likely that per capita alcohol consumption will be notably higher in 2027, relative to 2017, for the sample of countries considered.

Discussion and Conclusions: There is a natural tendency for alcohol consumption to increase with income. A working rule of thumb that can be used by policy makers to mitigate this effect is to increase alcohol tax rates at approximately half the long-run gross national income growth rate. For rich countries, this implies annual increases of approximately 1.0 – 1.5% in alcohol taxes.

Source: Voon, D., & Fogarty, J. (2021). Role of alcohol taxes in moderating alcohol consumption: Current and future potential impacts. *Drug and Alcohol Review*. <https://doi.org/10.1111/dar.13393>

PROSPECTIVE MEMORY DEFICITS FOLLOWING ACUTE ALCOHOL CONSUMPTION

November 2021

Abstract

Background: Prospective memory is a critical neurocognitive capacity that refers to the ability to execute delayed intentions. To date, few studies have investigated the effects of acute alcohol consumption on prospective memory, and important questions remain about the mechanisms that might underpin acute alcohol-induced prospective memory impairment.

Aims: The current study sought to clarify the nature and magnitude of prospective memory difficulties following acute alcohol consumption and to test the degree to which any problems with prospective remembering might be a secondary consequence of broader cognitive impairment. This study also investigated whether there were potential sex differences.

Methods: In all, 124 healthy adult social drinkers were assigned to either the alcohol ($n = 61$) or placebo ($n = 63$) condition. Participants were administered a dose of 0.6 g/kg alcohol or a matched placebo drink and then asked to complete a measure of prospective memory. A broader neurocognitive test battery was also administered.

Results: Relative to the placebo condition, acute alcohol intoxication led to significant impairment on all prospective memory tasks, with effects mostly large in magnitude. These difficulties could not be explained by broader problems in retrospective memory, executive function or episodic future

thinking. In addition, females recorded a higher blood alcohol concentration than males; however, no sex differences in prospective memory performance were identified following acute alcohol use.

Conclusion: The results show that acutely, even a moderate dose of alcohol substantially impairs prospective memory function. These findings have potentially important implications for understanding many of the maladaptive behaviours associated with acute alcohol consumption.

Source: Elliott, M., Terrett, G., Curran, H. V., De Bono, N., Rendell, P. G., & Henry, J. D. (2021). Prospective memory deficits following acute alcohol consumption. *Journal of Psychopharmacology*. <https://doi.org/10.1177/026988112111056195>

INDIVIDUALIZED STUDIES OF TRIGGERS OF PAROXYSMAL ATRIAL FIBRILLATION

November 2021

Abstract

Importance: Atrial fibrillation (AF) is the most common arrhythmia. Although patients have reported that various exposures determine when and if an AF event will occur, a prospective evaluation of patient-selected triggers has not been conducted, and the utility of characterizing presumed AF-related triggers for individual patients remains unknown.

Objective: To test the hypothesis that n-of-1 trials of self-selected AF triggers would enhance AF-related quality of life.

Design, Setting, and Participants: A randomized clinical trial lasting a minimum of 10 weeks tested a smartphone mobile application used by symptomatic patients with paroxysmal AF who owned a smartphone and were interested in testing a presumed AF trigger. Participants were screened between December 22, 2018, and March 29, 2020.

Interventions: n-of-1 Participants received instructions to expose or avoid self-selected triggers in random 1-week blocks for 6 weeks, and the probability their trigger influenced AF risk was then communicated. Controls monitored their AF over the same time period.

Main Outcomes and Measures: AF was assessed daily by self-report and using a smartphone-based electrocardiogram recording device. The primary outcome comparing n-of-1 and control groups was the Atrial Fibrillation Effect on Quality-of-Life (AFEQT) score at 10 weeks. All participants could subsequently opt for additional trigger testing.

Results: Of 446 participants who initiated (mean [SD] age, 58 [14] years; 289 men [58%]; 461 White [92%]), 320 (72%) completed all study activities. Self-selected triggers included caffeine (n = 53), alcohol (n = 43), reduced sleep (n = 31), exercise (n = 30), lying on left side (n = 17), dehydration (n = 10), large meals (n = 7), cold food or drink (n = 5), specific diets (n = 6), and other customized triggers (n = 4). No significant differences in AFEQT scores were observed between the n-of-1 vs AF monitoring-only groups. In the 4-week postintervention follow-up period, significantly fewer daily AF episodes were reported after trigger testing compared with controls over the same time period (adjusted relative risk, 0.60; 95% CI, 0.43- 0.83; P < .001). In a meta-analysis of the individualized trials, only exposure to alcohol was associated with significantly heightened risks of AF events.

Conclusions and Relevance: n-of-1 Testing of AF triggers did not improve AF-associated quality of life but was associated with a reduction in AF events. Acute exposure to alcohol increased AF risk, with no evidence that other exposures, including caffeine, more commonly triggered AF.

Source: Marcus, G. M., Modrow, M. F., Schmid, C. H., Sigona, K., Nah, G., Yang, J., ... & Olgin, J. E. (2021). Individualized Studies of Triggers of Paroxysmal Atrial Fibrillation: The I-STOP-AFib Randomized Clinical Trial. *JAMA cardiology*. <https://doi.org/10.1001/jamacardio.2021.5010>

ALCOHOL AND CANCER: EXISTING KNOWLEDGE AND EVIDENCE GAPS ACROSS THE CANCER CONTINUUM
November 2021

Abstract

Alcoholic beverages are carcinogenic to humans. Globally, an estimated 4.1% of new cancer cases in 2020 were attributable to alcoholic beverages. However, the full cancer-burden due to alcohol is uncertain because for many cancer (sub)types associations remain inconclusive. Additionally, associations of consumption with therapeutic response, disease progression, and long-term cancer outcomes are not fully understood, public awareness of the alcohol-cancer link is low, and the interrelationships of alcohol control regulations and cancer risk are unclear. In December 2020, the U.S. National Cancer Institute convened a workshop and public webinar that brought together a panel of scientific experts to review what is known about and identify knowledge gaps regarding alcohol and cancer. Examples of gaps identified include: 1) associations of alcohol consumption patterns across the life-course with cancer risk; 2) alcohol's systemic carcinogenic effects; 3) alcohol's influence on treatment efficacy, patient-reported outcomes, and long-term prognosis; 4) communication strategies to increase awareness of the alcohol-cancer link; and 5) the impact of alcohol control policies to reduce consumption on cancer incidence and mortality. Interdisciplinary research and implementation efforts are needed to increase relevant knowledge, and to develop effective interventions focused on improving awareness, and reducing harmful consumption to decrease the alcohol-related cancer burden.

Source: Gapstur, S. M., Bandera, E. V., Jernigan, D. H., LoConte, N. K., Southwell, B. G., Vasiliou, V., ... & Shield, K. D. (2021). Alcohol and Cancer: Existing Knowledge and Evidence Gaps Across the Cancer Continuum. *Cancer Epidemiology and Prevention Biomarkers*. <https://doi.org/10.1158/1055-9965.EPI-21-0934>