



RESEARCH SUMMARY

Date Compiled: December 2019

Key Takeaways from Included Research

- Between 1959 and 2016, United States life expectancy increased from 69.9 years to 78.9 years but declined for 3 consecutive years after 2014. By 2014, midlife mortality was increasing across all racial groups, caused by drug overdoses, alcohol abuse, suicides, and a diverse list of organ system diseases.
- Policies focused on addressing alcohol and tobacco consumption, including the introduction of random breath testing programs and bans on cigarette advertising, have resulted in a significant reduction in Australian cancer death rates.
- An analysis of nationally representative surveys found that women both with and without children are increasing binge and heavy drinking; men, regardless of parenting status, and women without children consumed more alcohol than women with children.
- Using self-reported measures of alcohol consumption, researchers estimate that UberX is associated with a 3.1% increase in the average number of drinks consumed per day and a 9% increase in the prevalence of heavy drinking. When focusing on areas with relatively weaker public transit options, researchers estimate UberX is associated with a 17.5% to 21.8% increase in instances of binge drinking.
- Adolescent alcohol exposure is a serious public health problem and contributes to alcohol use and anxiety disorders later in life.

LIFE EXPECTANCY AND MORTALITY RATES IN THE UNITED STATES, 1959-2017 November 2019

Abstract

Objective: To examine vital statistics and review the history of changes in US life expectancy and increasing mortality rates; and to identify potential contributing factors, drawing insights from current literature and an analysis of state-level trends.

Evidence: Life expectancy data for 1959-2016 and cause-specific mortality rates for 1999-2017 were obtained from the US Mortality Database and CDC WONDER, respectively. The analysis focused on midlife deaths (ages 25-64 years), stratified by sex, race/ethnicity, socioeconomic status, and geography (including the 50 states). Published research from January 1990 through August 2019 that examined relevant mortality trends and potential contributory factors was examined.

Findings: Between 1959 and 2016, US life expectancy increased from 69.9 years to 78.9 years but declined for 3 consecutive years after 2014. The recent decrease in US life expectancy culminated a period of increasing cause-specific mortality among adults aged 25 to 64 years that began in the 1990s, ultimately producing an increase in all-cause mortality that began in 2010. During 2010-2017, midlife all-cause mortality rates increased from 328.5 deaths/100 000 to 348.2 deaths/100 000. By 2014, midlife mortality was increasing across all racial groups, caused by drug overdoses, alcohol abuse, suicides, and a diverse list of organ system diseases. The largest relative increases in midlife mortality rates occurred in New England (New Hampshire, 23.3%; Maine, 20.7%; Vermont, 19.9%) and the Ohio Valley (West Virginia, 23.0%; Ohio, 21.6%; Indiana, 14.8%; Kentucky, 14.7%). The increase in midlife mortality during 2010-2017 was associated with an estimated 33 307 excess US deaths, 32.8% of which occurred in 4 Ohio Valley states.

Conclusions and Relevance: US life expectancy increased for most of the past 60 years, but the rate of increase slowed over time and life expectancy decreased after 2014. A major contributor has been an increase in mortality from specific causes (e.g., drug overdoses, suicides, organ system diseases) among young and middle-aged adults of all racial groups, with an onset as early as the 1990s and with the largest relative increases occurring in the Ohio Valley and New England. The implications for public health and the economy are substantial, making it vital to understand the underlying causes.

Source: Woolf, S.H. & Schoemaker, H. (2019). Life expectancy and mortality rates in the United States, 1959-2017. *Journal of the American Medical Association*, 322(20).
<https://jamanetwork.com/journals/jama/article-abstract/2756187>

CAN PUBLIC HEALTH POLICIES ON ALCOHOL AND TOBACCO REDUCE A CANCER EPIDEMIC? AUSTRALIA'S EXPERIENCE. November 2019

Abstract

Background: Although long-term alcohol and tobacco use have widely been recognized as important risk factors for cancer, the impacts of alcohol and tobacco health policies on cancer mortality have not been examined in previous studies. This study aims to estimate the association of key alcohol and tobacco policy or events in Australia with changes in overall and five specific types of cancer mortality between the 1950s and 2013.

Methods: Annual population-based time-series data between 1911 and 2013 on per capita alcohol and tobacco consumption and head and neck (lip, oral cavity, pharynx, larynx and esophagus), lung, breast, colorectum and anus, liver and total cancer mortality data from the 1950s to 2013 were collected from the Australian Bureau of Statistics and Cancer Council Victoria, the WHO Cancer Mortality Database and the Australian Institute of Health and Welfare. The policies with significant relations to changes in alcohol and tobacco consumption were identified in an initial model. Intervention dummies with estimated lags were then developed based on these key alcohol and tobacco policies and events and inserted into time-series models to estimate the relation of the particular policy changes with cancer mortality.

Results: Liquor license liberalization in the 1960s was significantly associated with increases in the level of population drinking and thereafter of male cancer mortality. The introduction of random breath testing programs in Australia after 1976 was associated with a reduction in population drinking and thereafter in cancer mortality for both men and women. Meanwhile, the release of UK and US public health reports on tobacco in 1962 and 1964 and the ban on cigarette ads on TV and radio in 1976 were found to have been associated with a reduction in Australian tobacco consumption and thereafter a reduction in mortality from all cancer types except liver cancer. Policy changes on alcohol and tobacco during the 1960s-1980s were associated with greater changes for men than for women, particularly for head and neck, lung and colorectum cancer sites.

Conclusion: This study provides evidence that some changes to public health policies in Australia in the twentieth century were related to the changes in the population consumption of alcohol and tobacco, and in subsequent mortality from various cancers over the following 20 years.

Source: Jiang, H. et al. (2019). Can public health policies on alcohol and tobacco reduce a cancer epidemic? Australia's experience. *BMC Medicine*. 17(1):213.
<https://www.ncbi.nlm.nih.gov/pubmed/31771596>

News Release: https://eurekaalert.org/pub_releases/2019-11/ltu-raa112519.php

HEAVY AND BINGE ALCOHOL DRINKING AND PARENTING STATUS IN THE UNITED STATES FROM 2006 TO 2018: AN ANALYSIS OF NATIONALLY REPRESENTATIVE CROSS-SECTIONAL SURVEYS.
November 2019

Abstract

Background: Binge and heavy drinking are preventable causes of mortality and morbidity. Alcohol consumption by women who parent is damaging to child health, and it is concerning that women in the United States in their reproductive years have experienced increased drinking over the past decade. Although media attention has focused on the drinking status of women who are child-rearing, it remains unclear whether binge and heavy drinking vary by parenting status and sex.

Methods and Findings: We examined national trends in binge drinking, defined as 5 or more drinks in a single day for men and 4 or more drinks for women, and heavy drinking, defined as 60 or more days with binge episodes in a year. We used survey-weighted logistic regression from the 2006-2018 waves of the cross-sectional National Health Interview Survey (NHIS, N = 239,944 eligible respondents) to study time trends in drinking outcomes by sex, age, and parenting status.

Binge drinking increased for both sexes in nearly all age groups, with the largest increase among women ages 30-44 without children (from 21% reporting binge drinking in 2006 to 42% in 2018); the

exception was young men (ages 18-29) with children, among whom binge drinking declined. By 2012, the prevalence of binge drinking among young men with children (38.5%) declined to below that of young women without children (39.2%) and stayed lower thereafter. Despite widespread increases in binge drinking, heavy drinking declined or remained stable for all groups except older women (ages 45-55) without children (odds ratio [OR] for heavy drinking each year = 1.06, 95% CI 1.02-1.10) and women ages 30-44, regardless of parenting status.

For binge drinking outcomes only, we saw evidence of interaction in drinking trends by parenting status, but this was shown to be confounded by sex and age. Men and women with children reported consistently lower levels of drinking than those without children. Rates of abstinence mirrored trends in binge outcomes for both sexes, limiting concerns about invariance. Study limitations include self-reported data and measurement invariance in binge drinking cutoffs across study years.

Conclusions: This study demonstrated that trends in binge and heavy drinking over time were not differential by parenting status for women; rather, declines and increases over time were mainly attributable to sex and age. Women both with and without children are increasing binge and heavy drinking; men, regardless of parenting status, and women without children consumed more alcohol than women with children. Regardless of impact on child health, increased drinking rates in the past decade are concerning for adult morbidity and mortality: binge drinking has increased among both sexes, and heavy drinking has increased among older women. Men and women of all ages and parenting status should be screened for heavy alcohol use and referred to specialty care as appropriate.

Source: McKetta, S. & Keyes, K.M. (2019). Heavy and binge alcohol drinking and parenting status in the United States from 2006 to 2018: An analysis of nationally representative cross-sectional surveys. *PLoS Medicine*, 16(11).

Full text: <https://journals.plos.org/plosmedicine/article?id=10.1371/journal.pmed.1002954>

Media coverage: <https://www.nbcnews.com/health/womens-health/moms-are-binge-drinking-more-so-are-all-women-s> and <https://www.economist.com/graphic-detail/2019/11/19/after-uber-arrives-heavy-drinking-increasestudy-n1091806>

DO RIDESHARING SERVICES INCREASE ALCOHOL CONSUMPTION?

November 2019

Abstract

Recent studies show ridesharing services, such as Uber and Lyft, reduce intoxicated driving. However, ridesharing may also have negative health effects by increasing alcohol consumption. In this paper, we directly examine the effect of ridesharing on drinking activity. Our approach leverages variation in the existence and entry timing of Uber's taxi-like service, UberX, across the United States. Using self-reported measures of alcohol consumption, we estimate that UberX is associated with a 3.1% increase in the average number of drinks consumed per day, a 2.8% increase in number of drinking days per month, a 4.9% increase in the maximum number of drinks consumed on one occasion, and a 9% increase in the prevalence of heavy drinking. When we focus on areas with relatively weaker public transit options, we estimate UberX is associated with a 17.5% to 21.8% increase in instances of binge drinking. Using administrative data, we support our findings by showing that UberX is associated with a 2.4% increase in employment and a 2.3% increase in total earnings at drinking establishments. Our results imply that the net social impact of ridesharing is more complicated than the existing literature and policy debates suggest.

Source: Burgdorf, J. et al. (2019). Do ridesharing services increase alcohol consumption?
SSRN: <https://ssrn.com/abstract=3484845> or <http://dx.doi.org/10.2139/ssrn.3484845>

Media coverage: <https://www.economist.com/graphic-detail/2019/11/19/after-uber-arrives-heavy-drinking-increases>

MICRORNA-137 DRIVES EPIGENETIC REPROGRAMMING IN THE ADULT AMYGDALA AND BEHAVIORAL CHANGES AFTER ADOLESCENT ALCOHOL EXPOSURE

November 2019

Extract

Adolescent alcohol exposure is a serious public health problem and contributes to alcohol use and anxiety disorders later in life. In this study, we identify microRNA-137, a small non-coding RNA, in the central nucleus of amygdala (CeA) as a crucial regulator of increased alcohol consumption and anxiety-like behavior in adult rats after adolescent intermittent ethanol (AIE) exposure. Inhibition of microRNA-137 in the CeA reverses increased alcohol intake and anxiety-like behavior, and this effect is mediated by lysine-specific demethylase 1 (LSD1), a microRNA-137 target gene that regulates epigenetic programming. Thus, we have identified microRNA-137 and its target LSD1, in the CeA that play a mechanistic role in the pathogenesis of increased adult anxiety and alcohol consumption after adolescent alcohol exposure.

Source: Kyzar, E.J. et al. (2019). MicroRNA-137 drives epigenetic reprogramming in the adult amygdala and behavioral changes after adolescent alcohol exposure. *ENEURO*.0401-19.2019.
<https://doi.org/10.1523/ENEURO.0401-19.2019>