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Alcohol Use

Alcoholic beverages have been used in human societies at least since the beginning of recorded history. Accompanying the near ubiquity of alcoholic beverages in human history has been an appreciation of the social and health problem caused by drinking.³⁴⁶ According to the National Institutes of Health, early alcohol use, independent of other risk factors, may contribute to the risk of developing future alcohol problems.³⁴⁷

The number of American adults who abuse alcohol increased during the 1990's from 7.41% to 8.46% in 2002, while alcohol dependency declined from 4.38% to 3.81%.³⁴⁸ Alcohol abuse is defined by the National Institute of Alcohol Abuse and Alcoholism (NIAAA) as causing a failure to fulfill major role obligations at work, school, or home; interpersonal social and legal problems; and/or drinking in hazardous situations, such as driving. Alcohol dependence (alcoholism) is characterized by impaired control over drinking, compulsive drinking, preoccupation with drinking, tolerance to alcohol and/or withdrawal symptoms.

Workplace alcohol use and impairment directly affect an estimated 15% of the U.S. workforce (19.2 million workers).³⁴⁹ Specifically, an estimated 1.83% (2.3 million workers) drink before work, 7.06% (8.9 million workers) drink during the workday, 1.68% (2.1 million workers) work under the influence of alcohol, and 9.23% (11.6 million workers) work with a hangover. Drinking on the job, being under the influence or working with a hangover is more prevalent among men, younger workers, and unmarried workers. The highest level of alcohol use and impairment are found in management, sales, catering, and construction.

³⁴⁶ Room R et al. 2005. Alcohol and public health. *Lancet* 365:519-530.

³⁴⁷ Hingston RW et al. 2006. Age at drinking onset and alcohol dependence: age at onset, duration, and severity. *Arch Pediatr Adolesc Med.* 2006;160:739-746.

³⁴⁸ Grant BF et al. 2004. The 12-month prevalence and trends in SDM-IV alcohol abuse and dependency: United States 1991-1992 and 2001-2002. *Drug Alcohol Depend* 74:223-234.

³⁴⁹ Frone M. 2006. Prevention and distribution of alcohol use and impairment in the workplace: a US national survey. *J Studies Alcohol* 67:147-156.



Alcohol has been shown to be causally related to >60 different medical conditions, in most but not all cases detrimentally.³⁵⁰ For most diseases, there is a dose-response relation to the volume of alcohol consumption, with the risk of the disease increasing with higher intake levels. The exceptions are in the area of cardiovascular diseases, especially coronary heart disease and stroke, diabetes, and injuries, where other dimensions of consumption than average volume play a crucial role in determining outcome. Drinking of alcohol during pregnancy has been reported to raise the risk of infection in babies after birth.³⁵¹

Alcohol and drugs were ranked by Kansas Citians as the 2nd leading community concern in a survey conducted in 2003 by the Kansas City Health Commission.³⁵² Health care providers ranked this as the leading community concern. In a 2004 telephone survey commissioned by the Kansas City Health Department, 1.6% of respondents reported that they abused alcohol.³⁵³

Overall, 47% of adult ≥ 18 y old regularly drink alcohol.³⁵⁴ In addition, 13% are infrequent drinkers and 25% are lifetime abstainers. Among men and women, 58% and 38%, respectively, are current regular drinkers; as age goes up there is a decline in the percentage of regular drinkers.³⁵⁵ Whites are more likely to be a current drinker, than Hispanics or blacks. Asians are the most likely to be lifetime abstainers, while Hispanics and blacks are twice as likely to be lifetime abstainers than whites. Nearly 4% of Missourians ≥ 12 y of age are dependent upon alcohol.³⁵⁶

³⁵⁰ Rehm J et al. 2003. The relationship of average volume of alcohol consumption and patterns of drinking to burden of disease. *Addiction* 98:1209-1228.

³⁵¹ Gauthier TW et al. 2005. Maternal alcohol abuse and neonatal infection. *Alcoholism Clin Exper Res* 29: 1035-1043.

³⁵² Kansas City Health Department. 2004. Mobilizing for action through planning and partnerships: Kansas City community health assessment. www.kcmo.org/health.

³⁵³ Kansas City Health Department. 2004. 2004 Health Assessment Survey. www.kcmo.org/health

³⁵⁴ National Center for Health Statistics. 2006. Summary health statistics for US adults: National Health Interview Survey, 2004. *Vital Health Stat Series* 10 No 228, 164 p www.cdc.gov/nchs

³⁵⁵ Schoenborn CA et al. 2004 Health behaviors of adults: United States 1999-2001. National Center for Health Statistics, *Vital Health Stat Series* 10 No 219, 80 p. www.cdc.gov/nchs

³⁵⁶ Wright D, Sathe N. 2006. State estimates of substance use from the 2003-2004 National Surveys on Drug Use and Health. Substance Abuse and Mental Health Services Administration. www.oas.samhsa.org.

ALCOHOL USE



In Missouri, 49.2% of high school students claim to be current drinkers of alcohol, with slightly more males (49.7%) than females (48.5%) making this claim.³⁵⁷ In the Kansas City metropolitan area, 41% of 12th grade students report drinking alcohol in the prior 7 days (Table 84). The percentage of students drinking rose from 8th to 12th grade. Most had their first drink when 12-14 y old, although 25% of boys claimed they were <11 y of age. Boys reported drinking more to get drunk and girls drank more for social reasons. Almost half of the students reported frequently being around peers who were drunk. Among students who did not drink, the overwhelming reason for not drinking was that they did not want to drink, followed by the idea it is wrong; religious beliefs was the least mentioned reason for abstaining.

Table 84 Consumption of at least part of one drink by students in the Kansas City metropolitan area.

Recency of drinking	8th grade		10th grade		12th grade	
Lifetime	59%		75%		85%	
30 day	47%		59%		68%	
7 day	23%		32%		41%	
	Male	Female	Male	Female	Male	Female
30 day	46%	49%	61%	56%	70%	66%
7 day	23%	22%	37%	28%	46%	36%

Source: Partnership for Children. 2006. *Kauffman Teen Survey Community Report, 2004-2005 Results*. 60p. www.pfc.org

Nearly 16 million Americans ≥ 12 y old meet the criteria of the American Psychiatric Association for alcohol abuse and dependence. Several million more adults engage in risky drinking that could lead to alcohol problems. These patterns include binge drinking and heavy drinking on a regular basis. In addition, 53% of adults report that one or more of their close relatives have a drinking problem.

For most people who drink, alcohol is a pleasant accompaniment to social activities. Moderate alcohol use (up to two drinks per day for men and one drink per day for women and older people) is not harmful for most adults. Nonetheless, a large number of people get into serious trouble because of their drinking. In 2000, alcohol consumption was the 3rd leading actual cause of death in this

³⁵⁷ Grunbaume JA et al. 2004. Youth risk behavior surveillance – United States, 2003. *MMWR* 53:SS-2, 96 p.



country,³⁵⁸ and, in 2001, excessive alcohol use was responsible for approximately 75,000 preventable deaths and 2.3 million years of potential life lost in the United States.³⁵⁹ In purely economic terms, alcohol-related problems cost society approximately \$185 billion per year. Of these costs, >70% are due to productivity losses and illnesses attributed to alcohol, while <10% are for medical treatment of alcoholism and alcohol abuse.

Alcohol dependence contributes to other health problems and thereby increases the use of health care services. Between 15-30% of patients in acute care hospitals have alcohol problems, regardless of their admitted diagnosis. Unfortunately, only a fraction of these alcohol diagnoses are reflected in discharge diagnoses. In addition, the families of alcoholics consume more health care services than do those of non-alcoholics.

According to Columbia University's National Center of Addiction and Substance Abuse, underage drinkers and adult excessive drinkers are responsible for 50.1% of the alcohol consumption in this country and 48.9% of the money spent on alcohol. In 1999, underage drinkers consumed 19.7% of the alcohol nationally or \$22.5 billion worth of alcohol. "Excessive" drinking by adults (consumption of >2 drinks daily) accounted for 30.4% of the alcohol consumed or \$34.4 billion worth of alcohol expenditures.

Nationally, it is estimated that 19.3% of current drinkers also are binge drinkers (binge drinking is defined as ≥ 5 drinks on the same occasion at least once in the prior month). Binge drinking is strongly associated with alcohol-impaired driving.³⁶⁰ And, binge drinking among underage girls is growing at a faster rate than among boys.³⁶¹

The most recent estimates for Missouri are 25.1% binge drinking and 23% among persons 12-20 y

³⁵⁸ Mokdad A et al. 2004. Actual causes of death in the United States, 2000. *J Am Med Assoc* 291:1238-1245.

³⁵⁹ Midanik LT et al. 2004. Alcohol-attributable deaths and years of potential life lost – United States, 2001. *MMWR* 53:866-870.

³⁶⁰ Naimi TS et al. 2003. Binge drinking among US adults. *J Am Med Assoc* 289:70-75.

³⁶¹ Center on Alcohol Marketing and Youth. 2006. Underage age drinking in the United States, 2005: a status report. Georgetown University. (www.camy.org).



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old.³⁶² In 2002, the binge drinking rate for persons ≥ 18 y old, was 17.2%³⁶³ and for the northwestern counties it was 22.3% for the period 1999-2001.³⁶⁴ For Missourians ≥ 12 y of age, for 2002-2003, the rate was 24.6%; among 12-17 y olds it was 12.6%, for 18-25 y olds 43.9%, and for those ≥ 25 y old 22.8%.³⁶⁵ The national Youth BRFSS reported that, in 2003, 30.5% of Missouri high school student periodically binge drink.

According to the Centers for Disease Control and Prevention, per capita binge-drinking episodes have increased since 1995. In Missouri, in 2001, the number of binge drinking episodes per person per year was between 7.9 and 12.3.³⁶⁶ This level of binge drinking placed Missouri among the highest states for this behavior. Frequent binge drinking is associated with a significant worsening of a person's health related quality of life, including stress, depression, and emotional problems.³⁶⁷

In a comparison of metropolitan areas across the nation using the 2001 data, the Kansas City MO-KS metropolitan area had a binge drinking prevalence rate of 15.6%. The median prevalence rate for metropolitan areas was 14.5%. Behavioral Risk Factor Surveillance System (BRFSS) data for 2002, placed the binge drinking prevalence in the metropolitan area at 17.0%, with rate in Johnson County KS being 19.4% versus 16.0% in Jackson County MO. The 2003 PULSE survey of the lesbian, gay, bisexual, and transgendered community in the Kansas City metropolitan area yielded an estimated prevalence for binge drinking of 12.3%, ranging from 7.5% for wine consumption to 17.2% for beer.³⁶⁸

³⁶² Wright D, Sathe N. 2006. State estimates of substance use from the 2003-2004 National Surveys on Drug Use and Health. Substance Abuse and Mental Health Services Administration. www.oas.samhsa.org.

³⁶³ Balluz L et al. 2004. Surveillance for certain health behaviors among selected local areas – United States, Behavioral Risk Factor Surveillance System, 2002. *MMWR* 53:SS-5, 100 p.

³⁶⁴ Substance Abuse and Mental Health Services Administration. 2005. Substate estimates from the 1999-2001 national surveys on drug use and health. www.oas.samhsa.gov.

³⁶⁵ Wright D, Sathe N. 2005. State estimates of substance use for the 2002-2003 national survey on drug use and health. DHSS Pub SMA05-3989, NSDUH Series H-16, Rockville MD: SAMHSA, Office of Applied Studies.

³⁶⁶ Nelson DE et al. 2004. Metropolitan-area estimates of binge drinking in the United States. *Am J Public Health* 94:663-671.

³⁶⁷ Okora CA et al. 2004. Binge drinking and health related quality of life. *Am J Prev Med* 26:230-233.

³⁶⁸ Kansas City, Missouri, Health Department, The Lesbian and Gay Community Center of Kansas City. 2004. The PULSE. A health assessment of the Lesbian, Gay, Bisexual, & Transgendered (LGBT) community in the Kansas City, Missouri, bi-state metropolitan area. www.kcmo.org/health.



In addition to binge drinking, there is heavy drinking which is defined as an average of >2 drinks/day during the preceding month for men and an average of >1 drink per day during the preceding month for women. The prevalence of heavy drinking among Missourians during 2002 was 6.1% and among Kansans was 5.2%; in the Kansas City metropolitan area it was 5.5%.

Smoking while drinking may encourage persons to drink more while smoking.³⁶⁹ In rats, the level of alcohol in the bloodstream fall as nicotine levels increase. It is hypothesized that somehow the presence of nicotine delays the release of alcohol from the stomach to the intestines. This delay allows the alcohol molecules to be metabolized, leaving less alcohol to be absorbed by the intestines into the bloodstream. Thus, in people nicotine would diminish the desired effect of the alcohol and may encourage drinkers to drink more to achieve the pleasurable desired effect, particularly among heavy and binge drinkers.

In Kansas City, hospitalization rates due to alcoholism decreased 37% between 1998 and 2003 (Figure 82). In addition, the age-adjusted deaths rates due to alcohol remained unchanged over the 5 year period (Figure 83).

Injury is the leading cause of visits to emergency departments in Kansas City and it well established that there is a relationship between drinking and injuries. A recent study suggests that 2-6% of all injuries that are seen in emergency rooms can be attributed to drinking to alcohol prior to incurring the injury.³⁷⁰ For violence related injuries, 43% were attributed to drinking before the injury.

³⁶⁹ Parnell SE et al. 2006. Nicotine decreases blood alcohol concentrations in adult rats: a phenomenon potentially related to gastric function. *Alcoholism: Clin Exper Res* 30:1408-1413.

³⁷⁰ Cherpitel CJ et al. 2005. Attributable risk of injury associated with alcohol use: cross-national data from the Emergency Room Collaborative Alcohol Analysis Project. *Am J Public Health* 95:266-272.



Figure 82 Age-adjusted rates per 100,000 population for hospitalization due to alcoholism, Kansas City, MO

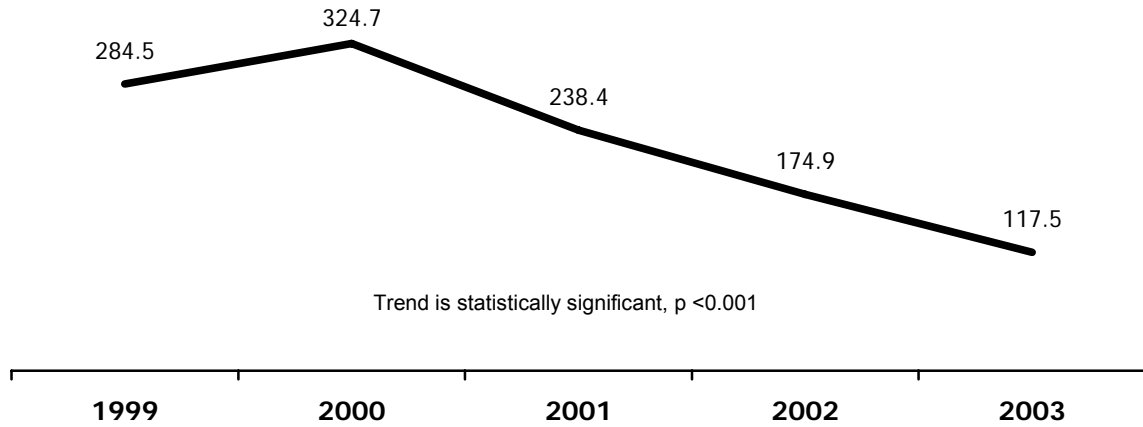
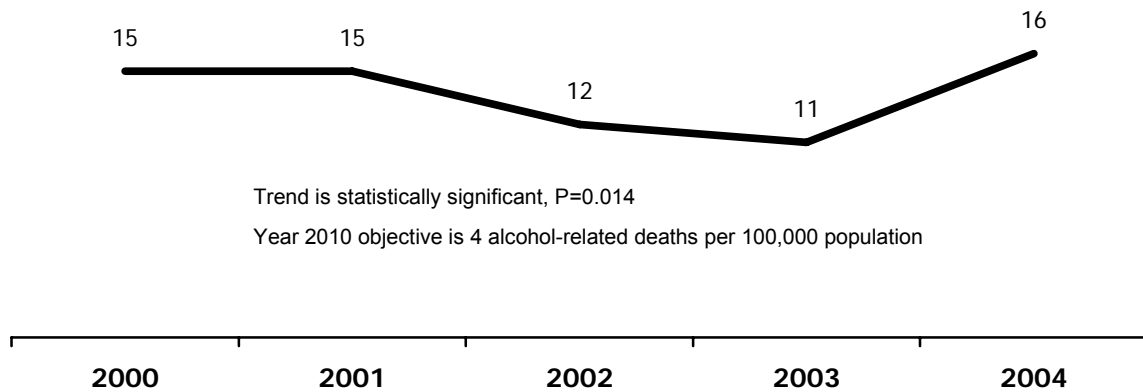


Figure 83 Age-adjusted alcohol related death rates per 100,000 population, Kansas City, MO





Driving under the influence (DUI) of alcohol is both a safety and public health problem. The estimated annual number of DUI episodes in the US declined from 123 million in 1993 to 116 million in 1997, but then increased to 159 million both in 1999 and 2002.³⁷¹ In 2002, the prevalence of DUI episodes was 2.3%. Over 80% of the people involved in DUI episodes had been binge drinking. Binge drinkers were >13 times more likely to DUI than people who drank alcohol but did not binge drink. Over half of DUI episodes involve moderate drinkers

According to the NIAAA, the prevalence of driving after drinking as declined from 3.7% in 1991-1992 to 2.9% in 2001-2002. It's National Epidemiologic Survey on Alcohol and Related Conditions (NEASARC) reported that the decline was the greatest among persons 18-29 y old, although 22 and 23 y olds still had the highest prevalences of 11.5% and 10.4%, respectively. There was no decline in this behavior among females. Among college students the prevalence of DUI rose from 26.5% in 1998 to 31.4% in 2001.³⁷²

Meanwhile, the Substance Abuse and Mental Health Services Administration reported that during 2002-2003, 21% of drivers <21 y old had driven in the past year while under the influence of alcohol or illicit drugs.³⁷³ Whites and Native Americans were more likely to report this behavior, as were males. In addition, 44% of 16-20 y olds had used alcohol in prior month, 30% were binge drinkers, and 10% were heavy drinkers. The prevalence of DUI in this age group was highest in the Midwest (approximately 25% of drivers <21 y of age). The 2003 Youth BRFSS report showed that 14.9% of Missouri high school students had driven after drinking alcohol and that 31.7% had ridden with a driver who had been drinking.

Missouri is one of a small number of states that do not have an open container law. Currently, only the driver of a vehicle is prohibited from drinking alcoholic beverages in a moving vehicle. Missouri's permissible blood alcohol level for drivers is 0.08%. During 2005, 4.6% of all traffic accidents in

³⁷¹ Quinlan KP et al. 2005. Alcohol-impaired driving among US adults, 1993-2002. *Am J Prev Med* 28:346-350.

³⁷² Hingson R et al. 2005. Magnitude of alcohol-related mortality and morbidity among US college students ages 18-24: changes from 1998 to 2001. *Annual Rev Public Health* 26:259-279.

³⁷³ Substance Abuse and Mental Health Services Administration. 2004. Driving under the influence (DUI) among young persons. The NSDUH Report 12/3/04. www.oas.samhsa.gov.



Missouri and 23.0% of all fatal crashes were alcohol related.³⁷⁴ In addition to the 274 persons killed, another 5,216 were injured in alcohol-related accidents. Sixty percent of the crashes involving alcohol occurred on Friday, Saturday and Sunday and 65% of alcohol related crashes occurred between 7 PM and 3 AM. Alcohol was involved in 3.3% of non-fatal crashes and in 19.5% of fatal crashes involving drivers <21 y of age.

Among Missouri counties in 2005, Jackson ranked 1st in alcohol related crashes, with Clay and Platte counties ranking 5th and 13th, respectively. Kansas City ranked 1st in alcohol related crashes among municipalities. During 2005, within Kansas City, 1,187 persons were cited for DUI, representing 1.8% of all hazardous moving violations.³⁷⁵ Ninety-one percent of persons arrested for DUI were between 20 and 55 years of age. Binge drinking is strongly associated with alcohol-impaired driving. However, from the available data it is not possible to determine the effect of binge drinking on motor vehicle crashes in Kansas City. Table 85 summarizes alcohol related motor vehicle crashes in Kansas City during 2005.

Table 85 Motor vehicle accidents in which alcohol was Involved, Kansas City, MO, by county, 2005*

Type	Portion of the City		
	Clay	Jackson	Platte
Motor vehicle accidents	137	501	50
Fatalities	5	13	1
Injuries	50	199	26

* From Missouri State Highway Patrol, 2005 Missouri Traffic Safety Compendium

³⁷⁴ Missouri State Highway Patrol. 2006. 2005 Missouri traffic safety compendium. 287p. www.mshp.dps.missouri.gov

³⁷⁵ Kansas City, Missouri, Police Department. 2006. Annual report 2005. 56 p. www.kcmo.org