Alcohol Abuse and Dependence

Definition: Alcohol abuse and dependence are patterns of drinking leading to clinically significant impairment or distress. Symptoms of alcohol abuse include failure to fulfill major obligations at work, school or home and recurrent legal problems. Symptoms of dependence include tolerance, withdrawal, drinking more than intended, giving up social, occupational or recreational activities because of drinking, and continued drinking despite knowledge of having a persistent or recurrent problem.[1] Rates of alcohol abuse and dependence in Washington are not available. This report uses the U.S. Centers for Disease Control and Prevention Behavioral Risk Factor Surveillance System definition for binge drinking: five or more drinks for men and four or more for women on one occasion during the past month. (See Technical Notes.)

Summary

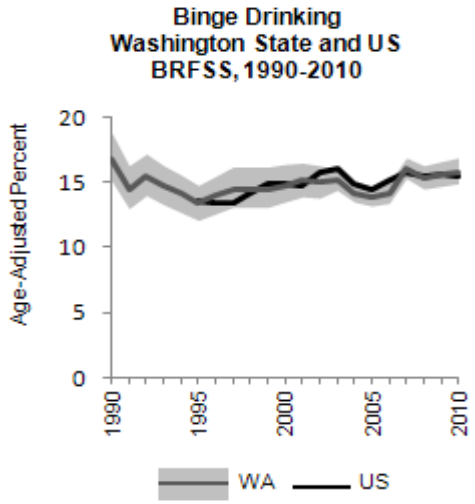
Negative health effects of alcohol—such as liver disease, some cancers, and trauma—are associated with greater quantities and longer duration of use.[2] However, even infrequent blood-alcohol levels of .08 or greater increase risk for alcohol-related motor vehicle crash death and other types of injury. In Washington State in 2010, 16% (±1%) of adults reported binge drinking (five or more [for men] or four or more [for women] drinks on at least one occasion in the past month). Based on estimates using the U.S. Centers for Disease Control and Prevention's Alcohol-Related Disease Impact (ARDI) system,[3] 2,457 alcohol-related deaths occurred in Washington in 2010. In addition, an estimated 560 deaths were avoided by light or moderate drinking.

School-based interventions to develop psychological and social skills have shown long-term effects in reducing alcohol use in adolescents.[4] Brief interventions, such as advice from a health care provider to reduce or stop drinking, help reduce heavy drinking among adults.[5,6] Some psychosocial approaches, such as cognitive behavior therapy, and medications, such as naltrexone, are effective in treating alcohol dependence, but they might need to be used in combination with long-term or intermittent care.[7] Public policies that limit the availability of alcohol (such as increasing the tax rate) and policies aimed at reducing alcohol-impaired driving (such as .08 blood alcohol concentration laws) reduce alcohol-related traffic fatalities. Recent evidence suggests that privatizing alcohol sales increases alcohol consumption.[8]

Heavy drinking during pregnancy can adversely affect the mother and fetus. A safe level of alcohol during pregnancy has not been determined.

Time Trends

Nationally, in 2010, 7% (±<1%) of adults met the criteria for alcohol abuse or dependence.[9] State trend data are not available for alcohol abuse or dependence but are available for binge drinking. The Washington Behavioral Risk Factor Surveillance System (BRFSS) collected data on the percentage of Washington adults who reported binge drinking—defined as consuming five or more drinks on one occasion in the past month in 1995, 1997, 1999 and 2001–2005 and as five or more drinks on one occasion in the past month for men and four or more for women in 2006–2010. The 2006–2010 measure approximates a .08 blood alcohol level.



Binge drinking in Washington did not change significantly between 1990 and 2010 and is similar to the rate in the United States as a whole. In 2010, 16% (±1%) of Washington adults reported binge drinking. The percentage is the same with or without adjustment for age.

2010 and 2020 Goals

National goals in *Healthy People 2010* included:

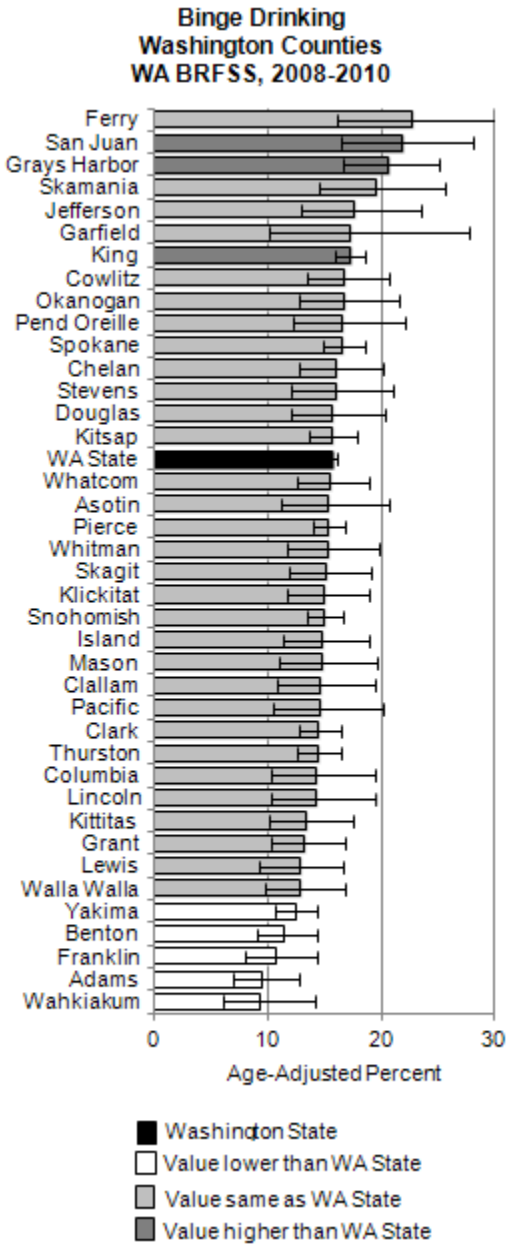
- Decreasing alcohol-related traffic fatalities to 4.8 per 100,000 people (not age-adjusted). The Washington Traffic Safety Commission reported that Washington's rate of alcohol-related traffic fatalities in 2010 was 2.2 deaths per 100,000 people (see Technical Notes) and so Washington has met this goal.
- Decreasing cirrhosis deaths to 3.2 per 100,000 people (age-adjusted). In Washington, cirrhosis deaths have remained stable at about 9–10 per 100,000 since 1995 and so Washington did not meet this goal.
- Reducing the percentage of high school seniors who report drinking five or more drinks in a row in the past two weeks to 11%. In Washington, this measure has remained stable at about 25% (±2%) since 1990, and so Washington did not meet this goal.

All three of these goals changed in *Healthy People 2020*. National goals in *Healthy People 2020* include:

- Decreasing alcohol-related traffic fatalities to 0.38 deaths per 100 million vehicle miles traveled. The Washington Traffic Safety Commission reported that Washington's rate in 2010 was 0.25 deaths per 100 million vehicle miles traveled (see Technical Notes) and so Washington has met this goal.
- Decreasing cirrhosis deaths to 8.2 per 100,000 people (age-adjusted). However, with relatively stable cirrhosis deaths rates (9–10 per 100,000 since 1995) meeting this goal remains unlikely.
- Reducing the percentage of high school seniors who report drinking five or more drinks in a row in the past two weeks to 22.7%. However, with a relatively stable rate (about 25% ±2% since 1990), Washington does not appear likely to meet this goal.

Geographic Variation

Based on BRFSS data from the 2008–2010 surveys combined, reported binge drinking ranged from 21% (±6%) in Ferry County to 8% (±3%) in Wahkiakum County. Most counties had rates similar to the state rate but San Juan, Grays Harbor and King counties had higher rates; rates for Yakima, Benton, Franklin, Adams and Wahkiakum counties were lower.



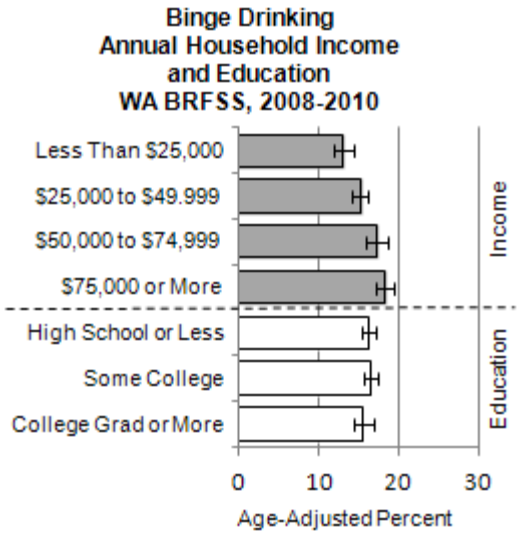
Age and Gender

In the 2008–2010 BRFSS, men and younger age groups reported binge drinking more often than women and those in older age groups. These patterns are consistent with national patterns.

Nationally, men are at higher risk for alcohol abuse than are women, and this is consistent across age, racial and ethnic groups.[10] But women experience health effects at lower levels of consumption than men.

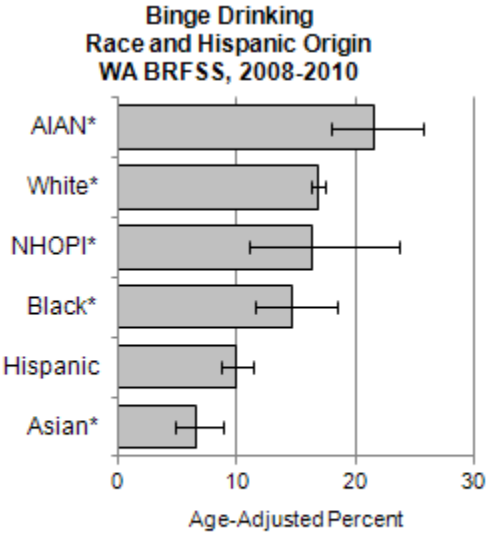
Economic Factors and Education

In the 2008–2010 BRFSS, rates of binge drinking were similar for people with different educational backgrounds. The percentage reporting binge drinking increased with income, even after accounting for age, gender, education, race and ethnicity. This is similar to other states and may reflect greater disposable income to spend on alcohol.[11] In contrast to binge drinking, national data show rates of alcohol abuse or dependence as highest in people with family incomes less than $20,000.[12]



Race and Hispanic Origin

In the 2008–2010 BRFSS, Asians were the least likely to report binge drinking, followed by Hispanics. American Indians and Alaska Natives were the most likely to report binge drinking. These patterns persisted after accounting for age, gender, income and education. Nationally, Asians have the lowest prevalence of alcohol use disorders, and American Indians and Alaska Natives have the highest prevalence.[13]



Other Measures of Impact and Burden

Alcohol-related deaths. Excessive use of alcohol is the third leading cause of preventable death in the United States. Based on estimates using the U.S. Centers for Disease Control and Prevention's Alcohol-Related Disease Impact (ARDI) software,[3] 2,457 alcohol-related deaths occurred in Washington in 2010. An estimated 560 deaths were avoided by light or moderate drinking, mainly by reducing ischemic heart disease.

Beverage sales. Data from beverage sales suggest that alcohol consumption by Washington residents decreased during 1990–1997 and then increased during 1997–2009 so it is near 1990 levels.[14] Consumption rates here are similar to those in the United States as a whole.[14]

Youth alcohol use. On the 2010 Healthy Youth Survey, 28% (±2%) of Washington students in grade 10 reported drinking alcohol in the previous month. This is lower than the 32% (±2%) reporting drinking alcohol on the 2008 survey. Nationally, the 2009 Youth Risk Behavior Survey showed 41% (±3%) of 10th graders drinking alcohol in the previous month.[15] The 2009 national survey is in the same academic year as the 2008 Washington survey.

Alcohol use in pregnancy. A safe level of alcohol use during pregnancy has not been determined. According to the 2006–2008 Pregnancy Risk Monitoring System (PRAMS) survey, 55% (±2%) of new mothers in Washington reported drinking alcohol and 19% (±2%) reported binge drinking, defined as five or more drinks in one sitting, during the three months prior to pregnancy. PRAMS measures drinking prior to pregnancy as many women do not realize they are pregnant for several weeks. The early pregnancy period is a critical time in fetal development. Ten percent (±1%) reported any drinking during the last three months of pregnancy. The finding that most women stopped drinking during pregnancy is consistent with national data.[16] Any alcohol use by pregnant women in Washington before or during pregnancy did not change from 2000 to 2008; however, binge drinking before pregnancy increased over this period.

National data on alcohol use are not available, but data are available for other states participating in PRAMS (including 24 states in 2006 with at least a 70% response rate, 31 states in 2007 with at least a 65% response rate and 29 states in 2008 with at least a 65% response rate). These states represent about half of US births during this time period. From 2006 to 2008, 51% (±<1%) of these PRAMS respondents reported drinking alcohol and 19% (±<1%) reported binge drinking in the three months before pregnancy; 7% (±<1%) reported any drinking during the last three months of pregnancy. Thus, Washington mothers were more likely to drink alcohol before and during pregnancy than mothers in these other states.

Health Effects

Most negative effects of alcohol on health are due to long-term excessive drinking. However, even infrequent blood-alcohol levels of .08 or greater increase risk for alcohol-related motor vehicle crash death and other types of injury. Based on the 2008–2010 Washington BRFSS, 75% (±2%) of heavy drinkers (defined on BRFSS as drinking an average of two or more drinks a day for men and one or more for women) also reported binge drinking. About one-quarter (27% ±2%) of binge drinkers also reported heavy drinking. Light to moderate alcohol consumption has some positive effects on cardiovascular health. This section describes effects of alcohol on chronic disease, trauma, communicable disease and fetal development.

***Chronic disease*.** High levels of alcohol consumption increase the risk of liver disease including fatty liver, alcoholic hepatitis and cirrhosis;[17] several types of cancer including cancers of the mouth, upper airways, larynx, breast, digestive tract and liver;[2] heart disease; and alcoholic pancreatitis. There is more limited evidence for increasing risk of osteoporosis[18] and epilepsy. [19]

While heavy drinking increases risk for heart disease and stroke, moderate drinking increases levels of high-density lipoprotein (HDL, or "good") cholesterol and reduces factors associated with blood clotting, thus reducing risk. Moderate drinkers have the lowest risk of cardiovascular disease, followed by abstainers, then heavy drinkers.[20] The protective effect of moderate drinking on death from coronary heart disease or stroke appears to be similar by gender and age. However, this protective effect (based on the current definition of moderate drinking of two or fewer drinks per day for men and one or less for women) may not be true for African-Americans due to differences in alcohol absorption.[21]

Trauma. Alcohol use has been linked with motor vehicle crashes, falls, drowning, fires and burns, and violence.[22] In Washington in 2005–2010, 60% of fatalities in alcohol-related motor vehicle deaths were the drinking drivers themselves, 5% were their passengers, and 23% were drivers or passengers in other vehicles. Eight percent of deaths were pedestrians who had been drinking and were struck by drivers who had not. People who report drinking five or more drinks per occasion are at significantly greater risk of injury than other individuals.[23] Reasons may include personality factors such as risk-taking and impairment of cognition and coordination.

Studies using police reports, court documents and surveys of convicted offenders have found alcohol to be involved in 30% or more of violent crime.[24] Factors such as history of abuse and antisocial personality disorder are linked with both drinking and criminal acts. Heavy drinking by the husband prior to and during marriage increases the likelihood of domestic violence.[25] People who are dependent on alcohol are also more likely to commit suicide.[26] Alcohol is also associated with being a victim of violence. About half of homicide victims test positive for alcohol, and drinking by both perpetrators and victims increases the likelihood of rape.[27]

Communicable disease. Chronic alcohol abuse suppresses the immune system's ability to combat infectious disease and increases risk for pneumonia, tuberculosis, septicemia (an infection of the circulating blood) and other infections.[28,29]

People who abuse alcohol are also less likely to protect themselves against sexually transmitted diseases such as human immunodeficiency virus (HIV).[30]

Effects on fetal development. Alcohol exposure to a fetus during pregnancy can cause facial malformations, decreased growth and damage to the brain, resulting in permanent and lifelong disabilities. Fetal alcohol syndrome (FAS) is the most serious outcome within the spectrum of effects resulting from alcohol exposure during pregnancy. Statewide prevalence data are not available. The prevalence of FAS in the United States is estimated at 0.2–2.0 per 1,000 live births. The prevalence of FAS in combination with other conditions resulting from alcohol exposure during pregnancy is estimated at 9–10 cases per 1,000 live births.[31]

Barriers and Motivations for Change

Alcohol is integrated into many aspects of American life and is used in Washington by most of the adult population: on the 2010 BRFSS, 60% (±1%) of adults reported drinking alcohol in the past month. Social drinking can be motivated by a desire to comply with social norms or by other reasons such as desire to improve mood or to relieve anxiety or depression.

Mental health. Children and adolescents who later develop problems with alcohol score higher than other youth on measures related to inadequate control over aggression and antisocial behavior, and to a lesser extent, on measures of anxiety and depression.[32] In adulthood, about a quarter of individuals with current alcohol abuse or dependence have a personality disorder such as antisocial personality.[33] Alcohol abuse and dependence are also associated with adult depression and anxiety disorders.[34]

Family factors. Family antisocial behavior, childhood neglect and poor parenting, and early exposure to alcohol and other drug use by parents and peers have been related to the development of alcohol abuse.[35,36,37,38] Alcohol disorders also have a familial link, and this may involve genetic factors, learning, and other environmental factors such as stress.[39]

Intervention Strategies

Interventions have focused both on reducing heavy or problem drinking and on its prevention among light or moderate drinkers. Although moderate drinkers are at less risk individually, they are such a large part of the population that they are the majority of individuals who have experienced some alcohol-related problem.

Public policy. Public policies that limit availability of alcohol (such as increasing the tax rate) have been associated with reductions in alcohol consumption and alcohol-related traffic fatalities.[40] A recent review suggests that privatizing alcohol sales results in increased consumption.[8] A variety of public policies attempt to reduce alcohol-impaired driving by increasing perceived risk of detection and punishment, reducing alcohol consumption in high-risk settings or among high-risk groups, or fostering a social norm that reduces the acceptable amount of alcohol before driving.[41] There is strong evidence for the effectiveness of .08 blood alcohol concentration laws, minimum legal drinking age laws and sobriety checkpoints. Age-21 drinking laws and mandating lower blood alcohol concentration limits for young

and inexperienced drivers also appear to be effective in reducing alcohol-related motor vehicle crashes.[41]

School-based programs. Some school-based programs have shown long-term effects on reducing alcohol use among young people, although the size of the effects has been modest.[4, 42] Programs using similar approaches vary in effectiveness and need to be evaluated on a case-by-case basis.[42] Approaches include resisting social influences, life skills training (building self-esteem, managing anxiety and communicating effectively) and strengthening families.[4] School-based instructional programs appear to be effective at reducing passenger riding with drinking drivers, but there is insufficient evidence to determine whether they are effective for reducing drinking and driving.[42]

Brief intervention and motivational enhancement. Typical brief interventions involve advice from a health care provider to reduce or stop drinking and can involve additional monitoring, a self-help manual or other simple interventions. Brief intervention in primary care and hospitals is effective in reducing drinking for patients who are heavy drinkers but have not been diagnosed with alcohol disorders.[5,6] Brief interventions with women of childbearing age who are not dependent on alcohol also appear to reduce risk of a fetus being exposed to alcohol by improving use of contraception, reducing drinking or both.[31,43] A meta-analysis of 10 randomized trials with trauma patients found that brief interventions reduced the likelihood of an alcohol-related injury in the next 6–12 months by almost half.[44]

Motivational interviewing, which helps clients want to change, can be part of brief intervention and is also used with alcohol abusers. Motivational interviewing for alcohol abuse and brief intervention for college students were identified as cost-effective evidence-based practices in a recent Washington State economic analysis.[45]

Alcohol abuse and dependence treatment. A broad range of psychosocial, medical and self-help approaches are used in treating abuse and dependence. Evidence-based treatment can achieve a 15% reduction in incidence or severity of alcohol and drug disorders.[46] Both inpatient and outpatient programs are used, and these include individual and group therapies, medication, physiological monitoring, education and 12-step (i.e., Alcoholics Anonymous) groups. Particular psychosocial treatments, such as cognitive behavior therapy, and some medications, such as naltrexone, show considerable effectiveness for treating alcohol dependence.[7,47] Relapse rates in the months following treatment are high, however, and a number of alcohol-dependent individuals require either prolonged or intermittent care.[7]

Alcohol use in pregnancy. Research on treatment of alcohol-abusing women in pregnancy is limited. A review of six studies of home visits for pregnant and parenting women with drug or alcohol problems did not find that the visits reduced alcohol or drug use or improved child health.[48] However, a Washington State study (of which early results were included in the review) found that new mothers who reported binge drinking (defined as five or more drinks per occasion at least once a month) during pregnancy were more likely to report either abstaining from alcohol and drugs or using contraception after participating in a home-visiting program.[49] As noted earlier, brief interventions appear to be effective in reducing or stopping drinking during pregnancy for many women but this approach is not recommended for women who are dependent on alcohol.[31]

See Related Chapters: Drug Abuse and Overdose, Sexual Health, Mental Health and sections on Maternal and Child Health, Injury and Violence, Chronic Disease and Infectious Disease.

Data Sources (For additional detail, see Appendix B)

Washington State Behavioral Risk Factor Surveillance System (BRFSS) data: 1990–1993,1995, 1997, 1999, 2001–2010. Olympia, Washington: Washington State Department of Health, under federal cooperative agreement numbers: U58/CCU002118 (1990–2003), U58/CCU022819 (2004–2008), and U58/DP001996 (2009–2010).

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Healthy Youth Survey: Washington State Department of Health, Office of Superintendent of Public Instruction, Department of Social and Health Services, Department of Commerce, and Liquor Control Board (2002, 2004, 2006, 2008, 2010); Washington State Survey of Adolescent Health Behaviors: Washington State Department of Health, Office of Superintendent of Public Instruction, Department of Social and Health Services, Department of Community Trade and Economic Development (1990, 1992, 1995, 1998, 2000); Washington Youth Risk Behavior Survey: Washington State Department of Health, 1999.

For More Information

National Institute on Alcohol Abuse and Alcoholism at www.niaaa.nih.gov (accessed August 16, 2011); U.S. Centers for Disease Control and Prevention at www.cdc.gov/alcohol/ (accessed August 16, 2011); Substance Abuse and Mental Health Services Administration at www.samhsa.gov (accessed August 16, 2011).

Technical Notes

Cirrhosis deaths include deaths coded as 571 in the ICD-9 and K70, K73–74 in the ICD-10.

Beginning in 2006, the BRFSS measure for binge drinking identifies binge drinking as five or more drinks on one occasion for men and four or more for women because of gender differences in the effects of varying dosages. Also, beginning in 2003 the BRFSS includes a Spanish language version. Neither of these changes was accompanied by a significant change in the rates of binge drinking.

Washington State traffic fatality data were provided by Dick Doane, Research Investigator, Washington Traffic Safety Commission (written communication, August 2010) based on Fatality Analysis Reporting System (FARS) data from the National Highway Traffic Safety Administration. 2010 data are preliminary and are subject to revisions.

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