

ARIZONA HEALTH SURVEY

PREPARED BY SOUTHWEST INTERDISCIPLINARY RESEARCH CENTER, ARIZONA STATE UNIVERSITY

Adults: Substance Use and Abuse Issues and Disparities in Arizona



Adults: Substance Use and Abuse Issues and Disparities in Arizona

THIS REPORT WAS PREPARED BY

FLAVIO F. MARSIGLIA, PRINCIPAL INVESTIGATOR, DIRECTOR, SIRC
WENDY L. WOLFERSTEIG, ASSISTANT DIRECTOR, EVALUATION & PARTNER CONTRACTS
STEPHANIE AYERS, COORDINATOR OF RESEARCH
ALEX WAGAMAN, RESEARCH ASSISTANT
JAIME BOOTH, RESEARCH ASSISTANT
HOLLY LEWIS, EVALUATION & COALITION COORDINATOR

ARIZONA STATE UNIVERSITY
SOUTHWEST INTERDISCIPLINARY RESEARCH CENTER
SCHOOL OF SOCIAL WORK – COLLEGE OF PUBLIC PROGRAMS
411 N. CENTRAL AVENUE, SUITE 720, PHOENIX, AZ 85004-0693
PH 602.496.0700 | FX 602.496.0958 | [HTTP://SIRC.ASU.EDU](http://SIRC.ASU.EDU)

April 2010

FUNDED BY ST. LUKE'S HEALTH INITIATIVES
2929 NORTH CENTRAL AVENUE, SUITE 1550, PHOENIX, AZ 85012
PH 602.385.6500 | FX 602.385.6510 | WWW.SLHI.ORG

Acknowledgments

The Southwest Interdisciplinary Center staff wish to thank the St. Luke's Health Initiatives staff for their dedication to this research and the dissemination of results. SIRC was pleased to assist SLHI with the analysis and reporting of these data. A special thanks to Jill Rissi and Kim VanPelt for all their work in bringing this report to fruition.

This report is prepared under an agreement with the Southwest Interdisciplinary Research Center, Arizona State University, Dr. Flavio F. Marsiglia, Director.

Evaluation Team Members: Dr. Wendy Wolfersteig, Dr. Stephanie Ayers, Ms. Alex Wagaman, Ms. Jaime Booth, and Ms. Holly Lewis.

Table of Contents

Introduction	7
Overview	7
Use vs. Abuse	7
Dependence	8
Factors Related to Use and Abuse	8
Factors Affecting Costs	9
Substance Use, Dependence and Abuse in Arizona	9
Arizona Health Survey	10
Tobacco Use/Smoking	12
Alcohol Use	17
Differences in Binge Drinking and Smoking Behaviors	23
Alcohol, Tobacco and Medications	24
Prescription Medications	24
Over-the-Counter Medications	27
Substance Use and Coping Mechanisms	29
Formal Treatment: Need or Seek Services – Gap	29
Informal Coping and Resiliency	31
Use of Alcohol or Drugs as a Coping Mechanism	33
Conclusions and Limitations	35
References	36
Appendix A: Weighting Methodology	37

List of Tables

Table 1: Arizona Estimated Selected Drug Use	9
Table 2: National Cigarette and Alcohol Use	9
Table 3: Arizona Health Survey Total Weighted Sample by Race/Ethnicity	10
Table 4: Arizona Health Survey Total Weighted Sample by Gender	11
Table 5: Arizona Health Survey Total Weighted Sample by Age	11
Table 6: Arizona Health Survey Total Weighted Sample by Type of Insurance	11
Table 7: At Least 100 Cigarettes Smoked in Lifetime	12
Table 8: Of Those Who Report Smoking 100 in Their Lifetime: Percentage Who Still Smokes	12
Table 9: Cigarette Smokers by Race/Ethnicity: Prevalence of Group in Total Arizona Population	13
Table 10: Percentage of Cigarette Smokers in Each Race/Ethnicity	13

Table 11: Number of Cigarettes Smoked per Day in Each Race/Ethnicity	13
Table 12: Cigarette Smoking by Gender	14
Table 13: Cigarette Smoking by Age	14
Table 14: Taking Medication to Control Asthma and Smoking	15
Table 15: Cigarette Smoking by RBHA	15
Table 16: Cigarette Smoking by Education Level	16
Table 17: Cigarette Smoking by Income	16
Table 18: Cigarette Smoking by Type of Insurance	17
Table 19: Alcohol Use in the Past 12 Months by Race/Ethnicity	17
Table 20: How Many Drinks Typical Day When Drank	18
Table 21: Binge Drinking by Race/Ethnicity: Prevalence in Arizona Population	18
Table 22: Binge Drinking Compared Across Race/Ethnicity	18
Table 23: Alcohol Use in the Past 12 Months by Gender	19
Table 24: Binge Drinking by Gender	19
Table 25: Alcohol Use in the Past 12 Months by Age	20
Table 26: Binge Drinking by Age	20
Table 27: Alcohol Use in the Past 12 Months by Type of Insurance	21
Table 28: Binge Drinking by Type of Insurance	21
Table 29: Binge Drinking by Educational Level	22
Table 30: Binge Drinking by RBHA	22
Table 31: Differences in Binge Drinking and Smoking Behaviors by Gender and Race/Ethnicity	23
Table 32: Differences in Binge Drinking and Smoking Behaviors by Federal Poverty Level, Education Level and Counties by RBHA Category	24
Table 33: Taking Medication for Bi-Polar or Manic Depressive and Cigarette Smoking	25
Table 34: Taking Medication for Anxiety Disorder and Cigarette Smoking	25
Table 35: Taking Medication for Depression and Cigarette Smoking	26
Table 36: Taking Medication for Bi-Polar or Manic Depressive and Binge Drinking	26
Table 37: Taking Medication for Anxiety Disorder and Binge Drinking	26
Table 38: Taking Medication for Depression and Binge Drinking	26
Table 39: Use of Over-the-Counter Medications	27
Table 40: Use of Over-the-Counter Medications by Smoking and Binge Drinking	27
Table 41: Use of Vitamins and Cigarette Smoking	28
Table 42: Use of Dietary Supplements and Cigarette Smoking	28
Table 43: Use of Pain Relievers and Binge Drinking	28
Table 44: Use of Weight Control Medication and Binge Drinking	29
Table 45: Need to See or Seen Professional for Emotional, or Alcohol or Drug Condition by Race/Ethnicity	29

Table 46: Need to See or Seen Professional for Emotional, or Alcohol or Drug Condition by Type of Insurance	30
Table 47: Why Not See Professional for Emotional, or Alcohol or Drug Condition by Race/Ethnicity.	30
Table 48: Why Not See Professional for Emotional, or Alcohol or Drug Condition by Type of Insurance	31
Table 49: Of Those Who Reported That There was a Month in the Past 12 Months When They Had a Particularly Difficult Time Emotionally and Reported Using One of the Following: How Helpful.	31
Table 50: Responses to the Six Resiliency Questions of CD-RISC-6 Scale	32
Table 51: Smoking and Drinking by CD Risk Mean	32
Table 52: WHO (Five) Well-Being Question Responses	32
Table 53: Smoking and Drinking by WHO Scale	33
Table 54: Smoking and Bi-Polar or Manic Depressive, Anxiety Disorder or Depression Condition	33
Table 55: Smoking and the Kessler 6/ Physiological Distress	33
Table 56: Alcohol Use and Bi-Polar or Manic Depressive, Anxiety Disorder or Depression Condition	34
Table 57: Alcohol Use and the Kessler 6/ Physiological Distress.	34
Table 58: Binge Drinking & Bi-Polar or Manic Depressive, Anxiety Disorder or Depression Condition	34
Table 59: Binge Drinking and the Kessler 6/ Physiological Distress	34

List of Figures

Figure 1: Arizona Health Survey Total Weighted Sample by Race/Ethnicity	11
Figure 2: Of Total Cigarette Smokers in Arizona: Percentage by Race/Ethnicity.	13
Figure 3: Percent of Adults Reporting Cigarette Smoking by RBHA.	15
Figure 4: Of Binge Drinkers, Percentage by Race/Ethnicity	19
Figure 5: Percent of Adults Reporting Binge Drinking by RBHA.	22

Introduction

Overview

Arizona has regularly been collecting and reporting data in many areas of substance use for at least the past fifteen years. Through a series of efforts by the Governor's Office and other state agencies, policy committees, work groups and grants, a variety of data have been available in this area for use in policy decision making as well as local program planning. A few notable sources are the Arizona Substance Abuse Partnerships' Substance Abuse Epidemiology Work Group, the Arizona Department of Health Services (ADHS) Offices of Vital Statistics and Tobacco Education and Prevention Program (TEPP), the Arizona Criminal Justice Commission's Arizona Youth Survey and the Arizona Department of Education's Youth Risk Behavior Survey.

One gap that has been identified by these government agencies is the need for an Arizona adult prevalence survey to examine the rates of substance use and abuse, to study how these issues affect the lives of individuals, and to determine what the state and prevention providers can do to help.

While the federal government provides estimates of adult substance abuse patterns at the state level, there is currently no survey of adults conducted by any Arizona state agency. National studies provide state-level estimates but their sample size is too small to provide statistics at a lower geographic level. A state-level adult prevalence survey would provide a sample large enough to allow us to draw conclusions about differences in substance abuse consumption patterns by numerous demographic variables... (Substance Abuse Epidemiology Work Group, 2007, p. 232).

The 2008 St. Luke's Health Initiatives' (SLHI) Arizona Health Survey (AHS) was an extensive effort that collected data about adults, adolescents and children in Arizona. As such, it was an important step in developing an ongoing health surveillance data collection and analysis system. The Arizona Health Survey is capable of providing standardized state and local health data that can be used to target intervention activities, plan resource allocation and inform complex policy issues.

Although limited, the findings provide Arizona with a look at adult prevalence regarding use of substances and helps close the gaps in our knowledge of substance abuse consumption patterns in Arizona. Several questions were asked on the 2008 Arizona Health Survey regarding adults' use of tobacco and alcohol; little mention was made of other drugs. Additional questions are proposed in these topic areas for the 2010 survey. SLHI is working in conjunction with the Governor's Office for Children, Youth and Families, the Arizona Substance Abuse Partnership and the Epidemiology Work Group to place additional substance-related questions into the 2010 Arizona Health Survey protocol.

This survey took an asset-based approach to asking about individual indicators of health status, insurance coverage, access to care, health-related behaviors and various demographic and social/environmental factors related to health. The results serve to inform and improve public policy and community health program planning decisions at the local, regional and state levels.

Use vs. Abuse

There is no universal guideline to determine what distinguishes alcohol or substance use from alcohol or substance *abuse*. The *Handbook of Drug Use Etiology* describes substance use as a problem when the pattern of behavior becomes persistent and compulsive despite significant negative consequences or potential harm (Scheier, 2010). Patterns leading from *use* to *abuse* vary from person to person depending on factors such as age of initial use, frequency of use, and type and quantity of substance used. Substance abuse is generally associated with an increased risk of harm to self or others as a result of more intense and frequent substance use and often co-occurs with other problem behaviors and mental disorders (Scheier, 2010).

The American Psychiatric Association (DSM-IV-TR, 2000) characterizes substance abuse as a pattern of use associated with significant and recurrent negative consequences such as legal difficulties, physical danger or harm, social or interpersonal problems, and repeated failure to fulfill responsibilities. While this characterization applies to alcohol, it does not apply to nicotine. According to the DSM-IV-TR, only a classification of *Dependence* can apply to users of nicotine.

Dependence

There are seven symptoms of Substance Dependence in the DSM-IV-TR, of which an individual must exhibit three or more in a 12-month period to be diagnosed:

- Tolerance
- Withdrawal
- Increased quantities and duration of use
- Persistent desire or unsuccessful efforts to decrease or control substance use
- Much time spent obtaining, using or recovering from use of substance
- Important activities given up due to substance use
- Continued use despite physical or psychological problems

The essential features of *Alcohol Dependence* and *Nicotine Dependence*, as classified in the *DSM-IV-TR*, are tolerance and withdrawal. A person who chain-smokes cigarettes without becoming nauseated or dizzy and one who needs an increased amount of alcohol to achieve intoxication are said to have developed a tolerance to the substance. Symptoms of withdrawal from alcohol include insomnia, anxiety, hand tremors, and nausea for alcohol while depressed mood, insomnia, restlessness and increased appetite are symptomatic of nicotine withdrawal (DSM-IV-TR, 2000).

Factors Related to Use and Abuse

The etiology of drug abuse is multifactorial. As such, root causes of substance use and abuse cannot be generically defined for all individuals; however, causes of use are thought to differ from causes of abuse. Initiation of alcohol or substance use often results from social influences, whereas escalation to abuse is more a factor of biological and psychological processes (Scheier, 2010).

Age of initiation of substance use has been shown to predict later alcohol abuse or dependence; however, most individuals who initiate substance use do not continue to the point of abuse or dependence. The 2008 National Survey on Drug Use and Health reported that “adults aged 21 or older who had first used alcohol at age 14 or younger were more than 5 times as likely to be classified with alcohol dependence or abuse than adults who had their first drink at age 21 or older (15.1 vs. 2.6 percent)” (Substance Abuse and Mental Health Services Administration [SAMHSA], 2009, p. 6). Still, the quality of the first experience with the substance, the individual characteristics and biology of the user, environmental contexts, and the availability and marketing of the substance can all lead to continued use and potentially, abuse or dependence.

The *Handbook of Drug Use Etiology* highlights a variety of risk and protective factors commonly associated with alcohol and substance use and abuse. While evidence from family studies, twin studies, and adoption studies indicates that family history is the “most potent and consistent risk factor for drug use disorders” (Scheier, 2010, p. 20), other risk factors include poor neighborhoods and schools, low education levels and achievement expectations, culture and language barriers to services, child abuse/neglect, financial strain, instability, low self-esteem, lack of coping skills and an inability to bond or form close relationships. Conversely, protective factors include middle or upper class status, low unemployment and low crime neighborhoods, good schools, high quality health care, easy access to social services, close relationships with parents/adults, high self-esteem, positive outlook, and good problem-solving and coping skills.

Chemical characteristics of the substance can also have an impact on the potential for substance use to progress to substance abuse or dependence. For example, research reported by the National Institute of Drug Abuse (NIDA) (2009B) has shown that nicotine activates an increased release of dopamine in the brain, which induces feelings of pleasure by activating the brain’s reward pathways. When inhaled, nicotine is distributed to the brain very quickly, which stimulates a near-immediate feeling of pleasure in the smoker. However, the pleasurable effects also dissipate quickly, requiring the smoker to continue use of the substance in order to maintain the pleasurable effects and prevent withdrawal. Similarly, consuming alcohol on a regular basis “induces changes in the brain that affect the magnitude of responses to alcohol consumption and alcohol-related motivation” (Scheier, 2010, p. 231).

Several patterns of substance use throughout the lifetime have been widely recognized. Initial substance use often begins in adolescence with cigarettes and alcohol (which are more readily available) and peaks in young adulthood. In fact, empirical studies have confirmed that use of marijuana and other drugs is generally preceded by earlier use of alcohol or cigarettes (Scheier, 2010). Additionally, the use of legal substances (i.e. alcohol and cigarettes) is much more common than use of illicit drugs for all age categories beginning in the mid-20s and rates of both binge drinking and cigarette smoking markedly decrease at the mid-40s (Scheier, 2010).

The decrease in substance use that occurs after young adulthood has been explained by changing social roles. As individuals get married and begin careers, there tends to be a shift in social networks. While much research has been done linking social influences to alcohol consumption during adolescence, more studies are now indicating that social networks influence alcohol consumption throughout adulthood as well (Scheier, 2010).

Factors Affecting Costs

There is solid evidence confirming the strong negative impacts that nicotine addiction and binge drinking have on public health and the federal budget. In fact, smoking is the leading preventable cause of death in the U.S. (SAMHSA, 2009), and alcohol abuse is the third leading preventable cause of death in the U.S. (Naimi et al., 2003). Cigarette smoking is estimated to cause tens of thousands of deaths each year from cancer, cardiovascular diseases, respiratory diseases, and infant deaths due to prenatal exposure (NIDA, 2009A). According to the National Institute on Alcohol Abuse and Alcoholism (NIAAA) (2009), heavy drinkers have an increased risk of liver and heart disease, stroke, sexually transmitted diseases from unsafe sex, and several types of cancer. The NIAAA estimates that alcohol plays a factor in over 50% of fatal burn injuries, drownings, homicides, and sexual assaults, and in 40% of fatal motor vehicle crashes, suicides and fatal falls.

The National Center on Addiction and Substance Abuse (2009) at Columbia University found that in 2005 federal, state and local governments spent a combined \$467.7 billion on substance abuse and addiction, which amounted to 10.7 percent of their entire \$4.4 trillion budgets. This report suggested that a 25% reduction in state smoking levels would, “save a total of \$1.3 billion annually to Medicaid with \$584.1 million of this amount going to the states” (p. 55).

Substance Use, Dependence and Abuse in Arizona

One national source of data which estimates the adult prevalence in Arizona is the National Survey on Drug Use and Health (NSDUH) (Office of Applied Studies [OAS], 2009). Those estimates showed that in 2007 over half of the Arizona adult population over the age of 18 had a drink in the past month, while approximately one-quarter of the population used cigarettes and/or had been binge drinking in the past thirty days. National NSDUH figures for 2007 and 2008 for the 12 and older population showed comparable but slightly lower percentages, probably due in part to the addition of the teenage population.

18 Years or Older	2007 Count	%
Past Month Cigarette Use	1,209,000	26.74
Past Month Alcohol Use	2,530,000	55.98
Past Month Binge Alcohol Use	1,104,000	24.42

Estimated Numbers Annual Averages Based on 2006-2007 NSDUHs.
Source: SAMHSA, Office of Applied Studies, National Survey on Drug Use and Health, 2007.

12 Years or Older	2008 %	2007 %
Past Month Cigarette Use	23.9	24.2
Past Month Alcohol Use	51.6	51.1
Past Month Binge Alcohol Use	23.3	23.3

Source: Table G.15. SAMHSA, Office of Applied Studies, National Survey on Drug Use and Health, 2007 and 2008.

In Arizona, treatment for substance abuse occurs through both public and private service care systems. In the private sector, individuals see their physician or counselor, and work with or commit to a private treatment facility. In the public sector, the Arizona Department of Health Services (ADHS) provides services to Arizonans with substance abuse issues. Since the 1990s, ADHS has subcontracted health care to the private sector by creating Regional Behavioral Health Authorities (RBHAs). Thus, patients receiving care through either private or public means may be utilizing the same providers.

Arizona Health Survey (AHS)

Additional information on substance use, dependence and abuse can be gleaned from the 2008 Arizona Health Survey. Arizona Health Survey respondents were asked their demographic background on a variety of questions; weighted values were computed based on population statistics in order to be representative and generalizable for the Arizona household population.

To produce population estimates from Arizona Health Survey data, weights are applied to the sample data to compensate for the probability of selection and a variety of other factors, some directly resulting from the design and administration of the survey. The sample is weighted to represent the non-institutionalized population for each sampling stratum and statewide.

Arizona Health Survey weighting procedures accomplish the following objectives:

- Compensate for differential probabilities of selection for households and persons;
- Reduce biases occurring because nonrespondents may have different characteristics than respondents;
- Adjust, to the extent possible, for undercoverage in the sampling frame and in the conduct of the survey; and
- Reduce the variance of the estimates by using auxiliary information. (Arizona Health Survey, 2008, p. ES-3; see Appendix A for more on weighting)

The data in the figures and tables in this chapter represent the overall weighted total of the Arizona Health Survey sample. They present comparisons to the breakouts provided by answers to the questions reported herein. Throughout the report, total weighted numbers are shown, as well as percents for the various responses. Total numbers vary by question as responses such as *inapplicable* or *don't know* were not included. Further, many of these questions had skip patterns so if a respondent did not provide the needed answer to the first question, he/she was not asked the subsequent questions in that series. In addition, percentages have been rounded, and thus do not always add to 100%.

The Arizona Health Survey sample was weighted to be 65% White, 25% Hispanic, 3% African American, 4% American Indian and 3% other race; 51% of the sample was female. People were grouped by age with approximately 20% in the categories 18-29, 30-39, 40-49, 50-64, and approximately 10% in the categories 65-74 and 75 years or older.

	Count	%
Total	4,695,593	100%
Non-Hispanic White	3,086,344	65%
Hispanic	1,153,342	25%
African American	131,375	3%
American Indian	167,980	4%
Other race	156,552	3%

Figure 1: Arizona Health Survey Total Weighted Sample by Race/Ethnicity

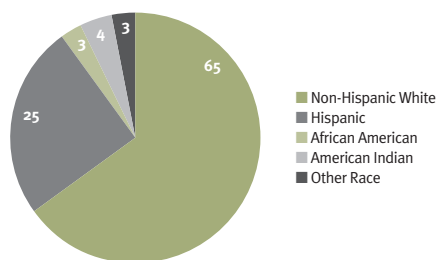


Table 4: Arizona Health Survey Total Weighted Sample by Gender

	Count	%
Total	4,695,299	100%
Male	2,319,406	49%
Female	2,375,893	51%

Table 5: Arizona Health Survey Total Weighted Sample by Age

	Count	%*
Total	4,693,357	100%
18 to 29 years old	1,024,334	22%
30 to 39 years old	869,801	19%
40 to 49 years old	873,322	19%
50 to 64 years old	1,034,077	22%
65 to 74 years old	485,108	10%
75 years or older	406,717	9%

*Percentages are rounded and may not add to 100%

As to health insurance, 46% of the sample had employer-based health insurance alone, with another 11% having employer plus another type of insurance; 15% had Medicare alone with another 6% having Medicare plus another type; and 9% had AHCCCS alone with another 5% having AHCCCS plus another type of insurance.

Table 6: Arizona Health Survey Total Weighted Sample by Type of Insurance

	Count	%
Total	4,677,405	100%
None	667,066	14%
Employer	2,150,203	46%
Medicare	688,676	15%
AHCCCS	424,176	9%
Direct Purchase	179,746	4%
Other	51,702	1%
Employer+Medicare+AHCCCS	8,727	0%
Employer+Medicare	287,923	6%
Medicare+AHCCCS	170,184	4%
Employer+AHCCCS	49,003	1%

Tobacco Use/Smoking

In the 2008 Arizona Health Survey, respondents were asked whether they had smoked at least 100 cigarettes in their lifetime – the equivalent of 5 packs of cigarettes. Of the statewide sample, 44.5% reported having smoked at least 5 packs. Of those who smoked at least 100 cigarettes in their lifetime, over half (56.4%) reported that they were not current smokers.

Of the Arizona sample population who had smoked 100 cigarettes in their lifetime, one-third (33.4%, approximately 900,000 respondents) were currently smoking daily. Nationally, 18.7% of adults 18 years and older reported smoking every day, while an additional 14.9% reported smoking 20 to 29 days per month (National Survey on Drug Use and Health, 2008).

Table 7: At Least 100 Cigarettes Smoked in Lifetime

	Smoked 100 Cigarettes In Entire Life			
	Yes		No	
Total	2,085,487	44.5%	2,600,781	55.5%

Table 8: Of Those Who Reported Smoking 100 Cigarettes in Their Lifetime: Percentage Who Still Smoke

Total	Smokes Now					
	Every Day		Some Days		Not At All	
2,093,039	699,245	33.4%	212,524	10.2%	1,181,270	56.4%

For the purposes of analyses, all respondents who reported smoking currently (either some days or every day) were categorized as “cigarette smokers.” This is primarily due to the fact that frequency of smoking appeared to be subjective. When asked how many cigarettes, on average, the respondent currently smoked each day, there was a great deal of variance within both the “some days” and “everyday” smokers, as well as overlap between the two groups. For example, some respondents who reported smoking “some days” also reported smoking up to a pack each day, whereas other respondents may only smoke one cigarette a day, but categorized themselves as “everyday” smokers.

When the *smoke every day* and *smoke some days* groups were collapsed and compared to the total weighted number of respondents (4.7 million), 19% of the sample was identified as a smoker. This percentage mirrors the 19.8% of the adults in the United States who were smokers as reported in the 2007 Centers for Disease Control and Prevention report (*Cigarette Smoking*, 2009). This differs from the 26.74% estimated for Arizona based on the 2007 NSDUH (OAS, 2009).

According to the Arizona Health Survey findings, 19% of Arizona adults were smokers (Table 9). Of those who smoked, almost half (49.5%) were smoking a half of a pack or less each day. In addition, just over 30% of smokers reported smoking more than a pack each day with some respondents smoking 3 packs of cigarettes each day (Table 11).

There are apparent differences in the number of cigarette smokers in Arizona within each racial/ethnic group, with American Indian and Hispanic respondents having the highest percentages of smokers within their racial/ethnic groups at 34% and 20% respectively (Table 10). However, when explored more closely, 86.6% of Hispanic respondents who were smokers smoked a half of a pack or less per day with only 5.2% smoking more than a pack per day (Table 11). By contrast, just over forty percent of non-Hispanic White smokers smoked more than a pack each day.

These various breakouts show remarkably different patterns across the racial/ethnic groups. While non-Hispanic Whites comprised a slightly smaller percentage of cigarette smokers by group (18%) compared to Hispanics (20%), those who smoked did so heavily. Nationally, smoking rates are highest among American Indians/Alaska Natives (36.4%), followed by Whites (21.4%) and Blacks (19.8%). Smoking is less popular among Asians (9.6%) and Hispanics (13.3%) (*Cigarette Smoking*, 2009).

Table 9: Cigarette Smokers by Race/Ethnicity: Prevalence of Group in Total Arizona Population

	Is a Cigarette Smoker					
	Yes		No			
	Count	%	Count	%	Count	%
Total = 100%	900,960	19%	3,790,593	81%		
Non-Hispanic White	561,328	12%	2,522,620	54%		
Hispanic	232,515	5%	920,827	20%		
African American	23,123	0%	108,252	2%		
American Indian	57,845	1%	110,136	2%		
Other race	26,148	1%	128,759	3%		

Table 10: Percentage of Cigarette Smokers in Each Race/Ethnicity

	Is a Cigarette Smoker					
	Yes		No		Total for Each	
	Count	%	Count	%	Count	%
Non-Hispanic White	561,328	18%	2,522,620	82%	3,083,948	100%
Hispanic	232,515	20%	920,827	80%	1,153,342	100%
African American	23,123	18%	108,252	82%	131,375	100%
American Indian	57,845	34%	110,136	66%	167,981	100%
Other race	26,148	17%	128,759	83%	154,907	100%

Figure 2: Of total Cigarette Smokers in Arizona: Percentage by Race/Ethnicity

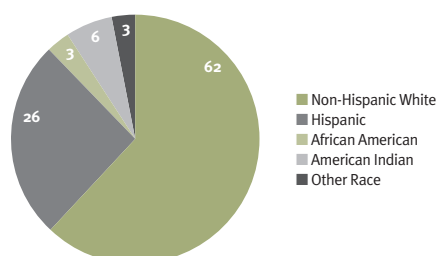


Table 11: Number of Cigarettes Smoked per Day in Each Race/Ethnicity

	Number of Cigarettes per Day					
	Half Pack		Full Pack		More than Pack	
	Count	%	Count	%	Count	%
Total	346,196	49.5%	137,396	19.7%	215,285	30.8%
Non-Hispanic White	173,977	36.6%	110,556	23.2%	191,265	40.2%
Hispanic	131,695	86.6%	12,388	8.1%	7,932	5.2%
African American	12,487	69.6%	2,478	13.8%	2,987	16.6%
American Indian	11,923	39.1%	11,513	37.8%	7,035	23.1%
Other race	16,114	71.2%	461	2.0%	6,066	26.8%

Cigarette smokers in Arizona, when examined by gender, nearly mirror the national population. The Centers for Disease Control and Prevention (2008, November 14) found that in the United States, a larger percentage of men (22.3%) were smokers than women (17.4%). In Arizona, 22% of men and 17% of women were identified as smokers. One study on the gender differences in smoking found that gender expectations tend to place greater restrictions on the behavior of women which creates social pressure dissuading women from smoking (Waldron, 1991). How this plays out in Arizona would be interesting to know.

Table 12: Cigarette Smoking by Gender

	Is a Cigarette Smoker			
	Yes		No	
Total	900,960	19%	3,790,298	81%
Male	508,015	22%	1,811,390	78%
Female	392,944	17%	1,978,908	83%

Not surprisingly, there are lower percentages of cigarette smokers in the older age groups. This could be due to the fact that chronic health conditions caused or exacerbated by smoking often shorten life expectancy. Respondents age 75 and older had the lowest percentage of smokers at 5%. A longitudinal study of the health effects of smoking followed smokers and lifelong non-smokers for 40 years. Their findings showed that “...about half of all regular cigarette smokers will eventually be killed by their habit” (Doll, Peto, Wheatley, Gray & Sutherland, 1994). The study found that the death rate ratios between continuing smokers and lifelong non-smokers was threefold at ages 45 to 64 and twofold at ages 65 to 84 (Doll et al., 1994).

An interesting finding of the Arizona Health Survey was the dip in smokers within the 30 to 39 year old age category, that went back up for the 40 to 49 year old age category. It is interesting to speculate what is happening developmentally during this time period that may account for such a drop. Factors may include children in the household, which place an added social, health-conscious, as well as economic pressure on smokers.

Table 13: Cigarette Smoking by Age

	Is a Cigarette Smoker			
	Count	Yes %	Count	No %
Total	900,960	19%	3,788,357	81%
18 to 20 years old	71,263	22%	247,420	78%
21 to 29 years old	208,525	30%	495,480	70%
30 to 39 years old	143,185	16%	726,615	84%
40 to 49 years old	217,080	25%	654,759	75%
50 to 64 years old	174,171	17%	859,299	83%
65 to 74 years old	64,763	13%	420,344	87%
75 years or older	21,972	5%	384,438	95%

While smoking has been linked with a number of negative health outcomes, it has also been found to exacerbate existing but unrelated chronic health conditions. Since the Arizona Health Survey did not collect data on the duration of smoking, cause and effect relationships cannot be drawn about the impact of smoking on health conditions identified in these data. However, it can be speculated that certain ongoing health conditions will not be helped in any way by smoking. For example, of the respondents who were identified as smokers, 40% were also taking medication to control asthma. In fact, 20% of the smokers in this sample were both taking asthma medication and smoking more than a pack of cigarettes a day. The health costs of this behavior are important to consider at a state level and beg the question – to what extent are Arizona residents engaging in behaviors that are counter-productive to their health care maintenance?

Table 14: Taking Medication to Control Asthma and Smoking

Is a Cigarette Smoker	Taking Medications To Control Asthma			
	Yes		No	
Half pack	17,918	17%	25,494	25%
Full pack	3,089	3%	24,548	24%
More than pack	20,727	20%	11,126	11%

Regional differences appear to exist related to smoking prevalence in the state. Data were grouped by the Regional Behavioral Health Authorities (RBHAs) in Arizona. The Arizona Department of Health Services, Division of Behavioral Health Services, contracts with community based organizations and RBHAs to administer behavioral health services, a function similar to health maintenance organizations. Results analyzed by RBHAs can help inform policy makers regarding needs for substance use services delivered by RBHA providers.

The map (Figure 3) illustrates the percentages of smokers in each of the Arizona Regional Behavioral Health Authorities (RBHA), which are the clustered counties within the state that are served by the same behavioral health provider (RBHA). Viewing geographic trends in smoking provides valuable information for RBHAs to tailor services according to particular needs within their service area. With regard to smoking, Pinal and Gila counties have higher percentages of smokers within the population (25%) compared to the rest of the state.

Figure 3: Percent of Adults Reporting Cigarette Smoking by RBHA

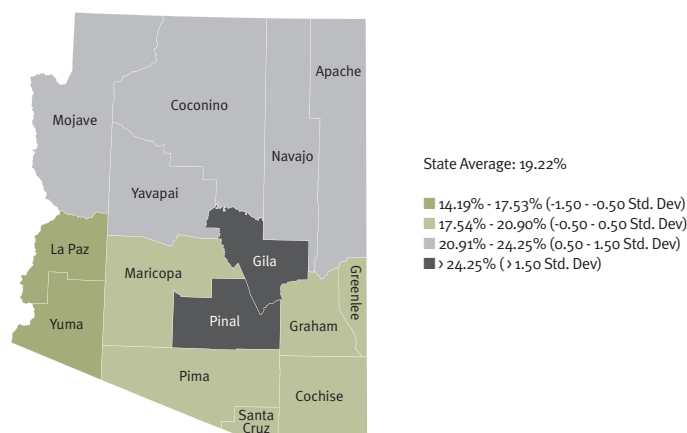


Table 15: Cigarette Smoking by RBHA

	Is a Cigarette Smoker					
	Yes		No			
	Count	%	Count	%		
Total	897,970	19%	3,773,045	81%		
La Paz, Yuma	24,239	17%	121,048	83%		
Maricopa	498,705	18%	2,257,845	82%		
Mohave, Yavapai, Coconino, Navajo, Apache	137,086	23%	462,697	77%		
Pima, Santa Cruz, Cochise, Graham, Greenlee	168,316	19%	718,307	81%		
Pinal, Gila	69,624	25%	213,147	75%		

The next table shows the percentages of smokers by education level. There is an interesting increase in the percentage of smokers from those who have less than a high school education to those who completed some high school. The trend then appears to steadily decrease in the percentage of smokers as education level increases.

Table 16: Cigarette Smoking by Education Level						
	Is a Cigarette Smoker					
	Yes			No		
	Count		%	Count		%
Total	899,592		19%	3,770,336		81%
Less than high school	83,954		23%	283,389		77%
Some high school	130,381		31%	288,275		69%
High school graduate/GED	342,671		27%	923,275		73%
Some college, no degree	194,592		18%	867,224		82%
AA degree	45,447		17%	229,846		83%
BA/BS degree	70,334		10%	618,253		90%
Post BA/BS	32,213		5%	560,076		95%

There does not appear to be a clear trend in the percentage of smokers between income levels. Overall, those with lower income appear to have higher percentages of smokers. If, in general, education level and income are correlated, then this general trend would make sense when compared to the percentages of smokers in the education level categories. However, there is a dip in the percentage of smokers (by over 8%) within the income level between \$70,000 and \$80,000, which goes up again by 10% and then back down to 12% for the \$80-\$90,000 and \$90-\$100,000 categories respectively.

Table 17: Cigarette Smoking by Income						
	Is a Cigarette Smoker					
	Yes			No		
	Count		%	Count		%
Total	814,163		20%	3,274,565		80%
Under \$10,000	65,996		24%	203,732		76%
\$10,000 to \$20,000	150,049		25%	440,595		75%
\$20,000 to \$30,000	111,038		23%	371,921		77%
\$30,000 to \$40,000	122,409		24%	382,662		76%
\$40,000 to \$50,000	78,651		20%	312,782		80%
\$50,000 to \$60,000	61,578		20%	241,572		80%
\$60,000 to \$70,000	44,206		19%	194,358		81%
\$70,000 to \$80,000	28,202		10%	251,109		90%
\$80,000 to \$90,000	30,810		21%	117,984		79%
\$90,000 to \$100,000	25,960		12%	194,030		88%
\$100,000 to \$135,000	39,915		14%	239,822		86%
Over \$135,000	55,348		15%	323,997		85%

The findings on percentages of smokers within each health insurance type category were very interesting. Despite the fact that smoking has, for many years, been clearly linked with negative health outcomes, the highest percentage of smokers was identified in the group covered by the Arizona Health Care Cost Containment System (AHCCCS) at 34%, followed by those covered by AHCCCS plus Medicare or employer benefits. Of those who have no health insurance coverage, over 1 in 4 are smokers.

Table 18: Cigarette Smoking by Type of Insurance

		Is a Cigarette Smoker	
		Yes	No
Total	895,471	19%	3,777,893 81%
None	182,937	27%	484,129 73%
Employer	373,507	17%	1,775,050 83%
Medicare	76,771	11%	611,598 89%
AHCCCS	144,821	34%	277,503 66%
Direct Purchase	18,690	10%	160,816 90%
Other	12,938	25%	38,764 75%
Employer+Medicare+AHCCCS	458	5%	8,269 95%
Employer+Medicare	21,357	7%	266,566 93%
Medicare+AHCCCS	49,476	29%	120,707 71%
Employer+AHCCCS	14,514	30%	34,489 70%

Alcohol Use

Survey respondents were asked whether they had consumed any alcohol in the past 12 months. Of the Arizona sample, 64% reported that they had drunk alcohol. This can be compared to National Center for Health Statistics (2009) findings that 61% of U.S. adults in 2007 reported being a current drinker, which was defined as having at least one alcoholic beverage in the past 12 months and drinking 12 or more drinks in their lifetime.

A greater percentage of Arizona non-Hispanic Whites (70%) reported having consumed alcohol in the past 12 months than any other race/ethnicity. Of Hispanic and African American respondents, 54% reported drinking while only 43% of American Indian respondents reported the same. Nationally, Whites (64.5%) were more likely to report current drinking than any other race/ethnicity as well, followed by American Indian/Alaska Natives and Hispanics (51.3% and 51.1%, respectively) and African Americans (48.8%) (National Center for Health Statistics, 2009).

Table 19: Alcohol Use in the Past 12 Months by Race/Ethnicity

	Had Alcohol Past 12 Months			
	Yes		No	
	Count	%	Count	%
Total	3,026,360	64%	1,666,854	36%
Non-Hispanic White	2,154,155	70%	929,809	30%
Hispanic	627,341	54%	526,001	46%
African American	70,658	54%	60,717	46%
American Indian	71,923	43%	96,058	57%
Other race	102,282	65%	54,270	35%

Table 20: How Many Drinks Typical Day When Drank

	Count	%
Total	2,970,591	100%
One (1)	1,309,475	44%
2 - 3	1,211,316	41%
4 or more	449,801	15%

The Arizona Health Survey defined binge drinking as consuming 4 or more drinks on one occasion for women and 5 or more drinks on one occasion for men. Based on this definition, over one quarter (27%) of respondents reported binge drinking at least once in the past 12 months. The National Center for Health Statistics (2009) states that 21% of U.S. drinkers had five or more drinks on at least one day in 2007.

Of the 27% of total respondents who reported binge drinking at least one time in the past 12 months, 17% were non-Hispanic White, 7% were Hispanic, and 1% were African American and American Indian, respectively. These percentages are not surprising given that non-Hispanic Whites represent the largest portion of the sample, followed by Hispanics, American Indians, and African Americans. In fact, the percentage of all binge drinkers, when examined by race/ethnicity, mirrors the racial/ethnic distribution of the sample, with non-Hispanic Whites making up 65%, Hispanics 26%, American Indians 5%, and African Americans 2%.

What is more noteworthy is the difference in percentage of binge drinkers within each race/ethnicity. According to the Arizona Health Survey, among those who reported drinking in the past 12 months, a greater percentage of American Indians (35%) binge drink than any other race/ethnicity. Approximately the same percentage of non-Hispanic Whites (27%) and Hispanics (28%) reported binge drinking while only 21% of African Americans reported the same. Nationally, binge drinking rates among racial/ethnic groups are much more similar, varying from just over 20% of African American drinkers up to nearly 26% of Hispanic drinkers, with Whites and American Indian/Alaska Natives both around 24% (SAMHSA, 2009).

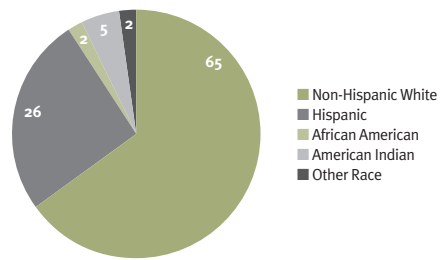
Table 21: Binge Drinking by Race/Ethnicity: Prevalence in Arizona Population

	Binge Drank at Least 1 Time			
	Yes		No	
	Count	%	Count	%
Total	1,246,227	27%	3,401,641	73%
Non-Hispanic White	811,267	17%	2,243,798	48%
Hispanic	323,009	7%	817,948	18%
African American	26,893	1%	103,495	2%
American Indian	58,192	1%	106,715	2%
Other race	26,866	1%	129,685	3%

Table 22: Binge Drinking Compared Across Race/Ethnicity

	Binge Drank at Least 1 Time			
	Yes		No	
	Count	%	Count	%
Total	1,246,227	27%	3,401,641	73%
Non-Hispanic White	811,267	27%	2,243,798	73%
Hispanic	323,009	28%	817,948	72%
African American	26,893	21%	103,495	79%
American Indian	58,192	35%	106,715	65%
Other race	26,866	17%	129,685	83%

Figure 4: Of Binge Drinkers, Percentage by Race/Ethnicity



As the next tables illustrate, male respondents reported drinking more than female respondents. Of males, 72% reported that they had consumed alcohol in the past 12 months while only 58% of females reported the same. Less than half of both males and females who reported consuming alcohol, however, reported binge drinking at least once in the past 12 months (34% and 20%, respectively). This 14% disparity between male and female drinkers in Arizona is similar to the disparity reported in national findings. The National Center for Health Statistics (2009) reported that in 2007, 11.8% more males reported current drinking (12 or more drinks in lifetime, 1 or more drinks in the past 12 months) than females (68.2% vs. 55.4%).

Table 23: Alcohol Use in the Past 12 Months by Gender

	Had Alcohol Past 12 Months			
	Yes		No	
	Count	%	Count	%
Total	3,026,065	64%	1,666,854	36%
Male	1,657,522	72%	660,444	28%
Female	1,368,543	58%	1,006,410	42%

Table 24: Binge Drinking by Gender

	Binge Drank at Least 1 Time			
	Yes		No	
	Count	%	Count	%
Total	1,246,227	27%	3,401,346	73%
Male	780,682	34%	1,507,225	66%
Female	465,545	20%	1,894,121	80%

Approximately two-thirds of Arizonans in each age category from 21 years old to 74 years old reported having consumed alcohol in the past 12 months, with the highest percentage (67%) from 40 to 49 and 50 to 64 year olds. The lowest percentage (55%) was reported by respondents in the groups from 18 to 20 years (for whom drinking is illegal) and aged 75 or older.

The findings on binge drinking are quite different, however. Rates reached 40% of 18 to 20 year olds who reporting binge drinking within the past 12 months; drinking is illegal in Arizona for this age group. Binge drinking percentages decreased with each age category thereafter. The most significant decreases in binge drinking rates (-11%) occurred between the categories of 40 to 49 years and 50 to 64 years, and again from 50 to 64 years and 65 to 74 years. Only 4% of respondents aged 75 years or older reported binge drinking in the past 12 months. These findings are consistent with national statistics that show that binge drinking rates peak at young adulthood and decrease with age after that (SAMHSA, 2009).

Table 25: Alcohol Use in the Past 12 Months by Age

	Had Alcohol Past 12 Months					
	Yes		No			
	Count	%	Count	No	%	
Total	3,025,435	64%	1,665,543		36%	
18 to 20 years old	176,726	55%	141,957		45%	
21 to 29 years old	468,891	66%	236,759		34%	
30 to 39 years old	569,112	66%	298,309		34%	
40 to 49 years old	584,223	67%	289,098		33%	
50 to 64 years old	697,927	67%	336,150		33%	
65 to 74 years old	303,839	63%	181,269		37%	
75 years or older	224,717	55%	182,000		45%	

Table 26: Binge Drinking by Age

	Binge Drank at Least 1 Time					
	Yes		No			
	Count	%	Count	No	%	
Total	1,246,227	27%	3,399,405		73%	
18 to 20 years old	125,090	40%	191,353		60%	
21 to 29 years old	263,414	37%	442,237		63%	
30 to 39 years old	301,807	35%	554,760		65%	
40 to 49 years old	273,557	32%	590,139		68%	
50 to 64 years old	218,945	21%	799,445		79%	
65 to 74 years old	46,285	10%	433,773		90%	
75 years or older	17,130	4%	387,698		96%	

Findings related to drinking behaviors among Arizonans with different types of health insurance show that 61% of respondents with no insurance coverage had at least one alcoholic beverage in the past 12 months. The greatest percentage of respondents who reported consuming alcohol in the past 12 months had employer-based health coverage (72%). There was a greater disparity among binge drinking rates compared with different types of insurance coverage. Those with Medicare alone or Medicare plus any other coverage reported binge drinking at a significantly lower rate than those with any other type of insurance. These findings are not surprising given that the majority of Medicare recipients are age 65 or older and, as previously discussed, seniors report binge drinking at significantly lower rates than those in younger age groups.

Table 27: Alcohol Use in the Past 12 Months by Type of Insurance

	Had Alcohol Past 12 Months			
		Yes		No
Total	3,012,551	64%	1,662,474	36%
None	408,610	61%	258,456	39%
Employer	1,555,608	72%	593,655	28%
Medicare	398,184	58%	290,493	42%
AHCCCS	218,219	52%	204,516	48%
Direct Purchase	123,400	69%	56,345	31%
Other	33,530	65%	18,172	35%
Employer+Medicare+AHCCCS	3,327	38%	5,400	62%
Employer+Medicare	182,508	63%	105,415	37%
Medicare+AHCCCS	58,824	35%	111,360	65%
Employer+AHCCCS	30,341	62%	18,662	38%

Table 28: Binge Drinking by Type of Insurance

	Binge Drank at Least 1 Time			
		Yes		No
Total	1,237,390	27%	3,392,290	73%
None	232,245	35%	430,836	65%
Employer	669,640	32%	1,455,125	68%
Medicare	56,188	8%	625,087	92%
AHCCCS	134,133	32%	284,992	68%
Direct Purchase	43,685	24%	135,211	76%
Other	20,357	39%	31,345	61%
Employer+Medicare+AHCCCS	0	0%	7,041	100%
Employer+Medicare	31,831	11%	253,900	89%
Medicare+AHCCCS	31,671	19%	137,390	81%
Employer+AHCCCS	17,639	36%	31,364	64%

Results from the 2008 National Survey on Drug Use and Health show that past month alcohol use for adults over the age of 18 increases with increasing levels of education (SAMHSA, 2009). Of college graduates, 67.9% classified themselves as current drinkers compared to 36.8% of adults with less than a high school education. The same national statistics also showed that for adults age 26 and older, rates of binge and heavy alcohol use were lower among college graduates than adults without a college degree. Similarly, the Arizona sample also showed that adults with a college degree (24% of those with a BA/BS and 21% of those with a post-BA/BS degree) reported binge drinking less than respondents classified as some high school (40%), high school graduate/GED (28%), some college, no degree (28%), and AA degree (30%).

Table 29: Binge Drinking by Educational Level

	Binge Drank at Least 1 Time					
	Yes		No			
	Count	%	Count	No	%	
Total	1,239,276	27%	3,388,654		73%	
Less than high school	62,200	17%	305,143		83%	
Some high school	164,287	40%	247,281		60%	
High school graduate/GED	348,863	28%	903,975		72%	
Some college, no degree	294,219	28%	757,361		72%	
AA degree	80,182	30%	187,358		70%	
BA/BS degree	165,064	24%	519,708		76%	
Post BA/BS	124,460	21%	467,829		79%	

The next table and map display the percentages of binge drinkers among respondents who reported drinking in the past 12 months in each of the Arizona Regional Behavioral Health Authorities (RBHA). Viewing the trends in binge drinking geographically provides valuable information for RBHAs to tailor their services to the need of their service area. With regard to binge drinking, Mohave, Yavapai, Coconino, Navajo, and Apache counties have higher percentages of binge drinkers within their populations as compared to the rest of the state.

Figure 5: Percent of Adults Reporting Binge Drinking by RBHA

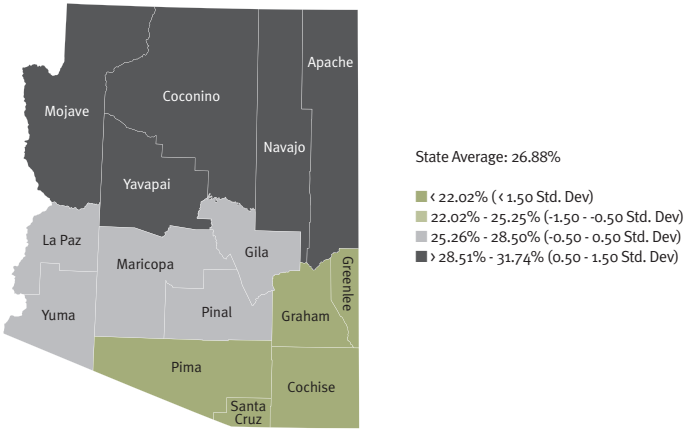


Table 30: Binge Drinking by RBHA

	Binge Drank at Least 1 Time					
	Yes		No			
	Count	%	Count	No	%	
Total	1,243,732	27%	3,383,598		73%	
La Paz, Yuma	37,047	25%	108,240		75%	
Maricopa	768,070	28%	1,965,865		72%	
Mohave, Yavapai, Coconino, Navajo, Apache	178,285	30%	412,661		70%	
Pima, Santa Cruz, Cochise, Graham, Greenlee	188,603	22%	687,124		78%	
Pinal, Gila	71,728	25%	209,708		75%	

Differences In Binge Drinking and Smoking Behaviors

In order to examine whether there were differences or disparities between various demographic groups of the Arizona sample population, additional statistical procedures were undertaken (see Methodology section Appendix A for explanation).

For binge drinking and cigarette smoking, significant differences existed for each of the characteristics examined: gender, ethnicity, poverty, education level, and RBHA.

- Males had a higher percentage of binge drinking and cigarette smoking than did females.
- American Indians reported binge drinking and smoking cigarettes more than other racial/ethnic groups.
- Individuals with only “some high school education” had the highest prevalence of binge drinking and cigarette smoking.
- The RBHA of northern Arizona (NARBHA) had the highest percentage of binge drinking, while Pinal/Gila RBHA had the highest percentage of cigarette smokers.

Table 31: Differences in Binge Drinking and Smoking Behaviors by Gender and Race/Ethnicity

Adults	Binge Drank at Least 1 Time in Past 12 Months		Is a Cigarette Smoker	
	Yes	No	Yes	No
Gender	F=2.76	***	F=1.65	*
Male	34%	66%	22%	78%
Female	20%	80%	17%	83%
Race-Ethnicity	F=1.47	*	F=3.07	***
Non-Hispanic White	27%	73%	18%	82%
Hispanic	28%	72%	20%	80%
African American	21%	79%	18%	82%
American Indian	35%	65%	34%	66%
Other race	17%	83%	17%	83%

+ p<0.10, * p<0.05, ** p<0.01, *** p<0.001

Table 32: Differences in Binge Drinking and Smoking Behaviors by Federal Poverty Level, Education Level and Counties by RBHA Category

Adults	Binge Drank at Least 1 Time in Past 12 Months		Is a Cigarette Smoker	
	Yes	No	Yes	No
Federal Poverty Level - FPL	F=1.64	***	F=2.08	***
< 100% FPL	31%	69%	24%	76%
> 100% FPL & < 200% FPL	23%	77%	25%	75%
> 200% FPL & < 300% FPL	26%	74%	25%	75%
> 300% FPL	31%	69%	15%	85%
Unknown Poverty Level	14%	86%	16%	84%
Education Level	F=2.10	***	F=2.82	***
Less than high school	17%	83%	23%	77%
Some high school	40%	60%	31%	69%
High school graduate/GED	28%	72%	27%	73%
Some college, no degree	28%	72%	18%	82%
AA degree	30%	70%	17%	83%
BA/BS degree	24%	76%	10%	90%
Post BA/BS	21%	79%	5%	95%
Counties by RBHA Category	F=1.28	+	F=1.63	**
Maricopa	26%	74%	17%	83%
Pima, Santa Cruz, Cochise, Graham, Greenlee	28%	72%	18%	82%
Pinal, Gila	22%	78%	19%	81%
Mohave, Yavapai, Coconino, Navajo, Apache	30%	70%	25%	75%
LaPaz, Yuma	27%	73%	23%	77%

+ p<0.10, * p<0.05, ** p<0.01, *** p<0.001

Alcohol, Tobacco and Medications

Prescription Medications

The use and misuse of prescription medications has become a national concern. Data identified from national reports (e.g. NSDUH, NIDA and Office of National Drug Control Policy) raised the alarm “on the nonmedical use of prescription-type psychotherapeutic drugs.” This led the White House Office of National Drug Control Policy to identify the illegal “use of pharmaceuticals as one of the fastest-growing forms of drug abuse and outlined a program to reduce the availability of such drugs for nonmedical use and get users into treatment” (Colliver et al., 2006, ¶ 5). A recent report showed that “the annual average number of people using pain relievers nonmedically for the first time in the past 12 months has exceeded the number of new marijuana users since 2002. Accordingly, misuse of prescription pain relievers has been cited as a growing public health problem” (OAS, 2008, June 19).

The alarm has gone off in Arizona as well. Using data from the 2008 Arizona Youth Survey (AYS), the Arizona Emerging Issues Committee of the Arizona Substance Abuse Partnership issued a Spotlight Report on *Prescription Drug Abuse Among Arizona Youth* indicating that:

the rate of youth misuse and abuse of prescription medications exceeds the use of hallucinogens, cocaine, methamphetamine, heroin, and steroids. Unlike most other illicit substances, every type of prescription drug captured in the survey is misused or abused more by young Arizona females than males. (Arizona Emerging Issues Subcommittee, 2009)

The 2008 Arizona Health Survey asked a limited number of questions related to prescription drug use. It is anticipated that the 2010 Arizona Health Survey will ask questions about prescription drugs that are more specific to clearly identify trends concerning their possible abuse.

Nonetheless, data from the 2008 survey were able to provide some information on prescription medication use for mental disorders, and the relationship between such medication use and other behaviors.

When examining the responses to questions on prescription medications that were taken for mental health conditions, the Arizona Health Survey reported percentages only for those respondents who said they were ever told by a doctor that they had a specific mental health disorder. This included 3.74% of the total Arizona sample who were told they had bi-polar or manic depressive disorder, 9.26% who were told they had anxiety disorder and 8.44% who were told they had clinical depression.

More than half of those who had been told they had each of these mental health conditions reported taking medications (57% bi-polar or manic depressive disorder, 54% anxiety disorder and 59% clinical depression).

Researchers wanted to know if those respondents who had a mental health condition and were taking medications for the condition smoked more or less than those not taking such medications. However, medication use did not seem to be much of a factor. Smoking rates were fairly similar between those who took medication and those who did not.

On the other hand, diagnosis of one of these conditions does seem to be associated with smoking behavior. Regardless of medication status, those diagnosed with bi-polar or manic depressive disorder, anxiety disorder, or clinical depression smoked at a considerably higher rate than Arizona respondents overall. Forty-eight percent of those diagnosed with bi-polar or manic depressive disorder, 39% of those with anxiety disorder and 35% of those with depression reported smoking compared to 19% of the overall sample.

Table 33: Taking Medication for Bi-Polar or Manic Depressive and Cigarette Smoking*						
Currently Taking Meds For Bi-Polar Or Manic Depressive						
Is a Cigarette Smoker	Yes		No		Total	
Total	99,098	100%	74,331	100%	173,429	100%
Yes	49,478	50%	33,120	45%	82,598	48%
No	49,619	50%	41,211	55%	90,830	52%

*Totals and percentages only of respondents diagnosed with bi-polar or manic depressive disorder.

Table 34: Taking Medication for Anxiety Disorder and Cigarette Smoking*						
Currently Taking Meds For Anxiety Disorder						
Is a Cigarette Smoker	Yes		No		Total	
Total	229,958	100%	198,757	100%	428,715	100%
Yes	88,414	38%	77,218	39%	165,632	39%
No	141,544	62%	121,539	61%	263,083	61%

*Totals and percentages only of respondents diagnosed with anxiety.

Table 35: Taking Medication for Depression and Cigarette Smoking*

Is a Cigarette Smoker	Currently Taking Meds For Depression					
	Yes		No		Total	
Total	229,906	100%	162,954	100%	392,860	100%
Yes	79,532	35%	56,924	35%	136,456	35%
No	150,374	65%	106,030	65%	256,404	65%

*Totals and percentages only of respondents diagnosed with depression.

The question was also asked whether those taking medications for mental health issues reported that they were binge drinking more often than others; this was not the case. In fact, the percentages of those who were both taking medications for a mental health condition and who reported binge drinking at least once were lower than the percentages for those who were not taking medications and binge drinking. Indeed, people who took medication for a mental health condition were binge drinking less than those diagnosed with the disorder but not taking medication.

Also of note is that while respondents taking medication for a mental health condition reported binge drinking at approximately the same rate as the overall sample (27%), those diagnosed but not taking medication reported binge drinking at considerably higher rates (35% for bi-polar or manic depressive, 39% for anxiety and 41% for depression).

Table 36: Taking Medication for Bi-Polar or Manic Depressive and Binge Drinking*

Binge Drank at Least 1 Time	Currently Taking Meds For Bi-Polar Or Manic Depressive					
	Yes		No		Total	
Total	98,242	100%	75,976	100%	174,218	100%
Yes	24,705	25%	26,762	35%	51,467	30%
No	73,537	75%	49,214	65%	122,751	70%

*Totals and percentages only of respondents diagnosed with bi-polar or manic depressive disorder.

Table 37: Taking Medication for Anxiety Disorder and Binge Drinking*

Binge Drank at Least 1 Time	Currently Taking Meds For Anxiety Disorder					
	Yes		No		Total	
Total	226,641	100%	201,287	100%	427,928	100%
Yes	65,808	29%	79,296	39%	145,104	34%
No	160,834	71%	121,990	61%	282,824	66%

*Totals and percentages only of respondents diagnosed with anxiety.

Table 38: Taking Medication for Depression and Binge Drinking*

Binge Drank at Least 1 Time	Currently Taking Meds For Depression					
	Yes		No		Total	
Total	228,719	100%	164,116	100%	392,835	100%
Yes	49,387	22%	67,395	41%	116,782	30%
No	179,332	78%	96,722	59%	276,053	70%

*Totals and percentages only of respondents diagnosed with depression.

Over-the-Counter Medications

Another category of drugs are those sold *Over the Counter*, which do not require a doctor's prescription. A large variety of medications, from vitamins to cold relief can be purchased at almost any time with few if any restrictions, although some cough and cold medications are now behind the counter and dosages recorded. Many items sold as dietary supplements are generally not regulated by the FDA. Also included in this category were a variety of over-the-counter pain relievers for which the rates of abuse have also been increasing.

Questions on several categories of over-the-counter drugs were asked to the respondents of the Arizona Health Survey. Since the dosages were asked about in general, it would be hard to deduce at what level respondents were abusing these drugs without further information. However, the results do provide an interesting view of people's behaviors in this area.

- One-quarter of the respondents said they took pain relievers 3 times per week.
- Antacids were taken 3 times per week by 10% of the respondents.
- Only 2% of respondents indicated that they took weight control medications 3 times per week.
- Allergy or cold medications were taken 3 times per week by 15% of the respondents.
- Over half of the respondents indicated that they took vitamins regularly.
- One-quarter of the respondents said they took dietary supplements regularly.

Table 39: Use of Over-the-Counter Medications*

	Yes		No	
	Count	%	Count	%
Take Pain Relievers 3x A Week	1,118,996	24%	3,569,089	76%
Take Antacids 3x A Week	459,450	10%	4,229,432	90%
Take Weight Control Meds 3x A Week	78,967	2%	4,615,196	98%
Take Allergy/Cold Meds 3x A Week	704,037	15%	3,987,496	85%
Take Vitamins Regularly	2,435,370	52%	2,254,748	48%
Take Dietary Supplements Regularly	1,175,622	25%	3,514,563	75%

*All respondents included.

As seen in Table 39, 24% of respondents on the Arizona Health Survey reported taking pain relievers at least 3 times per week. Table 40 shows that a slightly higher percentage of respondents who were classified as smokers reported taking pain relievers 3x a week (27%) than non-smokers (23%). However, fewer binge drinkers reported taking pain relievers (18%) than non-binge drinkers (26%).

Table 40: Use of Over-the-Counter Medications by Smoking and Binge Drinking*

	Smoking		Binge Drinking	
	Yes	No	Yes	No
Take Pain Relievers 3x A Week	27%	23%	18%	26%
Take Antacids 3x A Week	10%	10%	8%	11%
Take Weight Control Meds 3x A Week	2%	2%	2%	2%
Take Allergy/Cold Meds 3x A Week	12%	16%	14%	15%
Take Vitamins Regularly	43%	54%	48%	54%
Take Dietary Supplements Regularly	18%	27%	24%	26%

*Percentages of respondents (by smoking and binge drinking status) who reported taking the medication listed.

The largest disparities in over-the-counter medication use compared by smoking and drinking habits were in the vitamin use and dietary supplements categories. While 52% of the total respondents reported taking vitamins regularly, fewer of those who reported smoking (43%) and binge drinking (48%) took vitamins than those who did not smoke or binge drink (54% each). Likewise, while one-quarter of the Arizona sample reported taking dietary supplements regularly, only 18% of smokers reported taking them compared to 27% of non-smokers. These data suggest that perhaps those who take vitamins and dietary supplements are less likely to engage in behavior that may negatively affect their health, such as smoking and binge drinking.

From examining just the percentages of those who said they took the over-the-counter medication or not examined along with smoking and binge drinking behaviors, only a few areas stood out for discussion.

- Respondents taking vitamins regularly were less likely to smoke (16%) than the overall sample (19%) and those not taking vitamins (23%).
- Those taking dietary supplements were slightly less likely to smoke (14%) than the overall sample (19%) and those who did not take dietary supplements (21%).
- Respondents taking pain relievers at least three times per week were less likely to binge drink (21%) than the overall sample (27%) and those who did not report taking pain relievers (29%).
- Those taking weight control medication three times per week were slightly more likely to binge drink (31%) than both the overall sample and those not taking weight control medication (27% each).

Table 41: Use of Vitamins and Cigarette Smoking*

Is a Cigarette Smoker	Take Vitamins Regularly			
	Yes		No	
Total	2,431,329	100%	2,254,748	100%
Yes	389,654	16%	511,305	23%
No	2,041,675	84%	1,743,443	77%

*All respondents included.

Table 42: Use of Dietary Supplements and Cigarette Smoking*

Is a Cigarette Smoker	Take Dietary Supplements Regularly			
	Yes		No	
Total	1,172,256	100%	3,513,888	100%
Yes	162,744	14%	738,215	21%
No	1,009,511	86%	2,775,673	79%

*All respondents included.

Table 43: Use of Pain Relievers and Binge Drinking*

Binge Drank at Least 1 Time	Take Pain Relievers 3x A Week			
	Yes		No	
Total	1,109,474	100%	3,531,702	100%
Yes	230,066	21%	1,015,222	29%
No	879,408	79%	2,516,480	71%

*All respondents included.

Table 44: Use of Weight Control Medication and Binge Drinking*

Binge Drank at Least 1 Time	Take Weight Control Meds 3x a Week			
	Yes		No	
Total	78,967	100%	4,567,471	100%
Yes	24,150	31%	1,222,077	27%
No	54,817	69%	3,345,393	73%

*All respondents included.

Substance Use and Coping Mechanisms

Formal Treatment: Need or Seek Services – Gap

Respondents were asked about services they may have sought for their alcohol or drug condition. These questions, however, were somewhat general in nature, asking about emotional or substance concerns and not specific to needing or seeking help for only their use of alcohol and drugs:

- Was there ever a time during the past 12 months when you felt that you might need to see a professional because of problems with your emotions or nerves, or your use of alcohol and drugs?
- In the past 12 months have you seen a doctor or other professional, such as a counselor, psychologist, or social worker, for problems with your emotions or nerves, or your use of alcohol and drugs?

When examined by racial/ethnic group, American Indians were the most likely to have seen a doctor or counselor (18%) and/or felt the need to see a professional (15%) for their condition. All other racial/ethnic groups except *other race* (which was slightly higher) reported seeing a doctor or counselor or needing to see a professional about 10% of the time.

Persons with insurance coverage by AHCCCS alone, Medicare and AHCCCS, and those who indicated their insurance as Other indicated they had seen a doctor or counselor or needed to see a professional at rates of about 20%, which was more often than did people with no insurance, employer insurance, Medicare alone, or direct purchase insurance (reported rates under 10%).

Table 45: Need to See or Seen Professional for Emotional, or Alcohol or Drug Condition by Race/Ethnicity

	Total	Past 12 Months Need to See a Professional For Condition		Past 12 Months Seen Doctor or Counselor For Condition	
		Yes	No	Yes	No
Total	4,655,826	13%	87%	10%	90%
Non-Hispanic White	3,054,523	14%	86%	10%	90%
Hispanic	1,152,005	10%	90%	8%	92%
African American	130,884	14%	86%	9%	91%
American Indian	166,499	15%	85%	18%	82%
Other race	151,915	11%	89%	13%	87%

Table 46: Need to See or Seen Professional for Emotional, or Alcohol or Drug Condition by Type of Insurance

	Total	Past 12 Months Need to See a Professional For Condition		Past 12 Months Seen Doctor or Counselor For Condition	
		Yes	No	Yes	No
Total	4,637,637	13%	87%	10%	90%
None	665,728	14%	86%	6%	94%
Employer	2,148,568	14%	86%	9%	91%
Medicare	662,826	7%	93%	6%	94%
AHCCCS	424,176	17%	83%	20%	80%
Direct Purchase	179,746	8%	92%	6%	94%
Other	51,702	21%	79%	21%	79%
Employer+Medicare+AHCCCS	8,727	9%	91%	12%	88%
Employer+Medicare	282,928	7%	93%	7%	93%
Medicare+AHCCCS	164,235	25%	75%	23%	77%
Employer+AHCCCS	49,003	23%	77%	14%	86%

Further, the respondents were asked about why they did not seek treatment from a professional if they needed it. Of those who responded, over half said it was due to concerns over cost of treatment. Hispanics and those with AHCCCS, Medicare, or Employer + Medicare for insurance were the subgroups most concerned about costs. When asked if they were concerned about someone finding out they had a problem, 8 out of 10 respondents said *No*; Hispanics were the racial/ethnic group most concerned about someone finding out.

Table 47: Why Not See Professional for Emotional, or Alcohol or Drug Condition by Race/Ethnicity

	Total	Did Not Seek Help – Concerned about Cost of Treatment		Did Not Seek Help – Concerned if Someone Found Out You Had Problem	
		Yes	No	Yes	No
Total	301,102	58%	42%	21%	79%
Non-Hispanic White	212,823	56%	44%	17%	83%
Hispanic	63,028	67%	33%	37%	63%
African American	9,616	55%	45%	6%	94%
American Indian	6,406	21%	79%	0%	100%
Other race	9,229	69%	31%	24%	76%

Table 48: Why Not See Professional for Emotional, or Alcohol or Drug Condition by Type of Insurance

	Total	Did Not Seek Help – Concerned about Cost of Treatment		Did Not Seek Help – Concerned if Someone Found Out You Had Problem	
		Yes	No	Yes	No
Total	*298,301	58%	42%	21%	79%
None	59,955	69%	31%	26%	74%
Employer	144,446	47%	53%	21%	79%
Medicare	19,547	75%	25%	10%	90%
AHCCCS	32,658	77%	23%	10%	90%
Direct Purchase	7,456	64%	36%	19%	81%
Other	3,266	0%	100%	29%	71%
Employer+Medicare+AHCCCS	0	0%	0%	0%	0%
Employer+Medicare	7,944	91%	9%	56%	44%
Medicare+AHCCCS	18,533	53%	47%	10%	90%
Employer+AHCCCS	4,497	16%	84%	84%	16%

*Number not include don't know or inapplicable.

Informal Coping and Resiliency

Resilience has been defined as personal qualities that enable a person to thrive in the face of adversity (Connor and Davidson, 2003) and/or the ability to maintain good functioning after exposure to stress (Bonanno, 2004). When people are under internal or external stress, they make adjustments to regain homeostasis or equilibrium. Resilience is a person’s ability to successfully adapt to these life stressors (Vaishnavi, Connor & Davidson, 2007).

People utilize a wide variety of coping strategies to help when their lives are emotional or stressful, as well as with any mental health concerns. Coping strategies often include seeking help from other people who touch their lives. Indeed, “a wide range of research demonstrates the health significance of social relationships and both formal and informal social systems as mediators of psychosocial stress resulting, for example, from inequality or economic transition” (Friedli, 2009, p. 25).

One of the most popular strategies to find support is talking with others. When asked how they dealt with stress, 6 out of 10 respondents reported that they found that talking with a partner, family or friend, or participating in a 12-step or support group was very helpful. Further, 7 of 10 people who responded that they sought help from attending a religious service or talking with a minister, priest, rabbi or other spiritual advisor found it very helpful. Less than 1 in 10 did not find it helpful to talk with others.

Table 49: Of Those Who Reported That There Was a Month in the Past 12 Months When They Had a Particularly Difficult Time Emotionally and Reported Using One of the Following: How Helpful

	Stressed – Talked with Partner, Family or Friend was Helpful		Stressed – Participated in 12-Step or Support Group Helpful		Stressed – Attended Service or Talked with Spiritual Advisor	
	Count	%	Count	%	Count	%
Total	2,091,984	100%	256,977	100%	793,841	100%
Very Helpful	1,261,383	60%	162,147	63%	575,253	72%
Somewhat Helpful	763,674	37%	77,967	30%	203,177	26%
Not At All Helpful	66,927	3%	16,863	7%	15,411	2%

The CD-RISC scale is a well-validated measure of resiliency (Connor & Davidson 2003). Six of the original 25 questions from the CD-RISC scale, validated as the CD-RISC-6 scale, were included in the Arizona Health Survey. The items were scaled so that a higher mean score points to higher/better resiliency: *all of the time* = 5 and *none of the time* = 1.

As seen from the data of the individual items, the sample reported high levels of resiliency; for all of the items, approximately 8 of 10 respondents said that all or most of the time they could achieve goals, bounce back and otherwise respond to life’s challenges.

Table 50: Responses to the Six Resiliency Questions of CD-RISC-6 Scale

	Able to Adapt When Changes Occurred	Tended to Bounce Back After Illness	Believed Could Achieve Goals	Thought Of Self as Strong Person	Had Strong Sense of Purpose In Life	Felt In Control of Your Life
All of the Time	41%	53%	46%	47%	48%	37%
Most of the Time	47%	33%	39%	39%	35%	41%
Some of the Time	8%	7%	11%	10%	12%	15%
A Little of the Time	2%	3%	3%	2%	3%	4%
None of the Time	1%	3%	1%	1%	2%	3%

The sample population mean score of 4.23 shows that the respondents reported high levels of resiliency. Cigarette smokers reported slightly less resiliency than did those who did not smoke. However, those who reported some alcohol use as well as binge drinking reported resiliency levels slightly higher than those who did not use alcohol.

Table 51: Smoking and Drinking by CD Risk Mean

	CDRisc6Mean	
	Yes Mean	No Mean
Is a Cigarette Smoker	4.05	4.24
Had Alcohol Past 12 Months	4.26	4.11
Binge Drank at Least 1 Time	4.24	4.19

The WHO (Five) Well-Being Index (Psychiatric Research Unit, 1998) provides another view of current mental state of those responding. These questions are worded positively and in this case, respondents were asked how they felt in the past 30 days. The five questions of this scale have responses ranging from *all of the time* (5) to *none of the time* (1). Average/mean scores were also calculated; higher scores show more positive ratings. At least half of respondents rated themselves in the positive on all five items *all or most of the time*.

Table 52: WHO (Five) Well-Being Question Responses

How often have you felt...	Cheerful-Good Spirits	Calm & Relaxed	Active & Vigorous	Awakened Fresh & Rested	Interest In Daily Life
All of the Time	21%	14%	16%	12%	26%
Most of the Time	57%	52%	40%	39%	47%
Some of the Time	16%	23%	27%	27%	20%
A Little of the Time	4%	9%	11%	14%	6%
None of the Time	1%	2%	6%	8%	2%
Total	100%	100%	100%	100%	100%

The sample population mean score of 3.66 shows that the respondents reported medium high levels of resiliency. Cigarette smokers reported slightly less well-being than did those who did not smoke, as was also the case for binge drinkers. However, those who reported some alcohol use reported that their well-being was pretty much the same as for those who did not drink.

Table 53: Smoking and Drinking by WHO scale

	WHO Scale	
	Yes Mean	No Mean
Is a Cigarette Smoker	3.45	3.72
Had Alcohol Past 12 Months	3.67	3.65
Binge Drank at Least 1 Time	3.61	3.68

Use of Alcohol or Drugs as a Coping Mechanism

At a national level, research has found that persons with mental illness are twice as likely to be smokers (Lasser, Boyd, Woolhandler, Himmelstein, McCormick & Bor, 2000). This finding was almost identical to that of the Arizona Health Survey data. Of the Arizona respondents who had been told they had a mental health condition by their doctor (bi-polar or manic depressive, anxiety disorder or depression condition), 36% reported smoking as compared to only 16% of those with no mental health condition who reported smoking.

Based on Kessler 6 scale scores, which measure psychological distress and are an indicator of true prevalence of mental illness in a population, 35% of those respondents who had high psychological distress (at the level of mental illness) were smokers as compared to 17% of those who had low psychological distress. This finding is an important one to consider with regard to intervention strategies. Are people with severe psychological distress using substances as a method of coping? If so, what resources, skills, or supports are missing from their lives that could be developed so that healthier coping can occur?

Table 54: Smoking and Bi-Polar or Manic Depressive, Anxiety Disorder or Depression Condition

Mental Health	Is a Cigarette Smoker			
	Count	Yes %	No %	Count
No Mental Health Condition	641,873	16%	84%	3,334,199
Has Mental Health Condition	259,087	36%	64%	456,394

Table 55: Smoking and the Kessler 6/ Physiological Distress

Kessler 6 Scale	Is a Cigarette Smoker			
	Count	Yes %	No %	Count
No Mental Psych Distress	706,002	17%	83%	3,336,980
Has Mental Psych Distress	178,526	35%	65%	330,655

Those respondents who indicated a mental health concern (had either a mental health bi-polar or manic depressive, anxiety disorder or depression condition, or who indicated mental distress on the Kessler 6 scale) were slightly less likely to have had alcohol in the past 12 months than those who did indicate they had a mental health issue.

Table 56: Alcohol Use and Bi-Polar or Manic Depressive, Anxiety Disorder or Depression Condition

	Had Alcohol Past 12 Months					
	Yes		No			
	Count	%	Count	No	%	
No Mental Health Condition	2,577,484	65%	1,397,693		35%	
Has Mental Health Condition	448,876	63%	269,161		37%	

Table 57: Alcohol Use and the Kessler 6/ Physiological Distress

Kessler 6 Scale	Had Alcohol Past 12 Months					
	Yes		No			
	Count	%	Count	No	%	
No Mental Psych Distress	2,676,847	66%	1,369,237		34%	
Has Mental Psych Distress	288,944	57%	220,237		43%	

However, those respondents who indicated a mental health concern (had a mental health bi-polar or manic depressive, anxiety disorder or depression condition, or who indicated mental distress on the Kessler 6 scale) were more likely to have binge drank alcohol at least 1 time than those who did not indicate they had a mental health issue.

Table 58: Binge Drinking & Bi-Polar or Manic Depressive, Anxiety Disorder or Depression Condition

	Binge Drank at Least 1 Time					
	Yes		No			
	Count	%	Count	No	%	
No Mental Health Condition	1,017,987	26%	2,917,167		74%	
Has Mental Health Condition	228,241	32%	484,474		68%	

Table 59: Binge Drinking and the Kessler 6/ Physiological Distress

Kessler 6 Scale	Is a Cigarette Smoker					
	Yes		No			
	Count	%	Count	No	%	
No Mental Psych Distress	1,078,181	27%	2,934,395		73%	
Has Mental Psych Distress	152,140	30%	348,058		70%	

Conclusions and Limitations

The Arizona Health Survey provides standardized state and local health data in many areas, including substance use. The questions asked in this 2008 Arizona Health Survey lay the groundwork for trends in substance use and abuse that can be studied in years to come.

There were some areas of noticeable findings. Smoking and binge drinking rates for the American Indian population did appear to be higher than for the other racial/ethnic groups. Of the American Indian population, 34% smoked and 35% reported binge drinking which was 8 to 18 percentage points higher than the percent of the other racial/ethnic groups.

Over half of 18 to 20 year olds reported drinking in the past 12 months - an illegal activity. Alarming 40% of those 18 to 20 had binge drank at least once in the past 12 months, the highest rate for any group.

The examination of significant differences in binge drinking and smoking showed disparities by gender, ethnicity, poverty level, education level and RBHA, adding to our knowledge that racial and ethnic minorities bear a disproportionate burden of disease and disability. This knowledge reinforces the need for state and local agencies and providers to develop culturally appropriate needs assessments and programs, target intervention activities, plan resource allocation and inform complex policy issues.

There are some areas in which findings in this report were limited that could be elucidated by further questions in the substance use area for the 2010 survey.

For example, it was difficult to know from these data the extent to which those who used alcohol might have a problem with alcohol use; no questions were asked about the ongoing frequency of use. These data as collected and reported used broad categories for those who responded that they had at least one drink in the past year, or who had been binge drinking once in the past year. Respondents were asked how many drinks they consumed on a typical day *when they drank*. With this information, a person who drank only on New Year's or his birthday but had 5 drinks on each occasion would be categorized as a binge drinker. This respondent would appear to have a problem with alcohol whereas a person who had 3 drinks *every* day would not be in the problem category. And further, the person who drank daily cannot be differentiated from the occasional social drinker. Thus questions could be worded more succinctly to answer the question of frequency or consequences of drinking behaviors.

For smoking, some additional delineation would further help identify areas for specific services. Knowing age of onset would help determine how long people had been smoking and a possible link to health conditions such as asthma. As with the questions on drinking, respondents reported the usual amount smoked in a typical day, they were not asked how often (number of days) they smoked.

It was also difficult to examine and determine a link between substance use and coping: were substances used as a coping mechanism or what coping mechanisms did people who used or abused have to draw upon? A good measure of a support system for coping might provide good information on health and treatment needs.

In that same area, the question that asked about seeking treatment services combined substance abuse and mental health for seeking help. Separate items in each of these areas would again provide the information needed that could link to need for services.

The Arizona Health Survey presents important findings that begin to inform and improve community health program planning decisions at the local, regional and state levels as well as impact policy decisions. As an ongoing health surveillance data collection and analysis system, the Arizona Health Survey can provide standardized state and local health data. Examining these data and disseminating the information can help to target prevention, intervention and treatment activities, plan resource allocation and inform complex policy issues.

References

- Arizona Emerging Issues Subcommittee (2009). *Spotlight report of prescription drug abuse among Arizona youth*. Phoenix, AZ: Governor's Office for Children and Families.
- Bonanno, G.A. (2004). Loss, trauma, and human resilience. *American Psychologist*, 59, 20-28.
- Cigarette smoking among adults – United States, 2007. (2009). *JAMA*, 301(4), 373-375. Retrieved October 14, 2009 from <http://jama.ama-assn.org/cgi/content/full/301/4/373>.
- Centers for Disease Control and Prevention. (2008, November 14). Smoking-attributable mortality, years of potential life lost, and productivity losses – United States, 2000-2004. *MMWR*, 57(45), 1226-1228. Retrieved October 13, 2009 from www.cdc.gov/mmwr/preview/mmwrhtml/mm5745a3.htm.
- Colliver, J.D., Kroutil, L.A., Dai, L., & Gfroerer, J.C. (2006). *Misuse of prescription drugs: Data from the 2002, 2003, and 2004 Nation Surveys on Drug Use and Health* (DHHS Publication No. SMA 06-4192, Analytic Series A-28). Rockville, MD: Substance Abuse and Mental Health Services Administration, Office of Applied Studies. Retrieved November 2, 2009 from <http://www.oas.samhsa.gov/prescription/toc.htm>.
- Connor K., & Davidson J.R.T. (2003). Development of a new resilience scale: the Connor-Davidson Resilience Scale (CD-RISC). *Depression and Anxiety*, 18, 76-82.
- Doll, R., Peto, R., Wheatley, K., Gray, R., & Sutherland, I. (1994). Mortality in relation to smoking: 40 years' observations on male British doctors. *British Medical Journal*, 309, 901-911.
- Friedli, L. (2009). *Mental health, resilience and inequalities*. Copenhagen, Denmark: World Health Organization.
- Lasser, K., Boyd, J.W., Woolhandler, S., Himmelstein, D.U., McCormick, D., & Bor, D.H. (2000). Smoking and mental illness: A population-based prevalence study. *JAMA*, 284(20), 2606-2610.
- Naimi, T.S., Brewer, R.D., Mokdad, A., Denny, C., Serdula, M.K., & Marks, J.S. (2003). Binge drinking among US adults. *JAMA*, 289, 70-75. Retrieved October 13, 2009 from <http://jama.ama-assn.org/cgi/content/full/289/1/70>.
- National Center for Health Statistics. (2009). *Health, United States, 2008* (Tables 68,69). Retrieved October 14, 2009 from <http://www.cdc.gov/nchs/data/hus/huso8.pdf#o68>.
- National Center on Addiction and Substance Abuse at Columbia University. (2009). *Shoveling up II: The impact of substance abuse on federal, state and local budgets*. Retrieved August 28, 2009 from <http://www.casacolumbia.org/absolutenm/articlefiles/380-ShovelingUpII.pdf>.
- National Institute on Alcohol Abuse and Alcoholism. (2009). Rethinking drinking: Alcohol and your health (NIH Publication No. 09-3770). Retrieved October 13, 2009 from http://pubs.niaaa.nih.gov/publications/RethinkingDrinking/Rethinking_Drinking.pdf.
- National Institute on Drug Abuse. (2009A). *NIDA InfoFacts: Cigarettes and other tobacco products*. Retrieved October 13, 2009 from <http://www.nida.nih.gov/info-facts/tobacco.html>.
- National Institute on Drug Abuse. (2009B). *Research report series: Tobacco addiction* (NIH Publication No. 09-4342). Retrieved October 29, 2009 from http://www.drugabuse.gov/PDF/TobaccoRRS_v16.pdf.
- National Survey on Drug Use and Health. (2008). Analyze & subset – series no. 64. United States Department of Health and Human Services. Substance Abuse and Mental Health Services Administration. Office of Applied Studies, Retrieved January 25, 2010 from <http://www.icpsr.umich.edu/coconon/SAMHDA/DAS3/00064.xml>
- Office of Applied Studies. (2008, June 19). *The NSDUH report: Nonmedical use of pain relievers in substate regions: 2004 to 2006*. Rockville, MD: Substance Abuse and Mental Health Services Administration. Retrieved October 29, 2009 from <http://www.oas.samhsa.gov/2k8/pain/substate.htm>.
- Office of Applied Studies. (2009). *2007 state estimates of substance use & mental health*. Retrieved October 14, 2009 from <http://www.oas.samhsa.gov/2k7State/Arizona.htm>.
- Psychiatric Research Unit (1998). *The WHO (five) well-being index*. Hirtrod, Denmark: WHO Collaborating Center for Mental Health.
- Scheier, L.M. (Ed.). (2010). *Handbook of Drug Use Etiology: Theory, methods, and empirical findings*. Washington, D.C.: American Psychological Association.
- Substance Abuse and Mental Health Services Administration (2009). Results from the 2008 National Survey on Drug Use and Health: National Findings (Office of Applied Studies, NSDUH Series H-36, HHS Publication No. SMA 09-4434). Rockville, MD. Retrieved October 14, 2009 from <http://www.oas.samhsa.gov/nsduh/2k8nsduh/2k8Results.pdf>.
- Substance Abuse Epidemiology Work Group (2007). *Arizona statewide substance abuse epidemiology profile*. Phoenix: Governor's Office for Children, Youth and Families.
- US Department of Health and Human Services. (2000). Prenatal Exposure to Alcohol. In *Tenth Special Report on Alcohol and Health* (chap.5). Retrieved October 14, 2009 from <http://pubs.niaaa.nih.gov/publications/10report/chap05.pdf>.
- Vaishnavi, S., Connor, K., & Davidson, J.R.T. (2007). An abbreviated version of the Connor-Davidson resilience scale (CD-RISC), the CD-RISC2: Psychometric properties and applications in psychopharmacological trials. *Psychiatry Research*, 152, 293-297.
- Waldron, I. (1991). Patterns and causes of gender differences in smoking. *Social Science Medicine*, 32(9), 989-1005.

Appendix A

Weighting Methodology

This information is from the Arizona Health Survey. (2008). *Design and Methodology of the Arizona Health Survey*. Phoenix AZ: St. Luke's Health Initiatives.

[The *Design and Methodology*] report describes how data were collected for the Arizona Health Survey. It was a telephone survey of adults in households with landline telephone numbers using a random digit dialing (RDD) sample. The sample was geographically stratified to represent Maricopa County and the remainder of Arizona. In Maricopa County, children and adolescents were also sampled when present in a household. All data were collected using a computer-assisted telephone interviewing (CATI) system, with interviewing in English and Spanish. The data were weighted to represent the Arizona household population. (Arizona Health Survey, 2008, inside cover page)

To produce population estimates from Arizona Health Survey data, weights are applied to the sample data to compensate for the probability of selection and a variety of other factors, some directly resulting from the design and administration of the survey. The sample is weighted to represent the non-institutionalized population for each sampling stratum and statewide. Arizona Health Survey weighting procedures accomplish the following objectives:

- Compensate for differential probabilities of selection for households and persons;
- Reduce biases occurring because nonrespondents may have different characteristics than respondents;
- Adjust, to the extent possible, for undercoverage in the sampling frame and in the conduct of the survey; and
- Reduce the variance of the estimates by using auxiliary information.

As part of the weighting process, a household weight was created for all households that completed the screener interview. This household weight is the product of the “base weight” (the inverse of the probability of selection of the telephone number) and a variety of adjustment factors. The household weight is used to compute a person-level weight, which includes adjustments for the within-household sampling of persons and nonresponse. The final step is to adjust the person-level weight using a raking method so that the Arizona Health Survey estimates are consistent with population control totals. Raking is an iterative procedure that forces the Arizona Health Survey weights to sum to known totals from an independent data source. The sources used were 2007 Arizona Department of Commerce Population Estimates, 2008 Arizona Department of Commerce Projections (State of Arizona, Department of Commerce, 2006, 2006b), and the 2006 American.

(Arizona Health Survey, 2008, pp. ES-3 - ES-4)

Weighting Approach

In an ideal survey, all the units in the inference population are eligible to be selected into the sample and all those in the sample participate in the survey. In practice, neither of these conditions occurs. Some units are not eligible for the sample (undercoverage) and some of the sampled units do not respond (nonresponse). If undercoverage and nonresponse are not addressed, then estimates from the survey will be biased. Weighting is a process that attempts to make the estimates from the survey respondents representative of the total population that was sampled by accounting for the chances of selecting units into the sample and making adjustments for imperfections in the sample.

The philosophy used in Arizona Health Survey weighting is a classical design-based approach with the base weights constructed from the inverse of the probabilities of selection. In the perfect data collection, this scheme produces unbiased estimates and does not require any model assumptions. However, these weights must be modified because of imperfections such as undercoverage (some households in the target population are not covered in the standard RDD sampling frame) and the fact that some sampled units do not respond. If undercoverage and nonresponse are not addressed, then the estimates from the survey will be biased.

(Arizona Health Survey, 2008, p. 6-1)

Differences in Binge Drinking and Smoking Behaviors

To obtain the data on differences the Stata v9 statistical software program was used to calculate the F statistic. Stata properly adjusts for weighting and clustering so that statistical tests and data can be compared in a valid and reliable manner.