

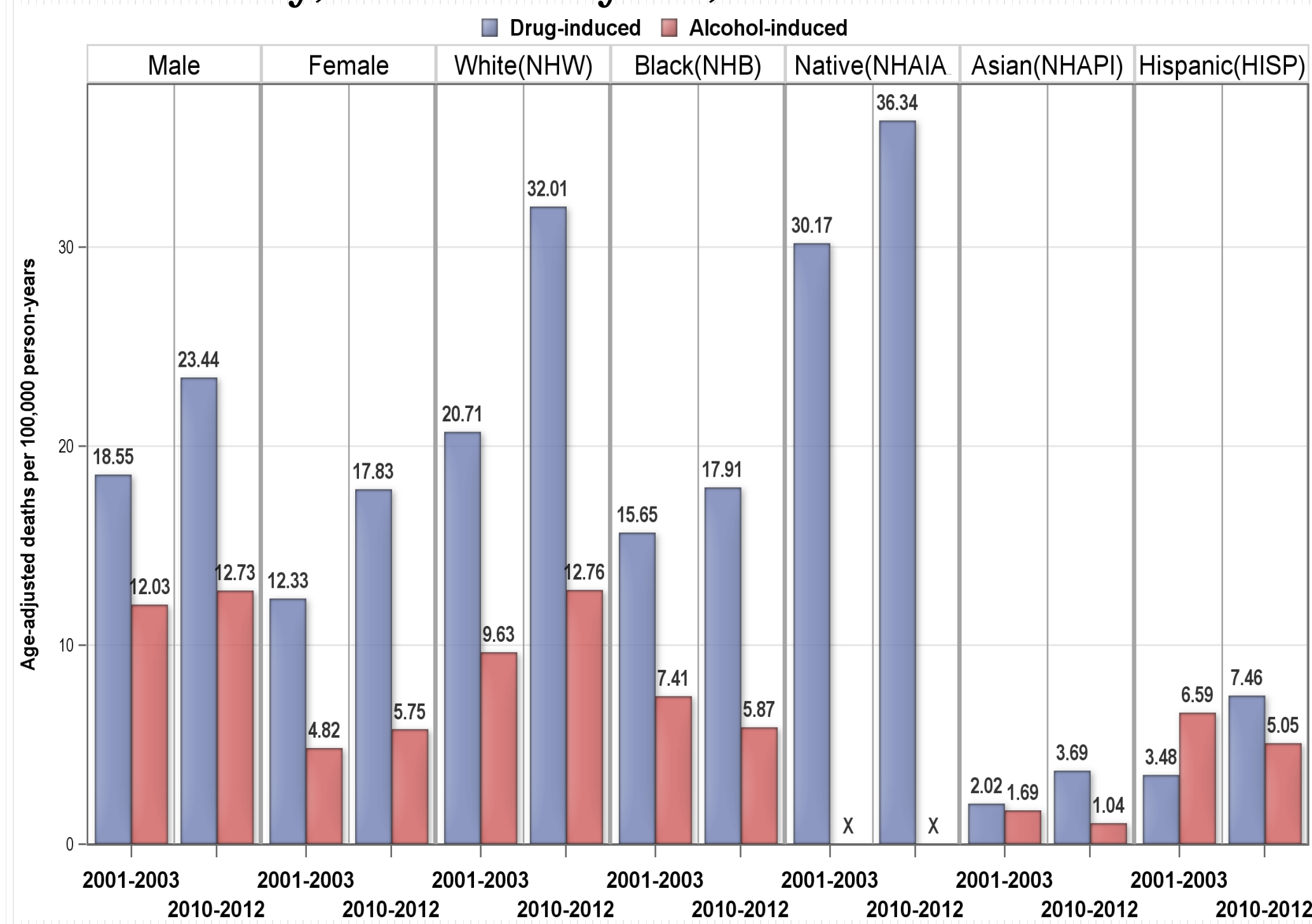
# Co-Occurring Depression and Chronic disease Disorders Associated with Risk Behaviors and Substance Abuse in Clark County, Nevada

Southern Nevada Health District

**BACKGROUND:** The Southern Nevada Health District (SNHD) observed a higher drug and alcohol-induced mortality burden among Clark County (Nevada) residents than their national counterparts, with age-adjusted death rates at 20.7 and 9.2 per 100,000 person-years in 2010-2012, versus comparable national rates of 13.6 and 7.7 per 100,000 respectively. The drug and alcohol-induced death rates among residents also increased by 34% and 10% during 2001-03 and 2010-12 respectively.

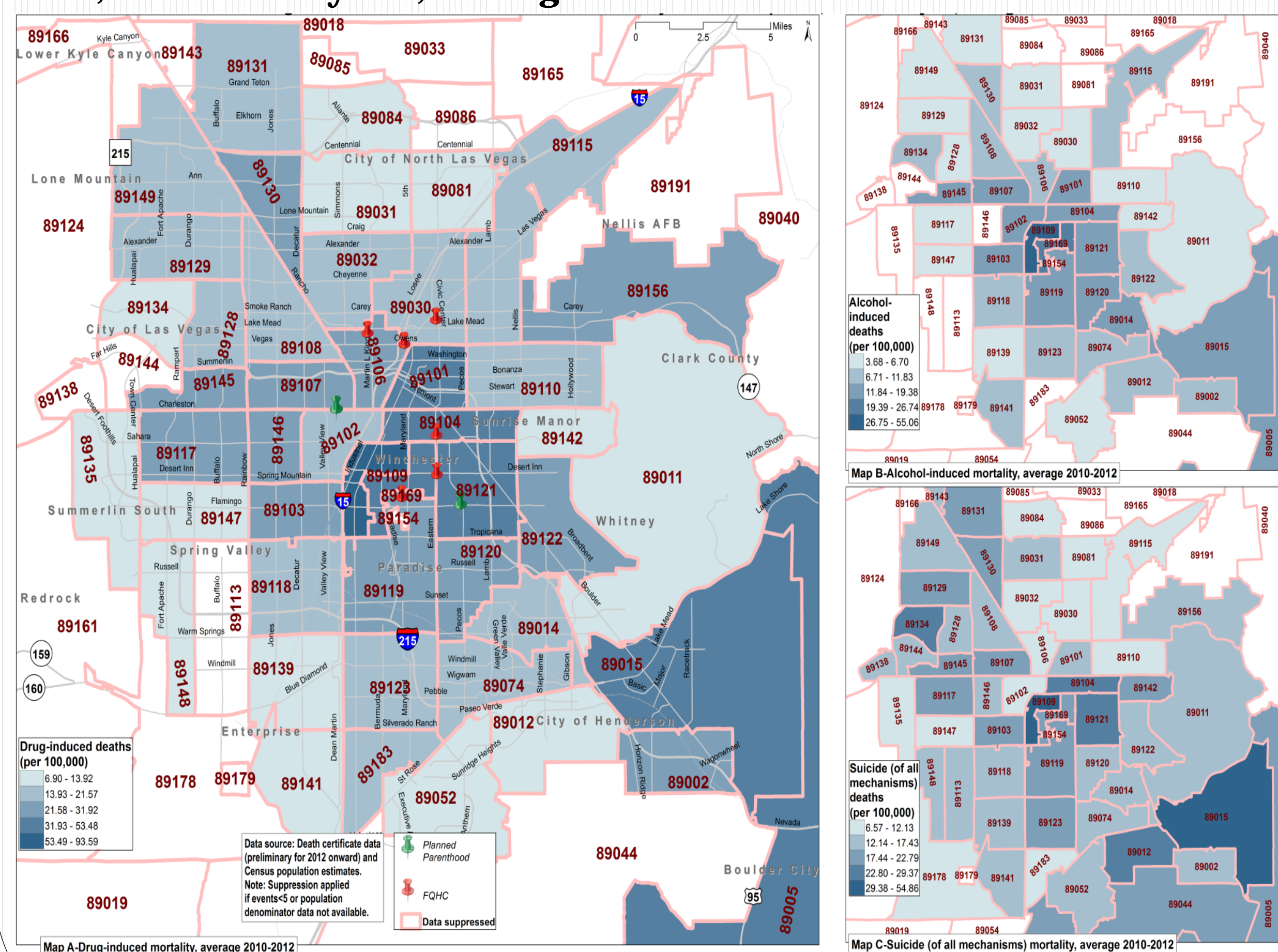
The excessive mortality risks among residents from drug overdoses and alcohol use or abuse underline the burden of mental illness which often occurs in conjunction with substance dependence. Indeed, evidence suggests a reciprocal influence with regards to substance use/dependence and depression, one of the most prevalent mental health problems. As well, residents with mental health disorders are at higher risk for comorbid physical conditions and experience significant barriers managing illnesses and receiving medical care. SNHD evaluated whether depression amongst residents with chronic disease was associated with risk behaviors and alcohol use or abuse.

**Figure 1. Age-Adjusted Drug and Alcohol-Induced Deaths by Gender and Race/Ethnicity, Clark County-NV, 2001-12**

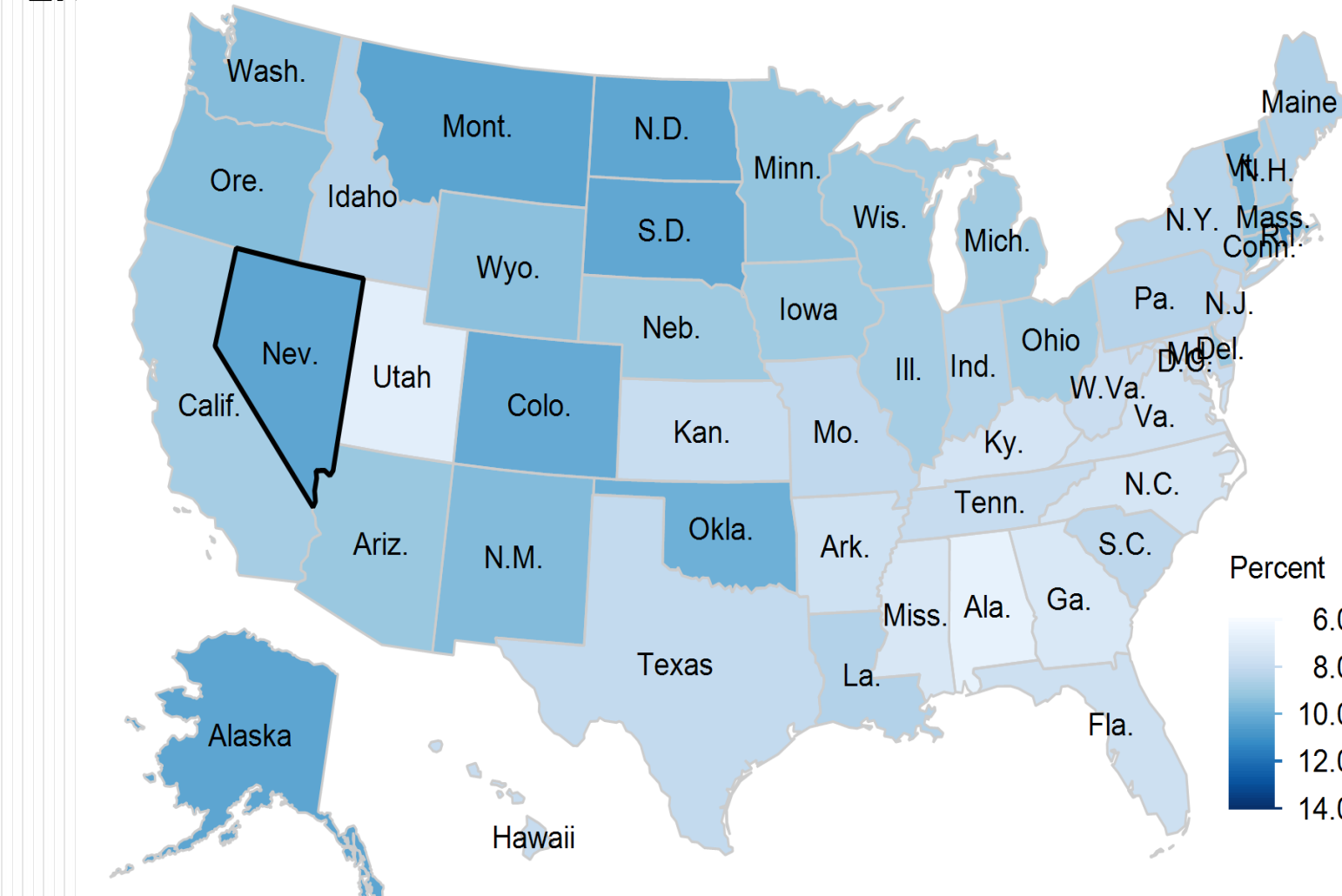


Source: Death certificate files (preliminary for 2012) restricted to county residents at time of death. Note: Data suppression (denoted by X) applied if events <5.

**Figure 2. Drug/Alcohol-Induced and Suicide Deaths by Residential Zip Code, Clark County-NV, Average 2010-12**

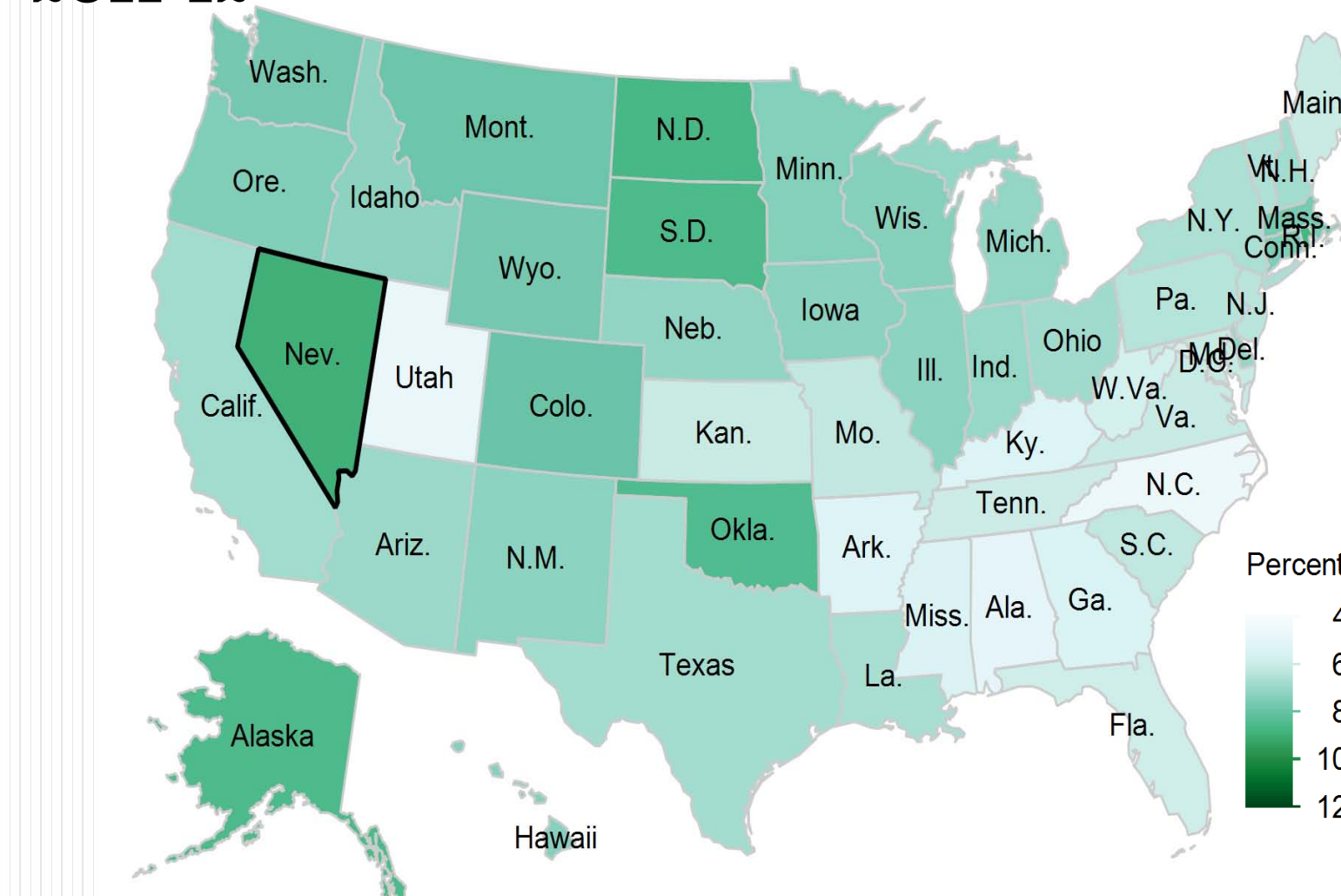


**Figure 3. Dependence or Abuse of Illicit Drugs or Alcohol in the Past Year among Adults, 2011-12**



Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2011 and 2012

**Figure 4. Needing But Not Receiving Treatment for Alcohol Use in the Past Year among Adults, 2011-12**



**METHODS:** Data from the 2011-12 Behavioral Risk Factor Surveillance System was used to assess 1) prevalence of co-occurring depression and chronic disease amongst residents 2) determine associations between risk behaviors, personal characteristics and substance abuse among residents with co-occurring depression and chronic disease disorders. Multiple logistic regression was conducted to compare health risk behaviors for adults with co-occurring depression and chronic disease disorders to those reporting chronic conditions except for depression, adjusting for age, gender, race/ethnicity, education, income, employment, marital status, obesity, and activity limitations due to health problems.

**RESULTS:** The adult prevalence of depression among Nevadans—over 70% of which dwell in Clark County—does not stand out as being exceedingly high (16.3% in 2012) when compared with the national median (17.6%). Nonetheless, the high rate of substance dependence or abuse among adults in the state of Nevada (the fifth highest in the nation at 10.3%, compared to a national rate of 8.5% in 2011-12) underscores the necessity to identify and monitor coping behaviors and comorbidities, and the importance of addressing these aspects of mental health.

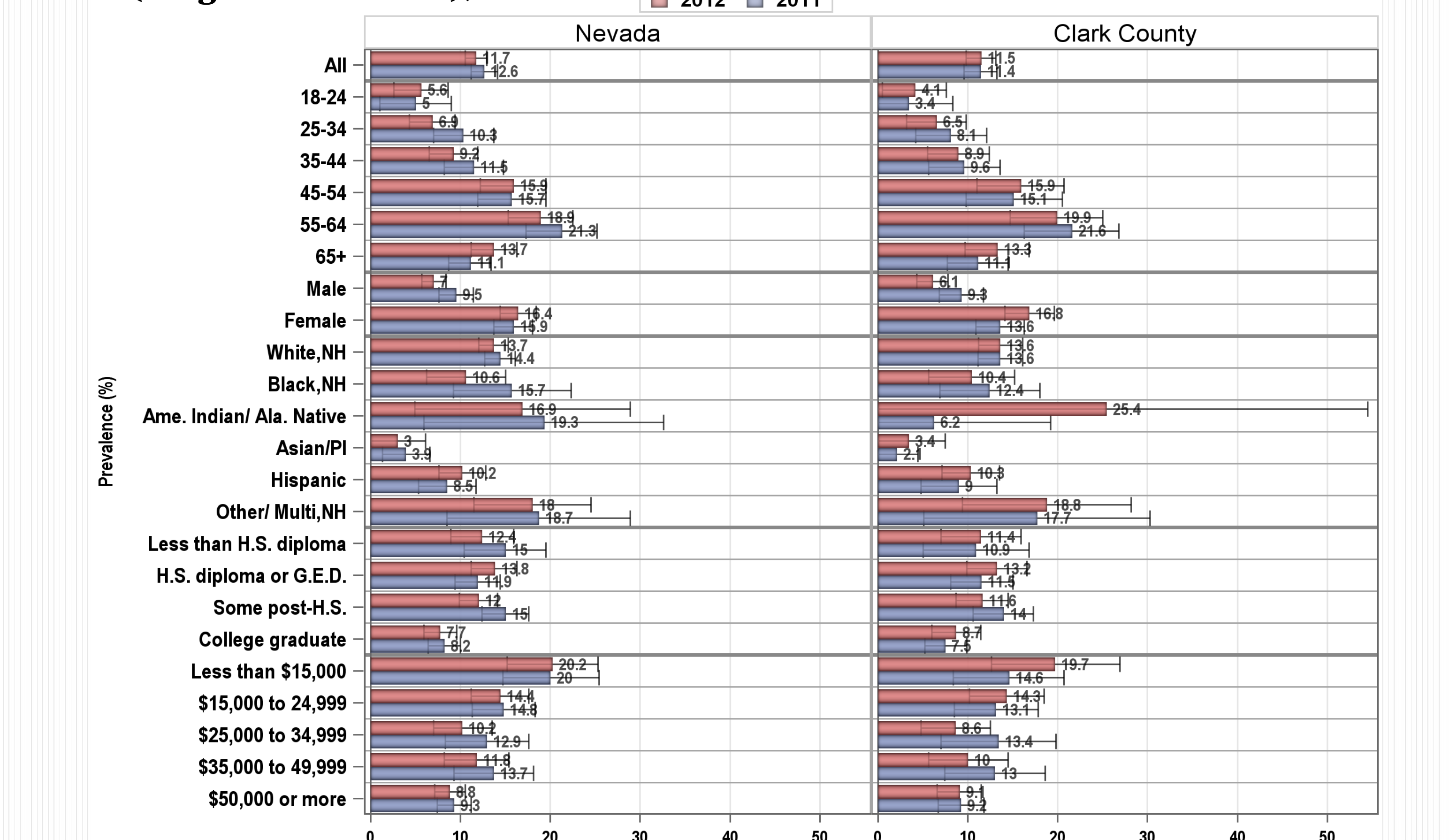
Around 11% of county adults reported co-occurring chronic disease and depressive experiences in 2011-2012, and of these with one or more chronic health conditions, over 20% were affected by depression. Non-Hispanic white and Hispanic adults had greater odds of reporting chronic conditions with co-occurring depression than the general adult population, after adjustment for socio-demographic and health variables. Higher smoking and binge drinking rates were observed among adults with co-occurring depression and chronic disease disorders. Adjusting for potentially confounding variables weakened the relationship between binge drinking and depression, but the level of smoking and chronic health conditions remained significantly elevated among those with depression. County adults with depressive disorders were 1.7 times (95% CI: 1.3-2.2) as likely as those not affected by depression to be current smokers, and 2.1 times (95% CI: 1.6-2.8) as likely to report the presence of one or more chronic conditions. Further, among those affected by chronic health conditions, co-occurring depression conferred an elevated AOR for smoking at 1.6 (95% CI: 1.2-2.1).

**Table 1. Adjusted Odds Ratios (AOR) for Depression, Smoking, Binge Drinking† and Chronic Health Condition(s)††, Clark County-NV, 2011-12**

AOR(95% CI)	Any form of depression	Current smoker	Binge drinking	Chronic conditions
Any form of depression	..	1.7**(1.3-2.2)	1.2(0.9-1.6)	2.1**(1.6-2.8)
Current smoker	1.7**(1.3-2.1)	..	2.4**(1.9-3.1)	1(0.8-1.3)
Binge drinking	1.3(0.9-1.7)	2.4**(1.9-3.2)	..	1.1(0.9-1.4)
Chronic conditions	2.1**(1.6-2.7)	1.1(0.9-1.4)	1.1(0.9-1.4)	..

Data source: Behavioral Risk Factor Surveillance System (BRFSS), 2011-12.

**Figure 5. Prevalence of Chronic Condition(s) with Co-Occurring Depression by Select Traits (weighted estimates), 2011/12**



**Figure 6. Adjusted Odds Ratios for Select Characteristics Associated with Chronic Conditions(s) and Co-Occurring Depression, Clark County-NV, 2011-12**

Characteristics	Odds Ratio	AOR	LCL	UCL
Female vs Male	○	1.71	1.35	2.18
25-34 vs 18-24	+	1.85	0.78	4.41
35-44 vs 18-24	+	2.42	1.03	5.70
45-54 vs 18-24	+	3.08	1.31	7.26
55-64 vs 18-24	+	3.72	1.57	8.82
65+ vs 18-24	+	1.65	0.68	4.05
Black,Non-Hisp. vs White,Non-Hisp.	×	0.79	0.52	1.21
Hispanic vs White,Non-Hisp.	×	1.22	0.86	1.75
Other/Multi,Non-Hisp. vs White,Non-Hisp.	×	0.85	0.56	1.30
< H.S. diploma vs College graduate	△	0.79	0.48	1.29
H.S. diploma or G.E.D. vs College graduate	△	1.14	0.83	1.58
Some post-H.S. vs College graduate	△	1.43	1.07	1.92
< \$15,000 vs \$50,000 or more	□	1.52	0.99	2.36
≥\$15,000 to 24,999 vs \$50,000 or more	□	1.65	1.17	2.34
≥\$25,000 to 34,999 vs \$50,000 or more	□	1.39	0.95	2.03
≥\$35,000 to 49,999 vs \$50,000 or more	□	1.18	0.83	1.67
Homemaker/Student vs Employed/Self-empl.	*	1.10	0.67	1.80
Out of work vs Employed/Self-empl.	*	1.22	0.83	1.78
Retired/Unable to work vs Employed/Self-empl.	*	1.53	1.10	2.12
Divorced vs Married	◇	1.04	0.77	1.41
Mem. of unmarr. couple vs Married	◇	0.87	0.47	1.59
Never married vs Married	◇	0.71	0.47	1.06
Separated vs Married	◇	1.14	0.58	2.23
Widowed vs Married	◇	0.98	0.66	1.47
Smoke everyday or some days vs Do not smoke now	○	1.58	1.21	2.06
Binge drinking vs No binge drinking	+	1.07	0.77	1.50
Obese vs Not obese	×	1.46	1.15	1.86
Limited in any way vs Not limited in any way	△	3.82	3.00	4.87

**Figure 7. Adjusted Odds Ratios for Select Characteristics Associated with Smoking among Adults with Chronic Condition(s), Clark County-NV, 2011-12**

Characteristics	Odds Ratio	AOR	LCL	UCL
Female vs Male	○	1.09	0.85	1.41
25-34 vs 18-24	+	4.05	1.58	10.35
35-44 vs 18-24	+	2.68	1.05	6.81
45-54 vs 18-24	+	3.01	1.21	7.52
55-64 vs 18-24	+	3.08	1.22	7.74
65+ vs 18-24	+	1.87	0.72	4.82
Black,Non-Hisp. vs White,Non-Hisp.	×	1.42	0.94	2.13
Hispanic vs White,Non-Hisp.	×	0.37	0.24	0.59
Other/Multi,Non-Hisp. vs White,Non-Hisp.	×	1.15	0.75	1.77
< H.S. diploma vs College graduate	△	2.99	1.80	4.95
H.S. diploma or G.E.D. vs College graduate	△	2.89	2.05	4.07
Some post-H.S. vs College graduate	△	1.69	1.21	2.37
< \$15,000 vs \$50,000 or more	□	1.97	1.24	3.13
≥\$15,000 to 24,999 vs \$50,000 or more	□	1.70	1.17	2.48
≥\$25,000 to 34,999 vs \$50,000 or more	□	1.36	0.91	2.03
≥\$35,000 to 49,999 vs \$50,000 or more	□	1.06	0.72	1.55
Homemaker/Student vs Employed/Self-empl.	*	0.53	0.27	1.05
Out of work vs Employed/Self-empl.	*	1.09	0.73	1.63
Retired/Unable to work vs Employed/Self-empl.	*	0.78	0.55	1.11
Divorced vs Married	◇	1.96	1.43	2.69
Mem. of unmarr. couple vs Married	◇	1.36	0.71	2.59
Never married vs Married	◇	1.57	1.05	2.35
Separated vs Married	◇	2.75	1.40	5.38
Widowed vs Married	◇	0.84	0.53	1.31
Binge drinking vs No binge drinking	○	2.16	1.55	3.01
Obese vs Not obese	+	0.53	0.40	0.70
Limited in any way vs Not limited in any way	△	1.44	1.09	1.88
Chronic conditions and depressive vs Not depressive	×	1.57	1.18	2.07

**CONCLUSIONS:** A better understanding of coexistent behavioral and physical health problems contributing to substance abuse, as well as the integration of behavioral and primary health, are crucial for reducing the mortality/morbidity burden attributable to mental illness.