

## HSC Statistical Brief No. 30 Adverse Childhood Experiences

Adverse Childhood Experiences, or ACE, have been extensively researched and found to be associated with poor health and well-being during adulthood. ACE include exposure to abuse, domestic violence, substance abuse, mental illness and other stressors or traumatic events. According to the Centers for Disease Control and Prevention (CDC, 2014), ACE are associated with the following risk factors, chronic diseases, and health outcomes:

- Alcoholism and alcohol abuse
- Chronic obstructive pulmonary disease
- Depression
- Fetal death
- Health-related quality of life
- Illicit drug use
- Ischemic heart disease
- Liver disease
- Risk for intimate partner violence
- Multiple sexual partners
- Sexually transmitted diseases
- Smoking
- Suicide attempts
- Unintended pregnancies
- Early initiation of smoking
- Early initiation of sexual activity
- Adolescent pregnancy

This report will present ACE statistics collected from adult West Virginia residents as well as statistics about the impact of ACE on health behaviors and chronic diseases during adulthood.

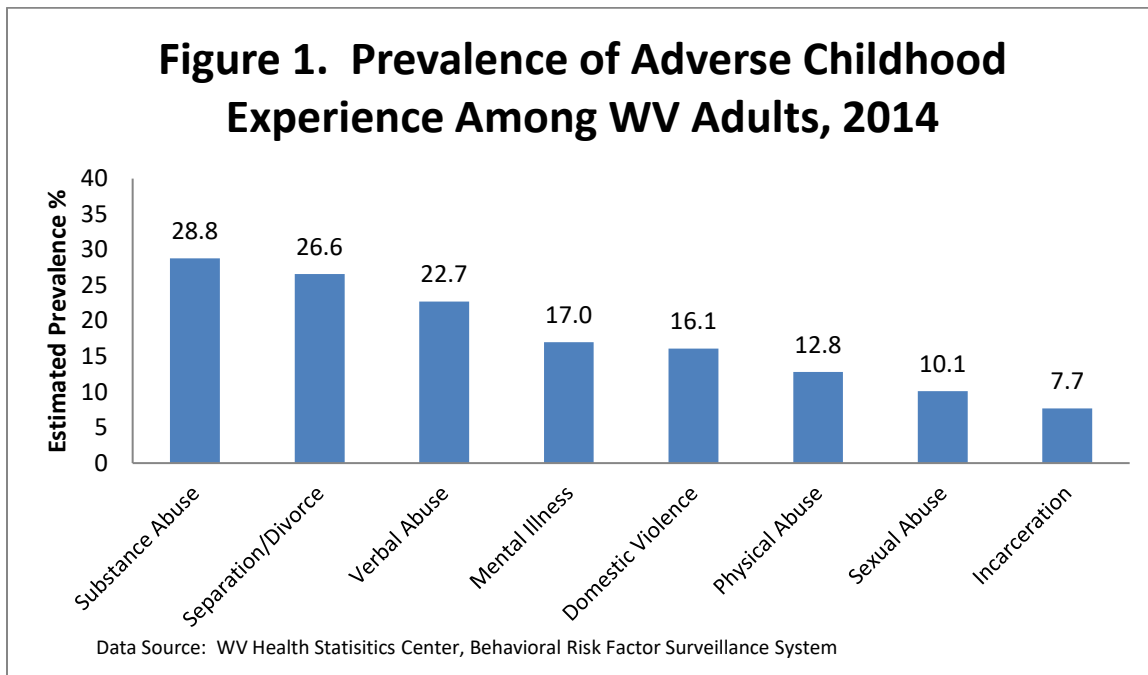
The Health Statistics Center's Behavioral Risk Factor Surveillance System (BRFSS) collected data related to ACE in 2014 as part of a set of state-added questions. The ACE BRFSS module was not available as an option, so West Virginia included those questions as state-added questions and followed the exact wording and format as the BRFSS module.

There are a total of 11 questions on the ACE module of the BRFSS questionnaire. The 11 questions were combined to create eight categories. The household alcohol and drug use questions were combined to create a household substance abuse category. The three questions on sexual abuse and rape were combined to create a sexual abuse category. The final eight categories were:

1. Substance Abuse
2. Separation/Divorce
3. Verbal Abuse
4. Mental Illness
5. Domestic Violence
6. Physical Abuse
7. Sexual Abuse
8. Incarceration

Figure 1 displays the prevalence of each ACE among West Virginia adults for 2014. The ACE reported most often by West Virginia adults was household substance abuse (28.8%) which could include alcohol and/or drug abuse. More than one-fourth (26.6%) of West Virginia adults reported that their parents were separated or divorced during their childhood. Verbal abuse was

the third most often reported ACE (22.7%). Mental illness was reported by 17.0% of West Virginia adults, and domestic violence was reported by 16.1%. Physical abuse was reported by 12.8%, while sexual abuse was reported by 10.1% of West Virginia adults. About 7.7% of West Virginia adults reported living with someone during childhood who had been incarcerated.



In 2014, there was an average of 1.4 ACE reported among West Virginia adults. Approximately 44.2% of West Virginia adults reported no ACE, 22.6% had one ACE, 11.7% had two ACE, 7.8% had three ACE, and 13.8% had four or more ACE.

Based on previous research, it was determined that three or more ACE put an individual at high risk for several poor health behaviors and chronic diseases during adulthood. Table 1 presents the prevalence of high risk based on ACE among West Virginia adults by subpopulation and socio-demographic characteristics for 2014. The prevalence of high risk ACE was 21.5% or approximately 301,114 West Virginia adults. The prevalence of high risk ACE was significantly higher among females (23.6%) than among males (19.3%), which is consistent with previous research. The prevalence of high risk ACE was lowest among those aged 65 and older (10.7%) and was significantly lower than all other age groups. The prevalence of high risk ACE was highest among the 25-34 year old age group (34.5%) and was significantly higher than the prevalence among those aged 18-24 and those 45 and older. The prevalence of high risk ACE was significantly higher among those with less than a high school education (24.1%) than among college graduates (17.4%). The prevalence of high risk ACE was significantly higher among West Virginia adults with an annual household income of less than \$15,000 (32.5%) than the prevalence among all other income brackets of \$25,000 or more. Adults with an annual household income of \$75,000 or more had the lowest prevalence of high risk ACE (17.1%).

<b>Table 1. Prevalence of High Risk Based on ACE Among West Virginia Adults by Demographic Characteristics, 2014</b>			
<b>Characteristic</b>	<b>Weighted Frequency</b>	<b>Prevalence Estimate (%)</b>	<b>95% Confidence Interval</b>
<i>TOTAL</i>	301,114	21.5%	20.2-22.8
<i>Gender</i>			
Male	131,545	19.3%	17.3-21.3
Female	169,569	23.6%	21.9-25.4
<i>Age</i>			
18-24	37,634	23.9%	18.6-29.3
25-34	68,830	34.5%	29.9-39.2
35-44	58,468	27.1%	23.3-30.8
45-54	56,124	23.5%	20.6-26.5
55-64	44,693	17.2%	15.0-19.4
65+	34,263	10.7%	9.1-12.3
<i>Educational Attainment</i>			
Less than H.S.	55,373	24.1%	20.2-27.9
H.S. or G.E.D.	116,436	20.6%	18.5-22.7
Some Post-H.S.	88,041	23.8%	21.1-26.4
College Graduate	40,483	17.4%	15.0-19.7
<i>Yearly Household Income</i>			
Less than \$15,000	55,484	32.5%	28.3-36.7
\$15,000 - \$24,999	61,525	25.3%	21.8-28.7
\$25,000 - \$34,999	31,243	22.1%	18.0-26.1
\$35,000 - \$49,999	36,481	20.0%	16.6-23.4
\$50,000 - \$74,999	30,599	18.7%	15.1-22.2
\$75,000+	40,317	17.1%	14.2-20.0
<b>Data Source: WV Health Statistics Center, Behavioral Risk Factor Surveillance System</b>			

Table 2 displays the prevalence of specific health behaviors or chronic diseases among West Virginia adults who are at high risk based on ACE as compared to those at low risk based on ACE for 2014. The results indicate that the prevalence of fair/poor health and poor health limits activities was significantly higher among those at high risk based on ACE than among those at low risk. This pattern was also observed for several health care access indicators including no health care coverage, no money to pay medical bills, no doctor, no check-up in the past year, and no dental visit in the past year.

Consistent with the CDC's findings, the prevalence of current smoking and binge drinking was significantly higher among those at high risk due to ACE than among those at low risk from ACE. Additionally, these findings show that the prevalence of several other risky behaviors was significantly higher among those at high risk than among those at low risk. The prevalence of obesity, had a HIV test, and any tobacco use was significantly higher among the high risk group than among the low risk group. The prevalence of always use a seat belt was significantly higher among the low risk group than among the high risk group.

**Table 2. Prevalence of Health Behavior or Chronic Disease Among West Virginia Adults at High Risk from ACE and West Virginia Adults at Low Risk from ACE, 2014**

Health Behavior/Chronic Disease	High Risk		Low Risk	
	Prevalence Estimate (%)	95% Confidence Interval	Prevalence Estimate (%)	95% Confidence Interval
Fair/Poor Health	32.2%	29.0-35.5	24.1%	22.7-25.6
Limited Due to Poor Health	27.2%	23.5-30.9	21.3%	19.4-23.3
No Health Care Coverage	14.6%	11.9-17.4	8.8%	7.6-9.9
No Money to Pay Medical Bills	31.4%	28.0-34.7	12.5%	11.3-13.7
No Doctor	28.2%	24.8-31.5	20.6%	19.1-22.2
No Check-up in Past Year	28.7%	25.4-31.9	21.3%	19.8-22.9
No Dental Visit in Past Year	54.5%	51.0-58.0	43.3%	41.5-45.0
Missing 6 or More Teeth	31.6%	28.4-34.9	31.7%	30.2-33.3
No Physical Activity	29.3%	26.2-32.3	28.1%	26.6-29.7
Obesity	40.1%	36.6-43.6	34.4%	32.7-36.1
Overweight or Obese	68.8%	65.4-72.2	69.9%	68.3-71.6
Current Smoking	42.1%	38.5-45.6	22.6%	21.0-24.1
Tobacco Use	46.0%	42.4-49.5	29.4%	27.8-31.1
Heavy Drinking	4.1%	2.8-5.5	3.2%	2.6-3.9
Binge Drinking	13.3%	10.7-15.9	8.3%	7.2-9.3
Any Drinking	34.6%	31.2-37.9	32.0%	30.8-33.7
Always Use Seat Belt	76.1%	72.8-79.4	85.1%	83.7-86.5
Drinking and Driving	*1.1%	0.0-2.1	1.5%	0.7-2.3
Had a HIV Test	46.4%	42.8-50.0	27.8%	26.1-29.5
Heart Attack	6.5%	5.0-8.0	7.8%	6.9-8.7
Heart Disease	8.3%	6.6-10.0	7.9%	7.0-8.7
Stroke	3.9%	2.7-5.0	4.8%	4.1-5.5
Cardiovascular Disease	13.6%	11.5-15.7	14.5%	13.3-15.6
Diabetes	12.8%	10.7-15.0	14.4%	13.3-15.5
Chronic Obstructive Pulmonary Disease	18.6%	15.9-21.2	12.4%	11.3-13.5
Current Asthma	16.3%	13.8-18.9	9.3%	8.3-10.3
Disabled	38.5%	35.2-41.9	27.1%	25.6-28.6
Cancer	13.3%	11.1-15.5	14.3%	13.2-15.3
Arthritis	45.7%	42.3-49.2	39.5%	37.9-41.2
Depression	41.4%	38.0-44.9	18.8%	17.5-20.2
Any Chronic Disease or Unhealthy Behavior	82.4%	79.5-85.4	72.6%	71.0-74.3

**Data Source: WV Health Statistics Center, Behavioral Risk Factor Surveillance System**

\*Indicates unreliable estimate, use caution when interpreting and reporting

The prevalence of chronic obstructive pulmonary disease and depression was significantly higher among those at high risk due to ACE than among those at low risk, also consistent with the CDC's findings. Additionally, the prevalence of current asthma and arthritis was significantly higher among the high risk group than the low risk group. The results also indicate that the

prevalence of disability was significantly higher among the ACE high risk group than among the low risk group.

The results show that the prevalence of missing six or more teeth, no physical activity in the past month, overweight or obese, heavy drinking, any drinking, drinking and driving, heart disease, heart attack, stroke, cardiovascular disease, diabetes, and cancer was similar for those at high risk and those at low risk based on ACE.

### **Conclusions**

The ACE reported most often by West Virginia adults was household substance abuse, followed by separation/divorce, verbal abuse, mental illness, domestic violence, physical abuse, sexual abuse, and incarceration of a household member. West Virginia adults reported an average of 1.4 ACE during their childhood, and almost half report zero ACE. Approximately 21.5% or 301,114 West Virginia adults would be considered high risk for developing health problems based on having three or more ACE. West Virginia's statistics are comparable to the CDC's findings in that multiple ACE are associated with fair/poor health, current smoking, binge drinking, obesity, chronic obstructive pulmonary disease, depression, and disability. These findings lay a foundation for prevention of chronic disease and unhealthy behaviors based on modification or avoidance of ACE.

### **References**

Centers for Disease Control and Prevention. (2014). Adverse Childhood Experiences. Retrieved from <http://www.cdc.gov/violenceprevention/acestudy/>.

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