

# **Impact of Adverse Childhood Experiences on Suicidal Tendencies and Drinking Behaviors in College Students**

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## **Abstract**

Suicide is the third leading cause of death among adolescents<sup>2</sup>. Suicidal ideation in college students increased significantly between 2009 and 2015<sup>6</sup>. Relatively few studies examine correlates of suicide outside of mental illness. However, childhood trauma associates with higher suicide risk and alcohol addiction in adults<sup>5</sup>. This relationship is likely because of a maladaptive response of the sympathetic nervous system due to increased exposure to high threat situations<sup>1</sup>. Moreover, alcohol-related problems strongly correlate with suicide proneness in college students<sup>4</sup>. However, there are few studies relating suicidal tendencies and high-risk alcohol behavior specifically. Therefore, this study will examine the relationship between childhood trauma, high-risk alcohol behavior and suicidal tendencies in college students. A convenience sample of college students will be recruited for an online survey. The Rutgers Alcohol Problem Index study will be used to determine high-risk alcohol behaviors, and the Life Attitudes Schedule- Short Form will be used to determine suicidal tendencies. The Adverse Childhood Experiences study was conducted to quantify childhood trauma. It is expected that childhood trauma will be strongly correlated with suicidal tendencies and high-risk alcohol behavior in college students. It is also expected that suicidal tendencies and high-risk alcohol behavior will have a strong correlation within themselves. These results will contribute to a quickly growing area of research surrounding suicide in college students. Hopefully, this study will guide universities in the correct way to help students suffering from alcohol-related problems or suicidal ideations. Future studies could be conducted on how universities can help reduce the risk of suicide among their students, especially those students who exhibit high-risk alcohol behaviors.

**Keywords: suicide, alcohol, childhood trauma**

## **1. Introduction**

Thirty-point four percent of young adults between the ages of 18 and 24 had at least one heavy drinking day in the year of 2018<sup>3</sup>. Additionally, suicide rates increased from 9.7% in 2007 to 14.5% in 2017 for young adults ages 15 to 24<sup>9</sup>. With a rising suicide rate and high risk of heavy drinking, more research needs to be done on the drinking behaviors and suicide rates of young adults. Additionally, research is needed to examine precursors to these behaviors. Specifically, the influence of childhood trauma on suicidality and drinking behaviors needs to be examined, as childhood trauma has been related to many other healthy outcomes for adults<sup>8</sup>. Therefore, the purpose of this study is to examine how childhood trauma may relate to drinking and suicidal intentions in college students.

This study explores how adverse childhood experiences link to suicidal tendencies and high-risk alcohol behavior in college students. The Adverse Childhood Experiences (ACE) study focuses on how childhood trauma relates to health outcomes in adulthood<sup>8</sup>. In fact, the ACE study indicates that childhood trauma relates to risk of smoking, obesity, physical inactivity, and suicide attempts<sup>5</sup>. Whereas most of the results from ACE studies focus on adults, few studies focus on young adults. Adverse childhood experiences are childhood stressors such as parental separation or physical abuse in the household.

The ACE studies suggest that adverse childhood experiences are correlated with high suicide risk and alcohol addiction in adults<sup>5</sup>. This relation can likely be explained through sympathetic nervous system activity. Severe stress can impair the development of the body's systems for natural stress response when the stress occurs during childhood<sup>1</sup>. This is similar to the effect seen in post-traumatic stress disorder (PTSD) patients, except PTSD patients have developed systems that become inactive<sup>1</sup>. Activation of the "fight or flight" system causes an increase in catecholamine production, including dopamine, epinephrine and norepinephrine<sup>1</sup>. Overactivation of this system in childhood can cause permanent changes to homeostasis<sup>1</sup>. These changes can have negative emotional effects, enticing individuals towards substance abuse as a coping mechanism<sup>1</sup>.

Suicidal ideation increased significantly in college age students from 2009 to 2015<sup>6</sup>. Alcohol abuse among college age students also increased significantly during the same time period<sup>6</sup>. Suicidal tendencies are defined as the suicide risk, and high-risk alcohol behavior is defined as repetitive behavior involving alcohol that results in risky behavior including things such as unprotected sex and vandalism. Suicide and alcohol abuse have been related in a variety of studies<sup>4</sup>. There are two plausible causes of this correlation. First, alcohol use can result in problematic behavior as the prefrontal cortex is impaired<sup>4</sup>. Second, alcohol may be used as a coping mechanism for negative emotions<sup>4</sup>. While there is a clear relation between these two variables, there is little information about how each of these variables independently relate to childhood trauma – which may be a precursor for these behaviors.

This study examines the relationship between suicidal tendencies, high-risk alcohol behaviors, and childhood trauma in college students using a convenience sample. It was hypothesized that suicidal tendencies, high-risk alcohol behaviors and childhood trauma will all be strongly correlated to one another. The results of this study could be used in early prevention methods for both risky drinking and suicide risk in young adults. Childhood trauma could be addressed as a risk factor for these behaviors to identify at-risk college students. Rehabilitation programs could also focus on the underlying problem of childhood trauma rather than the visible manifestation of the problem.

## 2. Methodology

### 2.1 Participants and Procedure

Four hundred and twenty-nine undergraduate students were surveyed at Miami University, a mid-sized midwestern college. The survey was snowball sampled and IRB approved. Incentives for taking the survey included extra credit and the chance of one of twenty \$30 gift cards. The data used from the survey included the Adverse Childhood Experience study, Rutgers Alcohol Problem Index and Life Attitudes Schedule- Short Form. The ACE study was used to measure childhood trauma. The Rutgers Alcohol Problem Index was used to measure high-risk alcohol behaviors, and the Life Attitudes Schedule- Short Form was used to measure suicidal tendencies. Seventy-three-point two percent of the participants were female, 83.4% were heterosexual and 76.0% were Caucasian. Seventeen-point nine percent were freshman, 27.3% were sophomores, 23.5% were juniors and 17.7% were seniors. Thirty-seven-point five percent of participants were associated with Greek life.

### 2.2 Measures

#### 2.2.1 Childhood Trauma

The ACE study used a 10-question survey that addresses a variety of different childhood stressors. The questionnaire has 10 statements, and participants respond with "yes" if it relates to them or "no" if it does not. An example question is "Was a household member depressed or mentally ill, or did a household member attempt suicide?" The types of traumas measured include "psychological, physical, or sexual abuse; violence against mother; or living with household members who were substance abusers, mentally ill or suicidal, or ever imprisoned." (245)<sup>5</sup> A higher ACE score indicates more childhood trauma. A score of four or higher significantly increases the risk of health problems later in life, including depression and substance abuse<sup>5</sup>. The Cronbach's alpha was .76, and 243 students answered this survey.

#### 2.2.2 *problematic alcohol consumption*

The Rutgers Alcohol Problem Index is a 23-question survey to quantify drinking behaviors. An example statement is "Tried to cut down or quit drinking." The options are on a 5-point scale which includes "0 = never," "1 = 1-2 times,"

“2 = 3-5 times” and “4 = more than 10 times”<sup>7</sup>. A summed score of more than 15 was considered a drinker with high-risk alcohol behaviors, in accordance with previous studies<sup>10</sup>. The Cronbach’s alpha was .96, and 192 students answered this survey.

### 2.2.3 suicidal tendencies

The Life Attitudes Schedule- Short Form used a 24-question survey to determine suicidal tendencies. The form lists several statements to which the participant responds “true” or “false”. An example statement is “I choose to listen to music with a death related theme.” Participants were instructed to work as quickly as possible to minimize potentials bias. The total number of true responses are totaled to give a final score. A higher total score represents a higher risk of suicidal tendencies. The Cronbach’s alpha was .82, and 241 students answered this survey.

## 3. Data

Table 1. Correlation data for the ACE, RAPI and LAS- Short Form surveys

	1	2	3
1. ACE	-		
2. RAPI	.090**	-	
3. LAS- Short Form	.356**	.350**	-
Cronbach’s Alpha	.76	.96	.82
Mean (SD)	1.11 (1.64)	8.59 (12.47)	4.87 (3.83)

Note. \*\*  $p < .01$

The mean score for the RAPI survey was 8.59 with a standard deviation of 12.47. The ACE survey had a mean score of 1.11 with a standard deviation of 1.64. The mean score for the LAS- Short Form was 4.87 with a standard deviation of 3.83. The LAS- Short Form was positively correlated with both the ACE survey and the RAPI at the significance level of .01 using Pearson correlation. The correlation coefficient between the RAPI survey and the LAS- Short Form was .350, and the correlation coefficient between the ACE survey and the LAS- Short Form was .356. There was no significant correlation found between the ACE and RAPI surveys at the .01 significance level. The correlation coefficient between the ACE and RAPI surveys was .090 (Table 1).

## 4. Discussion

The results suggest that childhood trauma is positively correlated with both high-risk drinking behaviors and suicidal tendencies. The data support the conclusion that childhood trauma is positively correlated with suicidal tendencies. Interestingly, the data also suggests that childhood trauma is positively correlated with high-risk drinking behaviors. The data also supported the conclusion that suicidal tendencies and high-risk drinking behaviors are positively correlated.

The data from the ACE and LAS- Short Form expands the conclusion found by Felitti et al. that childhood trauma is correlated with suicidal tendencies not only in adults, but also in young adults<sup>5</sup>. The results of the ACE and RAPI suggests a small significant positive correlation similar to Felitti et al.<sup>5</sup>. The data from the LAS- Short Form and the RAPI survey also support the conclusion made by Dvorak et al. that suicide and alcohol abuse are correlated<sup>4</sup>.

The results of this study should be tempered given the following limitations. The college has a majority of Caucasian students. As such, the data received reflect those bias. Within the ACE study, the mean ACE score was much lower than the mean values seen in other studies. The lack of childhood trauma could have attributed to the low correlation between constructs. Additionally, the surveys used may not have been the best surveys available. There may have been bias as a result of students self-reporting the data as well.

Despite these limitations, this study still provides implications for the research field. It has shown a moderate positive correlation between both high-risk alcohol behaviors and suicidal tendencies, and childhood trauma and suicidal tendencies in college students. This study could be expanded to a more diverse and larger population of students for more reliable data. A longitudinal study could be conducted to establish causation between the variables. The results

of this study and future studies could be used as a guide for preventative and treatment methods for college students suffering with suicidal tendencies or alcohol abuse. For example, preventative and treatment methods could examine what other factors may be influencing students' suicidal tendencies or alcohol abuse to treat the issue at the source. This could be particularly useful if it was found that alcohol was used as a mediating variable for suicidal tendencies or childhood trauma. Additionally, it would be useful if childhood trauma was found to be a mediating variable for suicidal tendencies and alcohol abuse.

## 5. Conclusion

Suicide and alcohol abuse are prominent issues facing many college students today. As rates of alcohol abuse and suicide rise among young adults, more research needs to be conducted to discover risk factors for these behaviors. Childhood trauma is associated with many risk factors in adults, and this correlation may apply to college students as well. Suicidal tendencies in college students is positively correlated with childhood trauma and high-risk drinking behaviors. No correlation was found between childhood trauma and high-risk drinking behaviors. Further research should be conducted to further examine the relationship of these three variables and their implications for college health services provided to students.

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