

# Adolescent Substance Use and Peer Influence

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**ABSTRACT:** This study examines the role of peer influence in adolescent substance use, focusing on two key dimensions: peer substance use exposure and peer cohesion. Research presents contrasting views on the effects of peer cohesion. Identity-related theories suggest a positive association, arguing that strong peer cohesion amplifies the perceived rewards of substance use. In contrast, social isolation studies propose a negative relationship, suggesting that peer cohesion alleviates stress, thereby reducing substance use risk. Using a nationally representative U.S. sample of adolescents ( $N = 6,051$ ), this study investigates factors influencing substance use in young adulthood. The findings indicate that peer substance use exposure significantly increases adolescent substance use, consistent with behavioral and identity-based theories. However, the effect of peer cohesion varies by substance type. It is positively associated with "soft drug" use, which is more socially accepted, but negatively associated with "hard drug" use, which carries greater stigma. These results suggest that the seemingly conflicting predictions of peer influence and social isolation theories can be reconciled by accounting for the social acceptability of different substances.

**KEYWORDS:** Biomedical and Health Sciences, Other, Adolescent Substance Use, Peer Influence, Peer Cohesion.

## ■ Introduction

An alarming 6,694 adolescents in the United States lost their lives to substance misuse in 2022.<sup>1</sup> Notably, between 2019 and 2020, the rate of substance overdose deaths among adolescents surged by 94%, compared to a 30% increase across the general population.<sup>2</sup> Due to the incomplete maturation of the adolescent brain, individuals in this developmental stage are more prone to risk-taking behaviors and heightened sensitivity to peer influence, thereby increasing their susceptibility to substance use.<sup>3-6</sup> Despite the stark increase in adolescent substance overdose deaths, current research has yet to uncover the underlying causes contributing to this rise fully. This gap underscores the urgent need for further research to develop more effective prevention strategies for this vulnerable population.

### *Peer Influence on Substance Use:*

The widespread prevalence of substance use among adolescents can be attributed to factors such as peer pressure, amplified by the pervasive influence of social media.<sup>7</sup> Although peer influence (also referred to as peer socialization or peer contagion effects)<sup>8</sup> can affect all demographics, it has a particularly strong impact on adolescents, as it coincides with critical developmental periods.<sup>7,9</sup>

Most existing theories of peer influence draw upon both behavioral and identity-related frameworks.<sup>7</sup> From a behavioral perspective, peer influence is grounded in social learning theory, which posits that individuals are likely to replicate behaviors observed in their peers, particularly when those behaviors are socially rewarded.<sup>10</sup> This modeling behavior plays a crucial role in socialization, fostering friendships with individuals who actively shape behaviors and attitudes. The concept of social learning, or behavioral contagion, is especially pertinent during adolescence, as peers often serve as key reference groups, more influential than adults. This dynamic is highly relevant in con-

texts such as substance use. For instance, adolescents are more likely to mirror their peers' substance use, such as consuming alcohol or cigarettes, particularly when such actions are perceived as socially rewarding and associated with popularity within their peer groups.<sup>11</sup>

From an identity-focused perspective, theories propose that conforming to peer influence plays a significant role in enhancing self-esteem and fostering a positive self-concept.<sup>7</sup> During adolescence, the approval, feedback, and sense of belonging provided by peers are pivotal in shaping self-esteem and identity development.<sup>9</sup> Adopting the behaviors and attitudes of valued peers can yield intrinsic rewards, as it reinforces a favorable self-image and strengthens feelings of social inclusion.<sup>9,12-15</sup> In the context of substance use, adolescents whose close peers engage in such behaviors may perceive activities like drinking alcohol or smoking cigarettes as a way to strengthen their bonds with admired peers and enhance their self-image. This notion is further substantiated by developmental neuroscience research.<sup>16</sup>

In addition to mirroring peer substance use, peer cohesion represents another critical dimension of peer influence. Defined as the sense of support and connectedness individuals experience within their peer group or social network,<sup>17</sup> peer cohesion may influence adolescent substance use in two ways: either as a facilitator or as a protective buffer. Identity-related theories suggest that peer cohesion may promote substance use among adolescents when behaviors like smoking or drinking are associated with favorable attributes, such as projecting a "cool" or "mature" image.<sup>18</sup> In such cases, strong peer cohesion may amplify intrinsic rewards and enhance adolescents' self-perception through substance use. This dynamic fosters an environment where adolescents engage in substance use to strengthen their social identity and affirm their status within the peer group.

Consequently, identity-related theories predict a positive association between peer cohesion and substance use.

Conversely, research on social isolation suggests that elevated levels of peer cohesion can act as a protective buffer against stress, thereby reducing the likelihood of engaging in substance use.<sup>17</sup> These studies have demonstrated that adolescents experiencing social isolation are at a heightened risk of substance use, including behaviors such as cocaine self-administration and amphetamine or nicotine-induced locomotor activity.<sup>19</sup> This connection is largely attributed to the stress triggered by social isolation, which can drive adolescents to use substances as a coping mechanism. Stress is not only a risk factor for the initiation of substance use but also contributes to its maintenance and escalation over time.<sup>20</sup> Therefore, social isolation theories predict a negative association between peer cohesion and substance use.

### ***Gaps in the Literature:***

Research on peer influence and social isolation reveals two contrasting perspectives regarding the relationship between peer cohesion and adolescent substance use. Identity-related theories and studies on social isolation have independently explored the roles of peer influence in shaping substance use behaviors. However, few studies have addressed the contradictory implications of these perspectives. On the one hand, identity-related theories suggest a positive relationship between peer cohesion and substance use. Strong peer cohesion may amplify intrinsic rewards for behaviors such as smoking and drinking, as these activities are often viewed favorably within adolescent peer groups. On the other hand, research on social isolation proposes a negative relationship, arguing that greater peer cohesion reduces social isolation, which in turn may lower the likelihood of substance use. Given the rising prevalence of substance use among adolescents, it is crucial to explore the nuanced correlations between peer cohesion and substance use. This approach could offer a deeper understanding of the social contexts contributing to substance misuse among this high-risk group.

Furthermore, much of the existing research has narrowly focused on a single substance, overlooking the broader spectrum of substances adolescents may use.<sup>21,22</sup> Examining the impact of peer cohesion across a variety of substances is essential, as different substances vary in their popularity and social acceptability among adolescents. For instance, smoking and drinking might be perceived as socially acceptable or even "cool" behaviors, whereas using substances like cocaine may be stigmatized. This study seeks to examine the impact of peer cohesion on a diverse range of substances to reconcile the seemingly conflicting predictions from these two streams of research.

### ***Hypothesis:***

Drawing on prior research, I have developed the following research questions and hypotheses.

First, I will examine whether peer cohesion of adolescents is associated with substance use. Based on the literature on behavioral and identity-related theories and social isolation

theory, I formulate a null hypothesis that reflects two competing theoretical perspectives.

**H1:** Peer cohesion is not associated with substance use in adolescents.

Second, I will examine whether peer substance use exposure is associated with adolescent substance use.

**H2:** Peer substance use exposure is positively associated with the substance use of adolescents.

## ■ **Methods**

The Add Health study includes approximately 20,000 nationally representative young adults and examines the influence of health behaviors from adolescence to early adulthood. The Institutional Review Board (IRB) at the University of North Carolina-Chapel Hill reviewed and approved the study, with written consent secured for each phase of data collection. Participants were initially surveyed while in grades 7 to 12 in 1995 and have been followed through four additional waves of data collection, concluding in 2018. This study focused on the first wave of the Add Health dataset in 1995 out of the five available waves, as it includes information on adolescents' substance use, peer cohesion, and their peers' substance use. The publicly available dataset for Wave I includes data from 6,504 respondents, representing about one-third of the full sample. At the time of data collection, the respondents in Wave I were between 12 and 21 years old. To focus specifically on adolescent substance use, I restricted the sample to individuals aged 12 to 18, thereby excluding 453 respondents aged 19 to 21. As a result, the final analytical sample consists of 6,051 respondents.

*Substance use (cigarettes, alcohol, cocaine, inhalants).* Adolescent substance use, defined as the tendency for adolescents to use substances such as alcohol, was measured through responses to four types of questions, each addressing a different substance: cigarettes, alcohol, cocaine, and inhalants. Participants were asked if they had ever tried cigarette smoking, whether they had consumed alcohol more than two or three times in their life, and the age at which they first tried cocaine or inhalants, with an option to indicate if they had never used these substances. The first two questions capture adolescents' substance use related to cigarettes and alcohol, represented as binary indicator variables. For the last two questions, which measure substance use involving cocaine and inhalants, age responses are converted into binary indicators.

*Peer cohesion.* Peer cohesion refers to the sense of support and care individuals perceive from their peers. In Wave I of the Add Health study, this was assessed through adolescents' responses to the question about how much they felt their peers cared about them. This question showcases peer cohesion by asking how cared-for individuals feel within their social group, reflecting their perceived support and belonging as measured on a 5-point Likert scale. In addition to peer cohesion, this study also incorporates adult care, which represents the support and care adolescents perceive from adults, such as parents and teachers. This variable is recognized as a critical protective factor against adolescent substance use. In the Add Health study, adult care was assessed through responses to a question

about how much they felt adults cared about them. Including this variable allows us to account for broader social and relational protective factors beyond peer cohesion.

*Peer substance use exposure.* Peer substance use exposure refers to the influence and relationships that peers may have on an individual's substance use behaviors. In Wave I of the Add Health study, peer substance use exposure was assessed through adolescents' responses to questions regarding their three closest peers: how many smoked at least one cigarette per day and how many consumed alcohol at least once a month. These questions effectively capture peer substance use exposure by focusing on the behaviors of the adolescents' close peers. This information provides a foundation for exploring potential links to peer influence.

## ■ Results and Discussion

The mean, standard deviation, minimum, and maximum values for the participants' scores are provided in Table 1, which also reports the percentages of substance use among adolescents. Smoking cigarettes and drinking alcohol are often classified as soft drugs because those substances are generally perceived to have a lower potential for addiction, abuse, and harmful physical or mental effects compared to hard drugs. In contrast, cocaine and inhalants are typically categorized as hard drugs. While inhalants are readily available and may be legal for their intended purposes, their substantial health dangers and high likelihood of addiction often place them in the hard drug category. Descriptive statistics in Table 1 support these classifications, showing that 55.1% of adolescents reported smoking and 54.3% reported drinking, whereas only 4.6% reported using cocaine, and 7.3% reported using inhalants. These results highlight the higher prevalence of soft drug use among adolescents compared to the lower prevalence of hard drug use. The mean age of participants is approximately 16 years, with ages ranging from 12 to 18. In terms of race, the majority of respondents are Caucasian, comprising 66.4% of the sample, while African American respondents make up 24.9%. The sample also includes 3,139 females (51.9%) and 2,912 males.

**Table 1:** Descriptive statistics. This table reports the descriptive statistics for substance use, peer cohesion, peer substance use exposure, and demographic variables.

Variable	Obs	Mean	Std. Dev.	Min	Max
<i>Smoking</i>	6,010	0.551	0.497	0	1
<i>Drinking</i>	6,004	0.543	0.498	0	1
<i>Cocaine</i>	6,051	0.046	0.210	0	1
<i>Inhalants</i>	6,051	0.073	0.259	0	1
<i>Peer_Cohesion</i>	6,035	4.252	0.792	1	6
<i>Peer_Smoking</i>	5,937	0.800	1.057	0	3
<i>Peer_Drinking</i>	5,920	1.075	1.164	0	3
<i>Adult_Care</i>	6,036	4.391	0.819	1	6
<i>Age</i>	6,051	15.804	1.604	12	18
<i>Caucasian</i>	6,038	0.664	0.472	0	1
<i>African American</i>	6,038	0.249	0.433	0	1
<i>Female</i>	6,051	0.519	0.500	0	1

The correlations between the primary variables of interest (dependent variables and main independent variables, excluding control variables) are presented in Table 2. The use of substances such as smoking, drinking, cocaine, and inhalants exhibits positive associations. Among these, smoking and drinking exhibit stronger correlations with each other, while cocaine and inhalants are also closely associated. The univariate analysis of substance use and peer cohesion reveals noteworthy findings. While peer cohesion shows a positive but nonsignificant association with soft drugs, such as smoking and drinking, it exhibits a negative and significant association with hard drugs, including cocaine and inhalants. Peer substance use exposure, specifically smoking and drinking, is positively and significantly correlated with smoking and drinking behaviors. Although the Wave I survey did not collect data on peer use of cocaine and inhalants, peer smoking and drinking are positively and significantly associated with the use of these hard drugs.

**Table 2:** Correlations among the interest variables. This table reports the correlations among substance use, peer cohesion, and peer substance use exposure. The correlation coefficient is displayed in bold if its significance level is at or below 10 percent.

	<i>Smoking</i>	<i>Drinking</i>	<i>Cocaine</i>	<i>Inhalants</i>	<i>Peer_Cohesion</i>	<i>Peer_Smoking</i>	<i>Peer_Drinking</i>
<i>Smoking</i>	<b>1</b>						
<i>Drinking</i>	<b>0.4755</b>	<b>1</b>					
<i>Cocaine</i>	<b>0.1322</b>	<b>0.1224</b>	<b>1</b>				
<i>Inhalants</i>	<b>0.1588</b>	<b>0.1458</b>	<b>0.3267</b>	<b>1</b>			
<i>Peer_Cohesion</i>	0.0057	-0.0002	<b>-0.0507</b>	<b>-0.0473</b>	<b>1</b>		
<i>Peer_Smoking</i>	<b>0.3735</b>	<b>0.3208</b>	<b>0.2121</b>	<b>0.1501</b>	<b>-0.0351</b>	<b>1</b>	
<i>Peer_Drinking</i>	<b>0.3643</b>	<b>0.4921</b>	<b>0.1689</b>	<b>0.1541</b>	-0.0165	<b>0.5044</b>	<b>1</b>

**Table 3:** Regression analysis of peer influence on adolescent substance use. This table reports the regression results of peer influence and adolescent substance use. Peer cohesion is positively associated with soft drug use but negatively associated with hard drug use. Z-statistics are presented in parentheses. Standardized Betas are presented in the third row. \*\*\* p<0.01, \*\* p<0.05, \* p<0.1.

Panel A. Model 1: Control variables

VARIABLES	(1)	(2)	(3)	(4)
	<i>Smoking</i>	<i>Drinking</i>	<i>Cocaine</i>	<i>Inhalants</i>
<i>Adult_Care</i>	-0.2454*** (-7.19)	-0.2256*** (-6.54)	-0.4921*** (-7.90)	-0.4263*** (-8.14)
	-0.4030	-0.3691	-1.9610	-1.3601
<i>Age</i>	0.2331*** (13.64)	0.3344*** (18.99)	0.1583*** (3.76)	-0.0448 (-1.40)
	0.7517	1.0752	1.2354	-0.2797
<i>Caucasian</i>	0.3677*** (4.34)	0.1377 (1.59)	-0.3468** (-1.96)	0.1079 (0.68)
	0.3476	0.1301	-0.7969	0.1985
<i>African American</i>	-0.2850*** (-3.08)	-0.3911*** (-4.14)	-0.8294*** (-3.76)	-0.3522* (-1.91)
	-0.2462	-0.3377	-1.7456	-0.5934
<i>Female</i>	0.0620 (1.14)	-0.0552 (-1.01)	-0.3468*** (-2.70)	-0.2640*** (-2.59)
	0.0622	-0.0554	-0.8434	-0.5140
<i>Constant</i>	-2.6008*** (-7.97)	-4.0695*** (-12.22)	-2.9734*** (-3.98)	0.0747 (0.13)
<i>Observations</i>	5,911	5,898	6,021	6,021
<i>Pseudo R<sup>2</sup></i>	0.0453	0.0641	0.0479	0.0277

Panel B. Model 2: Main interest variables

	(1)	(2)	(3)	(4)
VARIABLES	Smoking	Drinking	Cocaine	Inhalants
<b>Peer_Cohesion</b>	<b>0.0887**</b>	<b>0.0740*</b>	<b>-0.2024***</b>	<b>-0.1529**</b>
	(2.26)	(1.79)	(-2.60)	(-2.39)
	0.1403	0.1167	-0.7802	-0.4716
<b>Peer_Substance</b>	<b>0.7969***</b>	<b>0.9831***</b>		
	(23.69)	(30.27)		
	1.6915	2.2969		
<i>Adult_Care</i>	-0.1904***	-0.1691***	-0.4378***	-0.3873***
	(-5.04)	(-4.27)	(-6.60)	(-7.02)
	-0.3128	-0.2766	-1.7446	-1.2357
<i>Age</i>	0.1632***	0.1738***	0.1611***	-0.0432
	(8.98)	(8.76)	(3.83)	(-1.35)
	0.5263	0.5588	1.2574	-0.2697
<i>Caucasian</i>	0.2155**	0.0141	-0.2913	0.1464
	(2.40)	(0.15)	(-1.63)	(0.91)
	0.2037	0.0133	-0.6696	0.2694
<i>African American</i>	-0.2025**	-0.3310***	-0.8312***	-0.3551*
	(-2.08)	(-3.16)	(-3.76)	(-1.92)
	-0.1749	-0.2858	-1.7495	-0.5984
<i>Female</i>	0.0446	-0.0798	-0.3030**	-0.2294**
	(0.77)	(-1.29)	(-2.33)	(-2.23)
	0.0448	-0.0801	-0.7366	-0.4466
Constant	-2.5779***	-2.9456***	-2.4652***	0.4794
	(-7.14)	(-7.61)	(-3.20)	(0.79)
Observations	5,911	5,898	6,021	6,021
Pseudo R <sup>2</sup>	0.132	0.212	0.0509	0.0295

Table 3 reports the results of the hierarchical logistic regression analyses, which build on the univariate evidence presented in Table 2. Rather than estimating a single logistic model, Table 3 presents a stepwise hierarchical specification to illustrate how explanatory power evolves as key variables are introduced. Panel A reports Model 1, which includes only control variables, while Panel B reports Model 2, which adds the main variables of interest alongside the controls. Across all four outcomes, the inclusion of the main explanatory variables leads to substantial increases in model fit, as reflected in the pseudo R<sup>2</sup> values, highlighting the importance of peer influence in shaping adolescent substance use. In particular, the pseudo R<sup>2</sup> for the smoking regression in column (1) increases from 0.0453 to 0.132, while the pseudo R<sup>2</sup> for the drinking regression in column (2) rises from 0.0641 to 0.212. The pseudo R<sup>2</sup> values for the cocaine and inhalant regressions in columns (3) and (4) also increase, although to a lesser extent.

Overall, the multivariate regression results reveal that peer cohesion has a positive influence on the use of soft drugs, such as smoking and drinking, among adolescents. Conversely, peer cohesion has a negative influence on the use of hard drugs, including cocaine and inhalants, highlighting its complex role in substance use behaviors. The estimated average marginal effect of peer cohesion on smoking is 0.018 ( $p = 0.023$ ), indicating that higher peer cohesion increases the likelihood of smoking by approximately 1.8 percentage points. The corresponding marginal effect for drinking is 0.014 ( $p = 0.073$ ). In contrast, peer cohesion is associated with lower probabilities of hard drug use, with marginal effects of  $-0.008$  for cocaine use ( $p = 0.010$ ) and  $-0.010$  for inhalant use ( $p = 0.017$ ). In comparison, peer substance use exhibits substantially larger effects, with the

average marginal effect of peer smoking equal to 0.164 ( $p < 0.001$ ) and that of peer drinking equal to 0.180 ( $p < 0.001$ ).

To further examine the protective effects of different social relationships, we include adult care as a control variable, allowing for a comparison of the influence of peer cohesion and peer cohesion with that of adult care in mitigating adolescent substance use. Unlike peer cohesion, adult care exhibits a consistently negative impact on all forms of substance use, suggesting that greater adult care effectively reduces substance use among adolescents. These findings emphasize the distinct and contrasting influences of peer and adult relationships on adolescent substance use.

Peer substance use exposure is positively associated with substance use among adolescents, which is consistent with the univariate correlation results. I do not include peer substance use for cocaine and inhalants because the Wave I survey did not collect data on peer use of cocaine and inhalants. Age-related findings reveal that as adolescents grow older, they become more likely to engage in smoking, drinking, and cocaine use, whereas inhalant use decreases with age. Challenging perceived stereotypes, Caucasian adolescents appear more susceptible to substance use (except for inhalants), whereas African American adolescents report lower rates of substance use across all categories. Female adolescents are less likely than their male counterparts to use hard drugs, but there is no significant difference between genders in the use of soft drugs.

**Table 4:** Regression analysis of the interaction between peer influence and race and gender. This table reports regression results examining interaction effects between peer influence and race and gender. None of the interaction terms is statistically significant. Z-statistics are presented in parentheses. Standardized Betas are presented in the third row. \*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$ .

	(1)	(2)	(3)	(4)
VARIABLES	Smoking	Drinking	Cocaine	Inhalants
<b>Peer_Cohesion</b>	<b>0.2244**</b>	<b>0.2307**</b>	-0.0734	-0.0860
	(2.15)	(2.07)	(-0.43)	(-0.54)
<b>Peer_Substance</b>	<b>0.7962***</b>	<b>0.9830***</b>		
	(23.67)	(30.25)		
<i>Adult_Care</i>	-0.1942***	-0.1712***	-0.4442***	-0.3891***
	(-5.12)	(-4.31)	(-6.68)	(-7.03)
<i>Age</i>	0.1624***	0.1731***	0.1591***	-0.0446
	(8.93)	(8.72)	(3.78)	(-1.39)
<i>Peer_Cohesion</i>	-0.1386	-0.1627	-0.0892	0.0119
× <i>Caucasian</i>	(-1.30)	(-1.43)	(-0.49)	(0.07)
<i>Caucasian</i>	0.7932*	0.6905	0.0419	0.0866
	(1.74)	(1.43)	(0.06)	(0.13)
<i>Peer_Cohesion</i>	-0.1494	-0.1152	-0.3054	-0.1653
× <i>African American</i>	(-1.31)	(-0.95)	(-1.39)	(-0.87)
<i>African American</i>	0.4164	0.1412	0.3248	0.2823
	(0.86)	(0.27)	(0.38)	(0.37)
<i>Peer_Cohesion</i>	-0.0192	-0.0557	-0.0247	-0.0798
× <i>Female</i>	(-0.26)	(-0.71)	(-0.17)	(-0.66)
<i>Female</i>	0.1246	0.1569	-0.2093	0.0939
	(0.39)	(0.46)	(-0.35)	(0.19)
Constant	-3.1110***	-3.5698***	-2.8996***	0.2493
	(-5.91)	(-6.33)	(-3.05)	(0.31)
Observations	5,911	5,898	6,021	6,021
Pseudo R <sup>2</sup>	0.132	0.212	0.0519	0.0301

Given the significant main effects of race and gender, I examine whether the effect of peer cohesion varies across these characteristics by introducing interaction terms in Table 4. Building on the baseline specification in Table 3, I include in-

teractions between peer cohesion and indicators for Caucasian, African American, and Female. Across all four regressions, none of the interaction terms is statistically significant. These results suggest that although peer cohesion and race or gender independently influence adolescent substance use, the effect of peer cohesion does not differ systematically by race or gender.

**Table 5:** Regression analysis of peer influence on adult substance use. This table reports the regression results of peer influence and adult substance use. Peer cohesion is not associated with substance use in adults. Z-statistics are presented in parentheses. Standardized Betas are presented in the third row. \*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$ .

	(1)	(2)	(3)
VARIABLES	Smoking	Drinking	Cocaine
<b>Peer_Cohesion</b>	<b>0.1571</b>	<b>0.0353</b>	<b>-0.0154</b>
	(1.45)	(0.49)	(-0.07)
	<b>0.2925</b>	<b>0.0416</b>	<b>-0.0551</b>
<i>Teen_Substance</i>	0.6706***	0.5068***	1.0761***
	(5.17)	(6.60)	(2.89)
	1.1892	0.5704	1.3964
<i>Age</i>	-0.0165	-0.0706***	-0.0546
	(-0.47)	(-3.26)	(-0.86)
	-0.1036	-0.2812	-0.6604
<i>Caucasian</i>	0.4744**	0.0908	-0.8791***
	(2.19)	(0.76)	(-3.11)
	0.7717	0.0936	-2.7532
<i>African American</i>	0.7952***	0.0955	-0.7848**
	(3.47)	(0.71)	(-2.20)
	1.1615	0.0885	-2.2058
<i>Female</i>	-1.8104***	-0.3973***	-0.8034***
	(-12.79)	(-5.18)	(-3.48)
	-3.1865	-0.4431	-2.7178
<i>Constant</i>	-2.0844	3.5278***	-0.6791
	(-1.55)	(4.24)	(-0.28)
<i>Observations</i>	3,766	3,774	3,800

We demonstrate significant peer influence on adolescent substance use above. We further investigate peer influence as these respondents transition into adulthood, using longitudinal data from Wave V, administered between 2016 and 2018, when they were between 34 and 41 years old. Table 4 presents the results of a multiple hierarchical logistic regression analysis examining peer influence on adult substance use. While peer influence is significant during adolescence, peer cohesion is not significantly associated with substance use in adulthood. However, the results indicate that *Teen\_Substance* (adolescent substance use) is positively associated with adult substance use. This finding suggests that adolescents who engage in substance use are more likely to continue using substances into adulthood.

## ■ Conclusion

Between 2019 and 2020, adolescent substance use deaths rose by a staggering 94%, bringing attention to the roles of peer cohesion and peer substance use exposure as significant contributing factors. According to social learning theory, adolescents are likely to replicate behaviors exhibited by their peers, particularly when those behaviors are socially rewarded. It is expected that adolescents are more likely to mimic their peers' substance use when they have close friends who engage in such behaviors. The results confirm this expectation, show-

ing a positive association between peer substance use exposure and adolescents' substance use.

Regarding the relationship between peer cohesion and substance use, existing research offers competing predictions. Identity-related theories suggest a positive relationship, positing that peer cohesion amplifies the intrinsic rewards of engaging in socially accepted substance use. In contrast, studies on social isolation propose a negative relationship, arguing that stronger peer cohesion reduces social isolation, thereby decreasing the likelihood of substance use. Analysis of the data does not exclusively support one perspective, but it demonstrates that both perspectives are valid, depending on the specific substance being examined. Peer cohesion is positively associated with the use of "soft drugs," which are more socially accepted among adolescents. Conversely, it is negatively related to the use of "hard drugs," which carry a stronger stigma. These findings suggest that the seemingly conflicting expectations from the two research streams can be reconciled by considering the differing social acceptability of various substances. Peer cohesion influences adolescent drug use in contrasting ways. For example, it encourages the consumption of soft drugs due to their social acceptance within peer groups, while simultaneously discouraging the use of hard drugs because of their stigmatized status among adolescents. This dichotomy reflects the complex interplay between peer influence and drug perception in youth social dynamics. Additionally, the findings challenge prevailing stereotypes, showing that African American adolescents exhibit lower rates of substance use compared to their Caucasian counterparts.

This study has several limitations. First, it relied solely on cross-sectional data and only included data from the first wave, in which participants were adolescents. Additionally, contextual factors, such as neighborhood characteristics or socioeconomic status (SES), were neither measured nor controlled for in the analysis. Furthermore, parental substance use was not assessed, which may have either positively or negatively influenced adolescent substance use outcomes.

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