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### Authors

Chapman, Stephanie  
Ashack, Kurt  
Bell, Eric  
et al.

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# Risky business: Behaviors associated with indoor tanning in US high school students

Stephanie Chapman<sup>1</sup> MS, Kurt Ashack<sup>1</sup> MD, Eric Bell<sup>2</sup> MPH, Myra Ann Sendelweck<sup>3</sup> ME, Robert Dellavalle MD PhD MSPH<sup>3,4,5</sup>

Affiliations: <sup>1</sup>Michigan State University College of Human Medicine, Grand Rapids, Michigan, <sup>2</sup>Colorado Department of Public Health and Environment, Denver, Colorado, <sup>3</sup>Department of Dermatology, University of Colorado Anschutz Medical Campus, Aurora, Colorado, <sup>4</sup> Dermatology Service, U.S. Department of Veterans Affairs, Eastern Colorado Health Care System, Denver, Colorado, <sup>5</sup>Department of Epidemiology, Colorado School of Public Health, University of Colorado Anschutz Medical Campus, Aurora, Colorado

Corresponding Author: Robert P. Dellavalle MD, PhD, MSPH, Chief, Dermatology Service, Department of Veteran Affairs Medical Center, 1055 Clermont Street, Box 165, Denver, CO 80220, Email: robert.dellavalle@ucdenver.edu

## Abstract

**Background:** Associations between indoor tanning and other risky behaviors, such as sexual activity and substance abuse, among U. S. high school students has not been extensively studied.

**Objective:** To examine risky health related behaviors associated with indoor tanning among U.S. high school students.

**Methods:** Results from the Youth Risk Behavior Surveillance System (YRBSS) 2013 in 14 different states were analyzed. Participants were 90,414 high school students. Responses to questions assessing indoor tanning, sexual activity, and drug use were analyzed.

**Results:** Sexual activity was associated with indoor tanning in 10 of 14 states, with Nebraska having the strongest association (adjusted odds ratio, 3.8; 95% CI, 2.4-6.2;  $p < 0.001$ ). Indoor tanning was also associated with use of alcohol, marijuana, ecstasy, cocaine, prescription medications, and cigarettes.

**Limitations:** Only 15 states asked students about their personal history of indoor tanning, and Minnesota was excluded from our analysis as they administered a non-YRBS questionnaire. Additionally, our study only analyzed results from the 2013 YRBS. Lastly, our data was analyzed in 14 individual data sets, giving a higher likelihood of Type 1 error.

**Conclusions:** High school students utilizing indoor tanning are more likely to engage in sexual activity and substance abuse as compared to students who do not indoor tan.

*Keywords: indoor tanning, high school tanning, sexual activity, preventative medicine, substance use, preventative counseling*

## Introduction

Despite the fact that ultraviolet (UV) radiation is a group 1 carcinogen, many high school students still engage in indoor tanning. Indoor tanning exposes teenagers to intense UV radiation and increases their lifetime risk for melanoma (59%), basal cell carcinoma (40%), and squamous cell carcinoma (102%), [1].

Recently, indoor tanning use among adolescents was linked with risky health-related behaviors [2, 3]. There is also evidence to suggest that excessive indoor tanning may be an addictive behavior and also associated with other psychiatric disorders including depression [4, 5]. Physiologic mechanisms also likely contribute to indoor tanning behavior [4, 6, 7]. Despite these associations with indoor tanning, the literature remains scarce with respect to sexual activity and indoor tanning among high school teens [3].

Furthermore, there is very little information characterizing differences in sexual practices or substance use and indoor tanning across different states. Data for United States (US) high school students does exist, but there is little data regarding which states were included in these studies individually [2, 3, 7]. This is of interest as regional differences in indoor tanning and sexual activity and substance use may exist given different state legislation regarding

indoor tanning restrictions for minors, substances such as marijuana use, steroid testing, and requirements for providing sexual education to high school students [8, 9].

This study analyzes results from surveys of high school students in 14 different states to examine state-level associations between risky health-related behaviors and indoor tanning.

## Methods

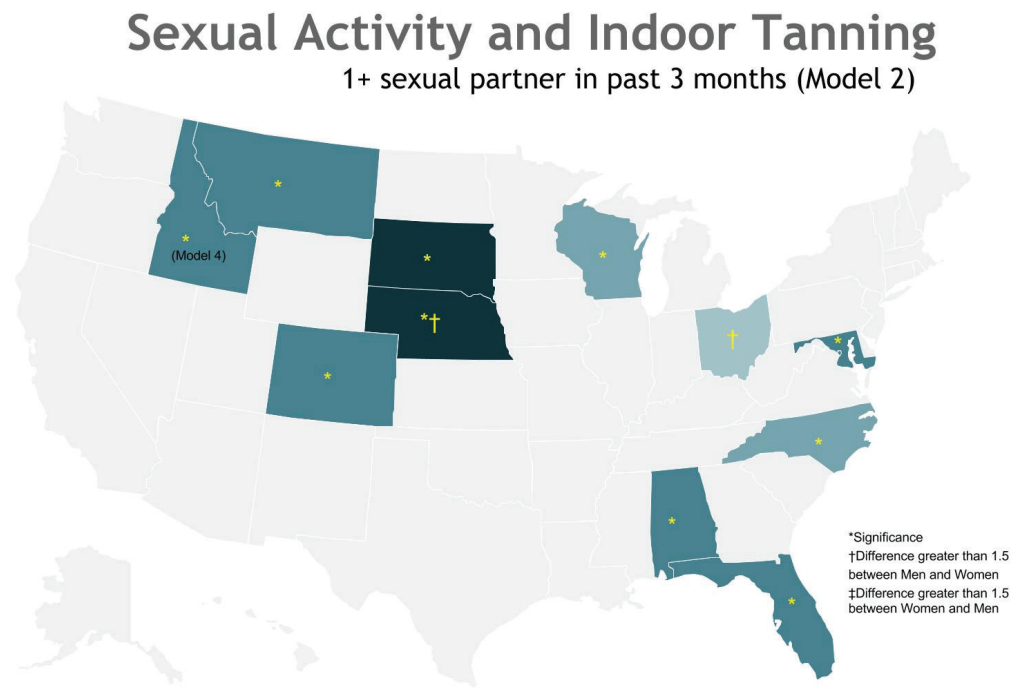
### Survey

This study was exempt from IRB approval due to the public availability of the data used.

The Youth Risk Behavior Surveillance System (YRBSS) was developed by the Centers for Disease Control and Prevention (CDC) to track health risk behaviors among young adults in the United States through the use of surveys. These surveys are administered biennially and compile information on the prevalence and frequency of behaviors such as adolescent drug use and sexual practices, in addition to other health related behaviors such as the use of indoor tanning beds. Understanding these trends can aid in the development of targeted public health measures to identify and mitigate leading causes of morbidity facing youth in the United States.

### Data analysis

This study seeks to determine whether the practice of indoor tanning can be associated with youth sexual practices and other risky health related behaviors including substance abuse. The data were stratified over 14 states to determine variation across the United States. Students in grades 9-12 were asked if they had 1+ sexual partner in the past 3 months and 3+ sexual partners ever. Students were also asked about any lifetime use of substances including marijuana, cocaine, inhalants, ecstasy, heroin, methamphetamine, anabolic steroids, and prescription medications as well as use within the

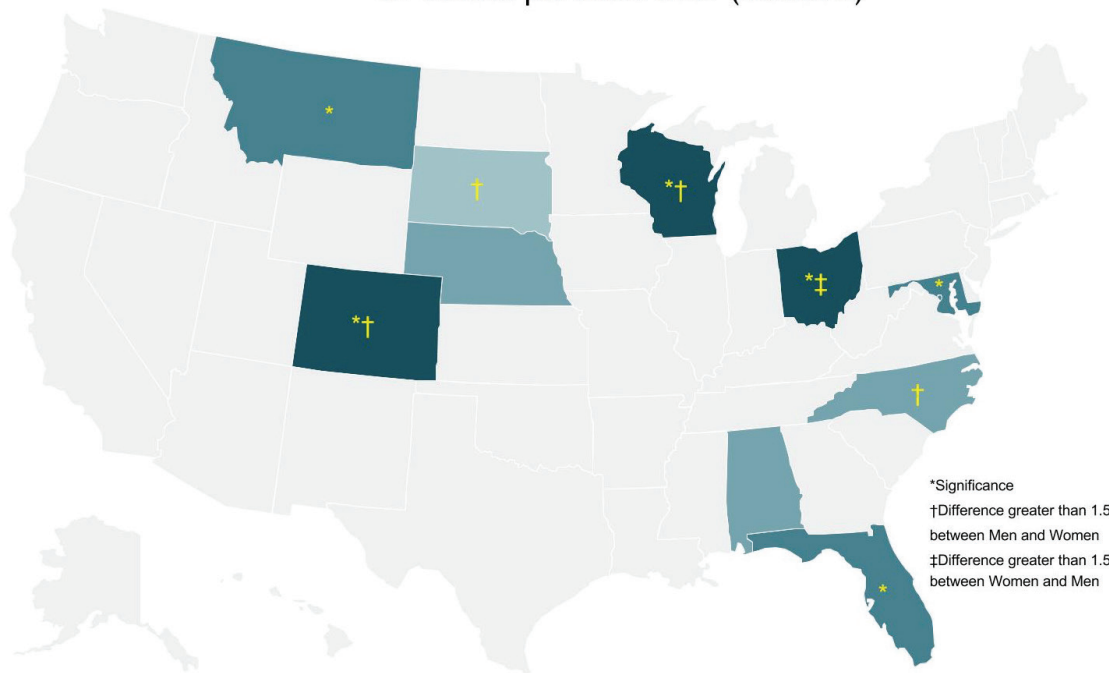


**Figure 1.** Sexual Activity and Indoor Tanning. Statewide associations between indoor tanning and 1+ sexual partner in the past 3 months.

past 30 days of cigarettes, alcohol, and marijuana. Associations between these behaviors and indoor tanning were analyzed using logistic regression modeling. For multivariate analysis covariates were selected using a backwards stepwise model. A total of 4 models were established. For some states certain covariates of interest were not available within the publicly available YRBS data set, and therefore not all models included every state's data. Model 1 was run for all states and included the following covariates: gender, age, marijuana use in the past 30 days, cigarette smoking in the past 30 days, and consumption of at least 1 alcohol drink in the previous 30 days. Model 2 was run for 10 of the 14 states including: Alabama, Colorado, Florida, Maryland, Montana, North Carolina, Nebraska, Ohio, South Dakota, and Wisconsin and included the following covariates: gender, age, 3+ sexual partners ever, and 1+ sexual partner(s) in the previous 3 months. Model 3 was run for 7 of the 14 states including Alabama, Colorado, Idaho, Maryland, Montana, Nebraska, and Utah. This model included the following covariates: gender, age, lifetime use of cocaine, ecstasy, prescription medications not prescribed by a physician, steroids, and marijuana. Model 4 was run for 6 of the 14 states including Alabama, Colorado, Idaho, Maryland, Montana, and Nebraska. This model included the following covariates: gender,

## Sexual Activity and Indoor Tanning

### 3+ sexual partners ever (Model 2)



**Figure 2.** Sexual Activity and Indoor Tanning. Statewide associations between indoor tanning and greater than 3 lifetime sexual partners.

age, lifetime use of cocaine, ecstasy, prescription medications not prescribed by a physician, steroids, marijuana, and 1+ sexual partners in the previous 3 months. A p-value <0.05 was determined to be statistically significant for multivariate analysis. A p-value of <0.0035 was determined to be statistically significant for univariate analysis.

## Results

In total, data were collected from 90,414 high school students. Females were more likely than males to utilize indoor tanning in 13 of the 14 states (**Table 1**). Number needed to harm (NNH) was also included in **Table 1** to demonstrate clinical significance of our data. NNH values ranged from 3-33. NNH was calculated under the assumption that the associated behavior is itself a harm.

High school students utilizing indoor tanning were more likely to have engaged in sexual activity within the past 3 months in 10 of the 14 states (**Table 2**). **Figure 1** depicts the regional differences between indoor tanning and sexual activity in the past month. High school students utilizing indoor tanning were also more likely to have engaged in sexual activity

with greater than 3 lifetime partners in 8 of the 14 states (**Table 2**). **Figure 2** shows the regional differences between indoor tanning and sexual activity with greater than 3 lifetime partners.

Additionally, males were more likely to have 1+ sexual partner in the past 3 months if they tanned in 7 of the 14 states. Females were more likely to have 1+ sexual partner if they tanned in North Carolina (adjusted odds ratio, 2.2; 95% CI, 1.0-4.6; p=0.04) and South Dakota

(adjusted odds ratio, 3.3; 95% CI, 1.8-5.9; p<0.0001, **Table 2**).

Males were also more likely to have 3+ sexual partners if they utilized indoor tanning in 4 of the 14 states. Females were more likely to have 3+ sexual partners if they utilized indoor tanning in Montana (adjusted odds ratio, 1.8; 95% CI, 1.3-2.5; p<0.001) and Ohio (adjusted odds ratio, 3.1; 95% CI, 1.6-6.0, p<0.0001, **Table 2**).

High school students utilizing indoor tanning were more likely to use steroids not prescribed by a physician in half of the states (7 of 14), while the other half of states did not report this data. Indoor tanning was also associated with consumption of at least 1 alcohol drink in the past month in 13 of the 14 states. In 7 of the 14 states high school students were more likely to have used marijuana at least 1 time in the past month if they also participated in indoor tanning. Cigarette use in the past 30 days (5 of 14) and lifetime use of ecstasy (3 of 14), cocaine (1 of 14), and prescription medications not prescribed by a physician (3 of 14) was also associated with indoor tanning with statistical significance (**Table 2**).

## Discussion

This study demonstrates that indoor tanning is associated with various risky health-related behaviors among high school students across 14 states. There was a statistically significant association between indoor tanning and having 1+ sexual partner in the past 3 months in all but one state reporting this data. Our findings corroborate a previous report of a positive association between indoor tanning and ever having sexual intercourse among high school students [3]. These associations may be related to state specific sex education programs. Currently in the United States there are 24 states that mandate sex education [9]. Among the states included in our study demonstrating a statistically significant association between indoor tanning and sexual activity, only Maryland, Montana, and North Carolina provide state mandated sex education. In both North Carolina and Maryland, sex education covers both abstinence and contraception whereas in Montana sex education involves abstinence only. When provided, sex education in Florida and Wisconsin stresses abstinence only and sex education in Colorado and Alabama covers both abstinence and contraception. No data were reported for Nebraska and South Dakota. Recent work also suggests that indoor tanning habits may be influenced by sexual orientation and race/ethnicity [10].

There was a positive association between indoor tanning and lifetime use of anabolic steroids not prescribed by a physician in all states that reported these data (7 of 14). As previously reported [2], this association was even stronger among males in the majority of states including Alabama, Colorado, Maryland, Montana, Nebraska, and Utah with females being more likely in Idaho. Traditionally, athletes use anabolic steroids to achieve a competitive edge and improve overall appearance. Historically, use has been greater among males, perhaps influenced by cultural and social factors. The purchase of anabolic steroids without a prescription is illegal, but there are opportunities online and through other markets, allowing these products to be relatively accessible to high school students. Furthermore, none of the states included in our study routinely test high school students for steroid abuse. In 2006, New Jersey was the first state to implement steroid testing of high school athletes followed by Florida, Texas, and Illinois.

To date, only New Jersey and Illinois have continued routine steroid testing of high school athletes as other states have determined the expenses of testing outweigh the perceived benefits.

Association of indoor tanning with marijuana use in the past 30 days was statistically significant in New Hampshire, Idaho, Wisconsin, Colorado, Florida, and Montana. Among these states, New Hampshire has legalized medical marijuana and Colorado has legalized marijuana for medical and recreational purposes. There was also a statistically significant association between indoor tanning and any lifetime use of marijuana in Montana, Colorado, Idaho, Nebraska, Maryland, and Utah. In addition to Colorado, Montana and Maryland have legalized medical marijuana.

Our study has several important limitations. First, only 15 states asked students about their personal history of indoor tanning use, and Minnesota was excluded from our analysis as they administered a non-YRBS questionnaire with different covariates, preventing the data from fitting into any of the four logistic regression models. These factors limit the overall generalizability of our study. Additionally, Colorado was the only state included in our study that did not achieve an overall survey response rate of >60% on the 2013 YRBS. Therefore, statistical analysis of Colorado may not be representative of the majority of high school students in that state. Another limitation is that some of the included states failed to report data on one or more risky health related behaviors. Statistically, our data was limited due to the fact that statistical analysis was run on 14 states individually giving a high probability of type I error. Thus, there is a 48.8% chance of observing a statistically significant result even if one does not exist unless the p-value for significance is changed to 0.0035. However, our data in **Table 1** identifies all p-values <0.05 and 0.0035 to account for this. Finally, our study only analyzed results from the 2013 YRBS.

This study demonstrates associations between indoor tanning and history of sexual activity, lifetime use of steroids, use of alcohol, marijuana, ecstasy, cocaine, and prescription medications among high school students. Studies have indicated that indoor tanning is likely an addictive behavior [4]. Our data



suggest that participation in an addictive behavior such as indoor tanning is likely accompanied by other addictive behaviors including abuse of substances. Knowledge of these associations may help guide preventative health efforts for adolescents. In the future, analysis of the YRBS from a greater number of states may provide a more comprehensive understanding of risky health-related behaviors among high school students in North America. Additionally, it would be beneficial to understand behavior trends by analyzing YRBS results from sequential survey years.

### Abbreviations

UV – Ultraviolet

YRBSS – Youth Risk Behavior Surveillance System

CDC – Centers for Disease Control and Prevention

STIs – Sexually Transmitted Infections

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**Table 1.** Univariate Analysis: Weighted Percentage of Tanning and Nontanning Students Reporting Substance Use<sup>a,b</sup>

State	Characteristics	Tanning at Least Once in Past 12 Months, % (No.)	No Tanning in Past 12 Months, % (No.)	Odds Ratio (95% CI)
Alabama				
	Sex			
	Female	65.9 (216/314)	45.7 (560/1214)	2.4 (1.8-3.3)
	Male	32.0 (93/314)	54.0 (650/1214)	
	Unknown	2.1 (5/314)	0.3 (4/1214)	
	Age, y			
	<12	0.2 (1/314)	0.1 (1/1213)	
	13	0.3 (1/314)	0.1 (1/1213)	
	14	5.1 (17/314)	7.0 (85/1213)	
	15	21.2 (73/314)	28.8 (377/1213)	
	16	28.9 (112/314)	25.0 (349/1213)	
	17	21.4 (63/314)	21.1 (237/1213)	
	>18	23.1 (47/314)	17.8 (163/1213)	
	Any lifetime use			
	Marijuana	44.6 (117/283)	31.8 (354/1175)	1.7 (1.3-2.3)
	Cocaine	17.0 (49/310)	4.0 (46/1206)	4.9 (3.1-7.9)
	Inhalants <sup>d</sup>	24.2 (69/313)	10.1 (121/1206)	2.9 (2.0-4.1)
	Ecstasy	18.6 (54/310)	4.9 (58/1206)	4.4 (2.9-6.8)
	Heroin	12.8 (35/308)	3.2 (32/1198)	4.4 (2.5-7.7)
	Meth	15.7 (47/311)	3.8 (38/1206)	4.8 (2.9-7.9)
	Steroids <sup>e</sup>	15.4 (46/312)	3.8 (41/1203)	4.7 (2.8-7.7)
	Prescription drugs <sup>f</sup>	32.5 (97/314)	16.4 (202/1208)	2.5 (1.8-3.4)
	Use within last 30d			
	Cigarettes at least once	27.6 (73/267)	15.7 (177/1143)	2.0 (1.5-2.9)
	Alcoholic drink at least once	53.1 (129/258)	30.8 (326/1074)	2.5 (1.9-3.4)
	Binge drank at least once <sup>g</sup>	30.7 (83/278)	16.8 (194/1166)	2.2 (1.6-3.0)
	Marijuana at least once	25.6 (72/290)	17.3 (193/1188)	1.7 (1.2-2.3)
	Sexual Activity			
	3+ sexual partners ever	52.4 (124/252)	38.2 (384/1074)	1.8 (1.3-2.4)
	1+ Sexual partner(s) in previous 3 months	52.9 (120/254)	31.8 (320/1080)	2.4 (1.8-3.3)
Colorado				
	Sex			
	Female	64.5 (551/842)	48.3 (5613/11302)	2.0 (1.6-2.5)

State	Characteristics	Tanning at Least Once in Past 12 Months, % (No.)	No Tanning in Past 12 Months, % (No.)	Odds Ratio (95% CI)
	Male	33.8 (277/842)	51.1 (5609/11302)	
	Unknown	1.7 (14/842)	0.6 (80/11302)	
	Age, y			
	<12	2.7 (31/837)	0.2 (20/11286)	
	13	0.1 (1/837)	0.3 (35/11286)	
	14	6.9 (66/837)	17.8 (1993/11286)	
	15	19.8 (165/837)	26.2 (3059/11286)	
	16	22.3 (200/837)	24.8 (2865/11286)	
	17	31.6 (242/837)	23.1 (2471/11286)	
	>18	16.6 (132/837)	7.7 (843/11286)	
	Any lifetime use			
	Marijuana	66.2 (522/798)	35.3 (4067/11115)	3.6 (2.9-4.4)
	Cocaine	23.1 (200/834)	4.0 (500/11235)	7.2 (5.5-9.3)
	Inhalants <sup>d</sup>	26.2 (217/836)	5.4 (664/11221)	6.2 (4.9-7.9)
	Ecstasy	27.8 (234/835)	5.0 (631/11230)	7.4 (5.8-9.3)
	Heroin	17.7 (161/833)	1.4 (159/11193)	14.7 (10.6-20.3)
	Meth	18.2 (167/831)	1.8 (216/11170)	12.0 (8.8-16.3)
	Steroids <sup>e</sup>	20.8 (177/836)	1.5 (165/11225)	16.8 (12.2-23.0)
	Prescription drugs <sup>f</sup>	38.6 (312/837)	11.5 (1400/11226)	4.9 (4.0-6.0)
	Use within last 30d			
	Cigarettes at least once	28.5 (258/798)	9.6 (1181/11179)	3.8 (3.0-4.7)
	Alcoholic drink at least once	63.1 (473/745)	29.1 (3312/10883)	4.2 (3.4-5.1)
	Binge drank at least once <sup>g</sup>	41.0 (333/764)	15.3 (1816/10913)	3.9 (3.1-4.7)
	Marijuana at least once	44.5 (368/802)	18.1 (2180/11141)	3.6 (3.0-4.4)
	Sexual Activity			
	3+ sexual partners ever	53.9 (376/657)	25.4 (2691/9720)	3.4 (2.8-4.3)
	1+ Sexual partner(s) in previous 3 months	50.7 (366/660)	21.6 (2261/9716)	3.7 (3.0-4.6)
Florida				
	Sex			
	Female	52.9 (213/403)	48.5 (2571/5126)	1.2 (1.0-1.5)
	Male	44.7 (180/403)	50.7 (2516/5126)	
	Unknown	2.4 (10/403)	0.8 (39/5126)	



State	Characteristics	Tanning at Least Once in Past 12 Months, % (No.)	No Tanning in Past 12 Months, % (No.)	Odds Ratio (95% CI)
	Age, y			
	<12	3.5 (16/398)	0.1 (5/5111)	
	13	0.6 (3/398)	0.2 (9/5111)	
	14	7.0 (27/398)	10.3 (539/5111)	
	15	16.8 (75/398)	24.4 (1284/5111)	
	16	23.1 (93/398)	25.7 (1367/5111)	
	17	26.6 (100/398)	24.8 (1220/5111)	
	>18	22.4 (84/398)	14.5 (687/5111)	
	Any lifetime use			
	Marijuana	61.0 (223/363)	37.1 (1814/4927)	2.7 (2.1-3.3)
	Cocaine	25.4 (102/390)	4.1 (211/5016)	8.0 (6.0-10.5)
	Inhalants <sup>d</sup>	--	--	--
	Ecstasy	--	--	--
	Heroin	--	--	--
	Meth	--	--	--
	Steroids <sup>e</sup>	20.5 (82/387)	2.6 (132/4014)	9.7 (7.1-13.3)
	Prescription drugs <sup>f</sup>	32.6 (126/389)	11.2 (564/5008)	3.8 (3.0-4.9)
	Use within last 30d			
	Cigarettes at least once	33.0 (127/378)	9.2 (458/5065)	4.9 (3.8-6.2)
	Alcoholic drink at least once	62.2 (231/365)	32.9 (1615/4928)	3.4 (2.7-4.2)
	Binge drank at least once <sup>g</sup>	44.6 (168/370)	14.6 (728/4965)	4.7 (3.8-6.0)
	Marijuana at least once	44.1 (168/376)	20.4 (1001/4964)	3.1 (2.5-3.9)
	Sexual Activity			
	3+ sexual partners ever	61.4 (191/324)	33.8 (1592/4768)	3.1 (2.5-4.0)
	1+ Sexual partner(s) in previous 3 months	57.5 (183/324)	28.8 (1356/4781)	3.4 (2.6-4.3)
Idaho				
	Sex			
	Female	71.7 (158/225)	45.9 (753/1643)	3.0 (2.2-4.1)
	Male	28.3 (67/225)	54.0 (889/1643)	
	Unknown	0.0 (0/225)	0.1 (1/1643)	
	Age, y			
	<12	0.9 (2/225)	0.2 (2/1641)	
	13	0.0 (0/225)	0.1 (1/1641)	

State	Characteristics	Tanning at Least Once in Past 12 Months, % (No.)	No Tanning in Past 12 Months, % (No.)	Odds Ratio (95% CI)
	14	5.5 (15/225)	12.4 (199/1641)	
	15	9.9 (24/225)	26.0 (434/1641)	
	16	26.2 (62/225)	25.0 (427/1641)	
	17	37.1 (80/225)	25.3 (399/1641)	
	>18	20.4 (42/225)	11.0 (179/1641)	
	Any lifetime use			
	Marijuana	50.8 (110/216)	27.0 (445/1624)	2.8 (2.1-3.8)
	Cocaine	13.1 (29/219)	4.3 (72/1616)	3.4 (2.1-5.5)
	Inhalants <sup>d</sup>	15.5 (35/222)	7.7 (133/1641)	2.2 (1.4-3.3)
	Ecstasy	16.1 (34/223)	5.3 (92/1641)	3.4 (2.2-5.3)
	Heroin	5.6 (14/221)	1.5 (29/1640)	3.9 (1.9-7.7)
	Meth	6.2 (15/222)	2.2 (38/1634)	2.9 (1.5-5.6)
	Steroids <sup>e</sup>	6.5 (16/223)	2.0 (36/1642)	3.5 (1.9-6.7)
	Prescription drugs <sup>f</sup>	33.1 (73/223)	14.0 (236/1638)	3.1 (2.2-4.3)
	Use within last 30d			
	Cigarettes at least once	22.2 (48/217)	10.6 (166/1602)	2.4 (1.7-3.5)
	Alcoholic drink at least once	52.3 (107/209)	24.9 (393/1564)	3.3 (2.4-4.5)
	Binge drank at least once <sup>g</sup>	38.9 (83/219)	15.2 (250/1617)	3.6 (2.6-4.9)
	Marijuana at least once	30.7 (65/219)	13.0 (218/1633)	3.0 (2.1-4.2)
	Sexual Activity			
	3+ sexual partners ever	--	--	--
	1+ Sexual partner(s) in previous 3 months	54.7 (112/215)	24.7 (383/1563)	(3.7 (2.7-5.0))
Maryland				
	Sex			
	Female	49.7 (3091/5663)	49.9 (22501/44502)	1.1 (1.0-1.2)
	Male	45.9 (2364/5663)	49.7 (21825/44502)	
	Unknown	4.4 (208/5663)	0.4 (176/44502)	
	Age, y			
	<12	4.0 (251/5635)	0.3 (180/44438)	
	13	1.4 (82/5635)	0.3 (100/44438)	
	14	11.1 (580/5635)	15.9 (7445/44438)	
	15	20.0 (1117/5635)	25.6 (12031/44438)	
	16	22.9 (1418/5635)	25.5 (11602/44438)	

State	Characteristics	Tanning at Least Once in Past 12 Months, % (No.)	No Tanning in Past 12 Months, % (No.)	Odds Ratio (95% CI)
	17	27.0 (1492/5635)	23.7 (9746/44438)	
	>18	13.6 (695/5635)	8.7 (3334/44438)	
	Any lifetime use			
	Marijuana	63.0 (2959/4669)	32.7 (13834/43314)	3.5 (3.2-3.8)
	Cocaine	29.7 (1596/5510)	3.5 (1650/44182)	11.8 (10.7-13.0)
	Inhalants <sup>d</sup>	34.4 (1793/5515)	7.2 (3156/44118)	6.8 (6.2-7.4)
	Ecstasy	35.7 (1862/5499)	5.0 (2321/44128)	10.6 (9.7-11.6)
	Heroin	29.2 (1496/5462)	1.9 (928/43919)	21.1 (18.8-23.7)
	Meth	28.1 (1462/5507)	2.2 (1074/44178)	17.5 (15.6-19.6)
	Steroids <sup>e</sup>	28.3 (1470/5487)	2.2 (1012/44162)	17.7 (15.8-19.8)
	Prescription drugs <sup>f</sup>	40.5 (2198/5525)	12.0 (5614/44297)	5.0 (4.6-5.4)
	Use within last 30d			
	Cigarettes at least once	38.4 (1867/4681)	8.8 (4473/42296)	6.5 (6.0-7.1)
	Alcoholic drink at least once	58.9 (2805/4493)	28.6 (12882/42674)	3.6 (3.3-3.9)
	Binge drank at least once <sup>g</sup>	41.1 (2137/4755)	14.6 (6953/43127)	4.1 (3.8-4.4)
	Marijuana at least once	39.8 (1928/4804)	17.2 (7402/43583)	3.2 (2.9-3.5)
	Sexual Activity			
	3+ sexual partners ever	58.8 (2260/3724)	29.0 (11620/39658)	3.5 (3.2-3.8)
	1+ Sexual partner(s) in previous 3 months	56.4 (2215/3736)	24.6 (10047/39690)	4.0 (3.6-4.3)
Montana				
	Sex			
	Female	71.9 (467/649)	44.6 (1935/4158)	3.2 (2.6-3.9)
	Male	27.6 (178/649)	55.0 (2205/4158)	
	Unknown	0.6 (4/649)	0.4 (18/4158)	
	Age, y			
	<12	1.3 (9/648)	0.1 (7/4153)	
	13	0.2 (1/648)	0.3 (11/4153)	
	14	6.7 (49/648)	10.9 (489/4153)	
	15	18.2 (124/648)	26.0 (1146/4153)	
	16	22.6 (160/648)	24.7 (1048/4153)	
	17	32.5 (196/648)	24.4 (929/4153)	
	>18	18.6 (109/648)	13.7 (523/4153)	

State	Characteristics	Tanning at Least Once in Past 12 Months, % (No.)	No Tanning in Past 12 Months, % (No.)	Odds Ratio (95% CI)
	Any lifetime use			
	Marijuana	61.3 (383/625)	33.8 (1373/4091)	3.1 (2.6-3.7)
	Cocaine	14.9 (104/624)	4.9 (208/4014)	3.4 (2.6-4.5)
	Inhalants <sup>d</sup>	19.8 (138/648)	8.2 (356/4146)	2.8 (2.2-3.5)
	Ecstasy	17.2 (120/645)	6.5 (286/4143)	3.0 (2.3-3.8)
	Heroin	7.3 (59/644)	1.7 (74/4123)	4.7 (3.2-7.0)
	Meth	8.1 (65/643)	2.6 (118/4145)	3.3 (2.3-4.7)
	Steroids <sup>e</sup>	8.4 (63/645)	1.6 (74/4141)	5.8 (4.0-8.4)
	Prescription drugs <sup>f</sup>	29.8 (199/647)	13.8 (577/4152)	2.7 (2.2-3.2)
	Use within last 30d			
	Cigarettes at least once	24.9 (159/606)	13.6 (529/4001)	2.1 (1.7-2.6)
	Alcoholic drink at least once	65.2 (381/584)	32.9 (1248/3820)	3.8 (3.2-4.6)
	Binge drank at least once <sup>g</sup>	48.8 (304/619)	19.7 (789/4024)	3.9 (3.2-4.7)
	Marijuana at least once	35.2 (228/636)	18.8 (781/4124)	2.4 (1.9-2.8)
	Sexual Activity			
	3+ sexual partners ever	59.9 (342/570)	34.5 (1314/3868)	2.8 (2.4-3.4)
	1+ Sexual partner(s) in previous 3 months	58.2 (331/574)	30.6 (1164/3881)	3.2 (2.6-3.8)
N o r t h Carolina				
	Sex			
	Female	61.5 (110/182)	47.7 (819/1631)	1.8 (1.3-2.5)
	Male	37.8 (71/182)	52.3 (811/1631)	
	Unknown	0.7 (1/182)	0.03 (1/1631)	
	Age, y			
	<12	1.1 (2/182)	0.1 (1/1630)	
	13	1.1 (2/182)	11.5 (216/1630)	
	14	5.8 (13/182)	11.5 (216/1630)	
	15	15.6 (36/182)	24.6 (477/1630)	
	16	26.2 (46/182)	26.5 (431/1630)	
	17	31.9 (52/182)	21.7 (290/1630)	
	>18	18.3 (31/182)	15.4 (211/1630)	
	Any lifetime use			
	Marijuana	53.9 (92/174)	38.7 (602/1598)	1.9 (1.3-2.6)
	Cocaine	8.8 (18/182)	4.3 (66/1621)	2.1 (1.2-3.9)

State	Characteristics	Tanning at Least Once in Past 12 Months, % (No.)	No Tanning in Past 12 Months, % (No.)	Odds Ratio (95% CI)
	Inhalants <sup>d</sup>	--	--	--
	Ecstasy	--	--	--
	Heroin	--	--	--
	Meth	--	--	--
	Steroids <sup>e</sup>	6.2 (12/181)	1.5 (27/1630)	4.4 (2.1-9.2)
	Prescription drugs <sup>f</sup>	30.1 (53/180)	15.7 (248/1624)	2.3 (1.6-3.4)
	Use within last 30d			
	Cigarettes at least once	28.3 (49/178)	12.8 (179/1603)	2.7 (1.8-4.0)
	Alcoholic drink at least once	47.6 (75/161)	30.2 (451/1541)	2.1 (1.5-3.0)
	Binge drank at least once <sup>g</sup>	28.6 (49/177)	12.7 (196/1610)	2.8 (1.9-4.1)
	Marijuana at least once	35.0 (60/176)	21.7 (326/1613)	1.9 (1.4-2.8)
	Sexual Activity			
	3+ sexual partners ever	52.9 (68/133)	37.3 (429/1216)	1.9 (1.3-2.8)
	1+ Sexual partner(s) in previous 3 months	50.1 (65/134)	29.9 (340/1217)	2.4 (1.6-3.5)
North Dakota				
	Sex			
	Female	77.8 (292/378)	41.9 (657/1580)	4.9 (3.7-6.4)
	Male	22.1 (85/378)	57.9 (917/1580)	
	Unknown	0.2 (1/378)	0.3 (6/1580)	
	Age, y			
	<12	0.6 (3/377)	0.2 (2/1579)	
	13	0 (0/377)	0.2 (2/1579)	
	14	5.0 (16/377)	8.6 (124/1579)	
	15	16.7 (59/377)	26.1 (398/1579)	
	16	20.1 (86/377)	25.8 (451/1579)	
	17	33.9 (127/377)	23.3 (368/1579)	
	>18	23.7 (86/377)	15.9 (234/1579)	
	Any lifetime use			
	Marijuana	--	--	--
	Cocaine	--	--	--
	Inhalants <sup>d</sup>	16.2 (59/374)	9.1 (137/1566)	1.9 (1.4-2.7)
	Ecstasy	--	--	--
	Heroin	--	--	--

State	Characteristics	Tanning at Least Once in Past 12 Months, % (No.)	No Tanning in Past 12 Months, % (No.)	Odds Ratio (95% CI)
	Meth	7.4 (30/375)	2.6 (43/1580)	3.1 (1.8-5.1)
	Steroids <sup>e</sup>	--	--	--
	Prescription drugs <sup>f</sup>	25.6 (93/371)	15.7 (248/1578)	1.8 (1.4-2.4)
	Use within last 30d			
	Cigarettes at least once	31.6 (112/357)	15.7 (224/1517)	2.5 (1.9-3.3)
	Alcoholic drink at least once	61.0 (210/346)	29.2 (421/1481)	3.8 (3.0-4.9)
	Binge drank at least once <sup>g</sup>	41.9 (154/370)	17.1 (258/1550)	3.5 (2.7-4.5)
	Marijuana at least once	23.9 (92/374)	14.0 (217/1573)	1.9 (1.5-2.6)
	Sexual Activity			
	3+ sexual partners ever	61.2 (210/341)	30.7 (417/1381)	3.6 (2.8-4.6)
	1+ Sexual partner(s) in previous 3 months	--	--	--
Nebraska				
	Sex			
	Female	76.9 (214/277)	42.9 (634/1444)	4.5 (3.3-6.2)
	Male	22.6 (62/277)	57.0 (807/1444)	
	Unknown	0.5 (1/277)	0.2 (3/1444)	
	Age, y			
	<12	0.7 (2/277)	0.1 (1/1444)	
	13	0.0 (0/277)	0.5 (8/1444)	
	14	8.0 (27/277)	19.3 (352/1444)	
	15	21.4 (64/277)	26.1 (396/1444)	
	16	29.6 (91/277)	24.3 (346/1444)	
	17	33.3 (77/277)	22.7 (263/1444)	
	>18	7.0 (16/277)	7.1 (78/1444)	
	Any lifetime use			
	Marijuana	38.8 (101/268)	20.6 (265/1427)	2.5 (1.8-3.3)
	Cocaine	6.8 (21/276)	2.4 (29/1437)	3.0 (1.6-5.4)
	Inhalants <sup>d</sup>	11.2 (35/272)	6.2 (87/1430)	1.9 (1.3-3.0)
	Ecstasy	7.5 (23/272)	2.2 (29/1433)	3.7 (2.0-6.6)
	Heroin	3.8 (12/275)	0.8 (11/1438)	5.1 (2.2-11.9)
	Meth	4.6 (15/274)	1.4 (18/1436)	3.5 (1.7-7.2)
	Steroids <sup>e</sup>	5.9 (16/276)	1.6 (24/1443)	3.9 (1.9-7.8)
	Prescription drugs <sup>f</sup>	20.2 (57/276)	8.5 (112/1439)	2.7 (1.9-4.0)



State	Characteristics	Tanning at Least Once in Past 12 Months, % (No.)	No Tanning in Past 12 Months, % (No.)	Odds Ratio (95% CI)
	Use within last 30d			
	Cigarettes at least once	20.2 (49/243)	9.5 (121/1382)	2.4 (1.6-3.6)
	Alcoholic drink at least once	41.6 (102/247)	18.4 (242/1353)	3.2 (2.3-4.3)
	Binge drank at least once <sup>g</sup>	27.7 (72/261)	10.8 (142/1418)	3.2 (2.3-4.4)
	Marijuana at least once	20.1 (53/271)	10.3 (132/1437)	2.2 (1.5-3.2)
	Sexual Activity			
	3+ sexual partners ever	47.5 (110/244)	25.5 (295/1314)	2.7 (2.0-3.6)
	1+ Sexual partner(s) in previous 3 months	51.2 (117/244)	21.1 (241/1314)	3.9 (2.9-5.3)
New Hampshire				
	Sex			
	Female	75.6 (110/145)	45.9 (745/1479)	4.0 (2.6-6.1)
	Male	22.1 (32/145)	53.3 (721/1479)	
	Unknown	2.4 (3/145)	0.9 (13/1479)	
	Age, y			
	<12	1.5 (3/144)	0.2 (2/1471)	
	13	0.5 (1/144)	0.2 (2/1471)	
	14	4.2 (7/144)	11.0 (171/1471)	
	15	16.9 (27/144)	24.7 (385/1471)	
	16	16.8 (28/144)	26.8 (400/1471)	
	17	31.9 (44/144)	24.3 (339/1471)	
	>18	28.2 (34/144)	13.0 (172/1471)	
	Any lifetime use			
	Marijuana	75.0 (105/142)	36.6 (522/1468)	5.2 (3.5-7.8)
	Cocaine	19.9 (30/144)	3.5 (53/1475)	6.9 (4.2-11.5)
	Inhalants <sup>d</sup>	23.7 (36/145)	6.4 (93/1478)	4.6 (2.9-7.1)
	Ecstasy	24.6 (36/144)	5.6 (78/1475)	5.5 (3.5-8.6)
	Heroin	17.6 (26/144)	1.3 (21/1477)	16.6 (8.8-31.3)
	Meth	16.8 (25/144)	1.5 (23/1473)	13.2 (7.1-24.5)
	Steroids <sup>e</sup>	--	--	--
	Prescription drugs <sup>f</sup>	43.7 (63/143)	13.9 (192/1476)	4.8 (3.3-7.0)
	Use within last 30d			
	Cigarettes at least once	34.2 (47/136)	11.9 (172/1458)	3.8 (2.6-5.8)

State	Characteristics	Tanning at Least Once in Past 12 Months, % (No.)	No Tanning in Past 12 Months, % (No.)	Odds Ratio (95% CI)
	Alcoholic drink at least once	70.4 (89/129)	29.3 (409/1384)	5.7 (3.8-8.6)
	Binge drank at least once <sup>g</sup>	52.1 (71/137)	14.0 (203/1460)	6.7 (4.6-9.8)
	Marijuana at least once	56.0 (79/143)	21.4 (305/1474)	4.7 (3.2-6.7)
	Sexual Activity			
	3+ sexual partners ever	--	--	--
	1+ Sexual partner(s) in previous 3 months	74.1 (101/136)	31.5 (440/1432)	6.2 (4.1-9.4)
Ohio				
	Sex			
	Female	71.2 (157/218)	44.1 (609/1174)	3.2 (2.3-4.6)
	Male	28.1 (60/218)	55.6 (559/1174)	
	Unknown	0.3 (1/218)	0.3 (6/1174)	
	Age, y			
	<12	0.8 (1/218)	0.1 (1/1172)	
	13	0.0 (0/218)	0.03 (1/1172)	
	14	2.9 (9/218)	6.9 (88/1172)	
	15	15.0 (39/218)	27.4 (320/1172)	
	16	22.9 (53/218)	28.8 (345/1172)	
	17	37.7 (80/218)	22.7 (272/1172)	
	>18	20.8 (36/218)	14.2 (145/1172)	
	Any lifetime use			
	Marijuana	50.8 (107/207)	32.0 (388/1144)	2.2 (1.6-3.1)
	Cocaine	8.3 (21/215)	2.7 (29/1169)	3.2 (1.7-6.3)
	Inhalants <sup>d</sup>	11.3 (28/216)	8.2 (98/1172)	1.4 (0.9-2.4)*
	Ecstasy	--	--	--
	Heroin	4.3 (12/217)	1.3 (12/1172)	3.5 (1.4-9.0)
	Meth	--	--	--
	Steroids <sup>e</sup>	5.6 (13/216)	1.9 (21/1173)	3.0 (1.3-6.8)
	Prescription drugs <sup>f</sup>	19.1 (44/209)	11.2 (118/1132)	1.9 (1.2-2.9)
	Use within last 30d			
	Cigarettes at least once	25.8 (57/217)	12.8 (132/1174)	2.4 (1.6-3.5)
	Alcoholic drink at least once	45.6 (85/191)	26.0 (287/1104)	2.4 (1.7-3.4)
	Binge drank at least once <sup>g</sup>	29.9 (59/204)	13.0 (138/1155)	2.9 (1.9-4.2)
	Marijuana at least once	30.2 (64/210)	18.2 (219/1165)	2.0 (1.4-2.8)

State	Characteristics	Tanning at Least Once in Past 12 Months, % (No.)	No Tanning in Past 12 Months, % (No.)	Odds Ratio (95% CI)
	Sexual Activity			
	3+ sexual partners ever	57.6 (103/178)	29.5 (318/998)	3.3 (2.3-4.7)
	1+ Sexual partner(s) in previous 3 months	50.4 (91/179)	26.0 (282/999)	2.9 (2.0-4.1)
South Dakota				
	Sex			
	Female	79.5 (195/245)	42.3 (446/1047)	5.3 (3.7-7.6)
	Male	20.5 (50/245)	57.7 (601/1047)	
	Unknown	--	--	--
	Age, y			
	<12	0 (1/244)	0.1 (1/1045)	
	13	0.5 (1/244)	0.1 (1/1045)	
	14	3.4 (13/244)	6.7 (97/1045)	
	15	14.2 (49/244)	27.8 (368/1045)	
	16	27.2 (65/244)	25.1 (254/1045)	
	17	27.4 (59/244)	23.7 (194/1045)	
	>18	27.4 (57/244)	16.6 (130/1045)	
	Any lifetime use			
	Marijuana	38.1 (82/236)	27.2 (240/1024)	1.7 (1.2-2.3)
	Cocaine	--	--	--
	Inhalants <sup>d</sup>	15.2 (37/244)	9.7 (98/1038)	1.7 (1.1-2.6)
	Ecstasy	--	--	--
	Heroin	--	--	--
	Meth	8.0 (18/244)	3.2 (33/1044)	2.7 (1.4-5.1)
	Steroids <sup>e</sup>	--	--	--
	Prescription drugs <sup>f</sup>	18.1 (43/245)	11.2 (112/1040)	1.7 (1.2-2.6)
	Use within last 30d			
	Cigarettes at least once	19.3 (43/221)	15.6 (136/1005)	1.3 (0.9-2.0)*
	Alcoholic drink at least once	47.1 (106/225)	27.0 (252/1013)	2.4 (1.8-3.3)
	Binge drank at least once <sup>g</sup>	24.9 (61/233)	15.1 (137/1028)	1.9 (1.3-2.7)
	Marijuana at least once	21.1 (46/236)	14.7 (122/1030)	1.6 (1.0-2.3)
	Sexual Activity			
	3+ sexual partners ever	43.7 (90/215)	29.1 (241/937)	1.9 (1.4-2.6)
	1+ Sexual partner(s) in previous 3 months	45.5 (96/216)	22.7 (188/941)	2.8 (2.0-4.0)

State	Characteristics	Tanning at Least Once in Past 12 Months, % (No.)	No Tanning in Past 12 Months, % (No.)	Odds Ratio (95% CI)
Utah				
	Sex			
	Female	66.5 (148/213)	47.2 (984/1927)	2.3 (1.6-3.2)
	Male	32.7 (63/213)	52.5 (936/1927)	
	Unknown	0.8 (2/213)	0.2 (7/1927)	
	Age, y			
	<12	1.6 (3/213)	0.2 (3/1926)	
	13	0.0 (0/213)	0.1 (2/1926)	
	14	6.7 (13/213)	11.1 (196/1926)	
	15	20.5 (55/213)	27.8 (621/1926)	
	16	24.0 (64/213)	24.7 (568/1926)	
	17	26.8 (49/213)	24.0 (370/1926)	
	>18	20.5 (29/213)	12.1 (166/1926)	
	Any lifetime use			
	Marijuana	33.1 (69/194)	15.1 (288/1896)	2.8 (2.0-4.0)
	Cocaine	9.0 (22/207)	2.7 (51/1890)	3.6 (2.1-6.4)
	Inhalants <sup>d</sup>	13.9 (29/213)	5.7 (116/1927)	2.7 (1.7-4.4)
	Ecstasy	11.6 (22/212)	2.8 (53/1927)	4.6 (2.6-8.1)
	Heroin	7.9 (18/212)	1.3 (25/1927)	6.6 (3.4-12.7)
	Meth	10.1 (23/212)	1.7 (33/1918)	6.4 (3.5-11.7)
	Steroids <sup>e</sup>	11.5 (26/212)	1.8 (30/1925)	7.1 (3.9-12.9)
	Prescription drugs <sup>f</sup>	23.5 (51/210)	7.2 (143/1916)	4.0 (2.7-5.9)
	Use within last 30d			
	Cigarettes at least once	11.5 (25/192)	3.7 (65/1882)	3.4 (2.0-5.7)
	Alcoholic drink at least once	28.9 (55/182)	9.3 (172/1841)	4.0 (2.7-5.9)
	Binge drank at least once <sup>g</sup>	20.4 (42/197)	4.4 (87/1898)	5.6 (3.6-8.7)
	Marijuana at least once	18.2 (41/204)	6.4 (125/1913)	3.3 (2.1-5.0)
	Sexual Activity			
	3+ sexual partners ever	--	--	--
	1+ Sexual partner(s) in previous 3 months	--	--	--
Wisconsin				
	Sex			

State	Characteristics	Tanning at Least Once in Past 12 Months, % (No.)	No Tanning in Past 12 Months, % (No.)	Odds Ratio (95% CI)
	Female	75.8 (274/348)	43.8 (928/2085)	4.0 (2.9-5.6)
	Male	24.1 (73/348)	56.1 (1154/2085)	
	Unknown	0.1 (1/348)	0.1 (3/2085)	
	Age, y			
	<12	0.6 (2/347)	0.1 (3/2085)	
	13	0/347 (0.0)	0.3 (6/2085)	
	14	4.4 (15/347)	11.3 (223/2085)	
	15	9.3 (32/347)	26.7 (497/2085)	
	16	22.3 (75/347)	23.4 (516/2085)	
	17	39.4 (150/347)	24.5 (545/2085)	
	>18	24.0 (73/347)	13.8 (295/2085)	
	Any lifetime use			
	Marijuana	50.6 (173/334)	26.0 (556/2064)	2.9 (2.2-3.9)
	Cocaine	10.0 (39/346)	3.3 (77/2085)	3.3 (1.9-5.6)
	Inhalants <sup>d</sup>	9.4 (38/348)	5.3 (121/2083)	1.9 (1.1-3.1)
	Ecstasy	--	--	--
	Heroin	--	--	--
	Meth	--	--	--
	Steroids <sup>e</sup>	--	--	--
	Prescription drugs <sup>f</sup>	26.0 (98/348)	12.8 (270/2085)	2.4 (1.7-3.4)
	Use within last 30d			
	Cigarettes at least once	20.6 (77/326)	10.3 (232/2033)	2.3 (1.6-3.3)
	Alcoholic drink at least once	59.3 (182/306)	29.2 (587/1962)	3.5 (2.6-4.8)
	Binge drank at least once <sup>g</sup>	37.5 (132/334)	16.0 (337/2056)	3.2 (2.3-4.3)
	Marijuana at least once	30.7 (99/339)	13.7 (288/2076)	2.8 (2.0-3.9)
	Sexual Activity			
	3+ sexual partners ever	54.9 (168/312)	23.7 (505/1982)	3.9 (2.9-5.3)
	1+ Sexual partner(s) in previous 3 months	51.0 (168/316)	20.9 (436/1989)	3.9 (2.9-5.4)

<sup>a</sup>Unadjusted logistic regression of weighted percentage of students reporting use of each substance in each of the 2 populations (tanning and nontanning). Percent does not equal ratio. Percent is weighted to account for the probability of student selection and to reduce bias by adjusting for differing patterns of nonresponse. Adjustments allow for the generalization of findings to the public high school student population of the included states.

<sup>b</sup>P < .05 for all characteristics without an \*

<sup>c</sup>Suppressed owing to raw (unweighted) data being less than 50.

<sup>d</sup>Sniffed glue, breathed the contents of aerosol spray cans, or inhaled any paints or sprays to get high.

<sup>e</sup>Steroid pills or shots without a prescription.

<sup>f</sup>Prescription drug (such as OxyContin, Percocet, Vicodin, codeine, Adderall, Ritalin, Xanax) used without a prescription.

<sup>g</sup>Binge drinking defined as 5 or more drinks of alcohol in a row, within a couple of hours.

**Table 2.** Multivariate Analysis: Adjusted Logistic Regression Analysis Stratified by Sex<sup>a</sup>

State	Characteristics	Unstratified Odds Ratio (95% CI)	p Value	Female, Odds Ratio (95% CI)	p Value	Male, Odds Ratio (95% CI)	p- Value
Alabama							
	Model 1: use within last 30 d						
	Marijuana at least once	1.1 (0.7-1.7)	0.8	0.9 (0.5-1.8)	0.9	1.2 (0.6-2.5)	0.6
	Cigarettes at least once	1.5 (0.9-2.3)	0.09	1.8(1.0-3.2)	0.06	1.2(0.6-2.5)	0.6
	Alcohol at least once	2.1 (1.4-3.1)	0.0002	2.3 (1.5-3.7)	0.0002	1.7(0.7-3.8)	0.2
	Sex: female vs male (reference)	4.0 (2.7-5.8)	<0.0001				
	Model 2: sexual partners						
	>3 ever	1.1 (0.7-1.6)	0.7	1.0 (0.6-1.6)	1.0	1.3 (0.6-2.8)	0.5
	1+ in past 3 mo	2.2 (1.4-3.3)	<0.001	2.0 (1.2-3.2)	0.005	2.7 (1.2-5.9)	0.02
	Sex: female vs male (reference)	3.5 (2.4-4.9)	<0.0001				
	Model 3: any lifetime use						
	Cocaine	1.4(0.6-3.4)	0.4	0.6(0.2-2.0)	0.4	3.4(1.1-10.5)	0.04
	Ecstasy	2.0(1.0-4.3)	0.06	2.0(0.7-5.6)	0.2	2.3(0.8-6.2)	0.1
	Prescription	1.4(0.9-2.2)	0.2	1.6(1.0-2.8)	0.07	0.9(0.4-2.0)	0.7
	Steroids	2.6 (1.1-6.2)	0.02	1.5 (0.4-5.9)	0.5	4.1 (1.7-10.1)	0.002
	Marijuana	1.2 (0.8-1.7)	0.4	1.3 (0.8-2.0)	0.3	1.1 (0.6-2.0)	0.9
	Sex: female vs male (reference)	3.5 (2.5-4.9)	<0.0001				
	Model 4: any lifetime use & sexual partners						
	Cocaine	1.7 (0.7-4.5)	0.3	0.9 (0.2-3.2)	0.9	3.3 (0.8-13.8)	0.1
	Ecstasy	2.2 (1.0-4.7)	0.06	3.0 (1.0-8.9)	0.05	1.5 (0.4-5.4)	0.5
	Prescription	1.3 (0.8-2.2)	0.2	1.4 (0.8-2.4)	0.2	1.3 (0.5-3.4)	0.6
	Steroids	2.2 (0.9-5.4)	0.09	2.1 (0.3-14.1)	0.5	2.2 (0.8-6.3)	0.1
	Marijuana	1.1 (0.7-1.6)	0.7	1.2 (0.7-1.9)	0.5	0.9 (0.4-1.9)	0.8
	1+ in past 3 mo	1.8 (1.3-2.5)	0.001	1.7 (1.1-2.5)	0.01	2.0 (1.0-4.1)	0.06
	Sex: female vs male (reference)	4.5 (3.1-6.6)	<0.0001				
Colorado							



State	Characteristics	Unstratified Odds Ratio (95% CI)	p Value	Female, Odds Ratio (95% CI)	p Value	Male, Odds Ratio (95% CI)	p- Value
	Model 1: use within last 30 d						
	Marijuana at least once	1.9 (1.5-2.5)	<0.0001	1.6 (1.1-2.1)	0.006	3.2 (1.8-5.9)	0.0001
	Cigarettes at least once	1.7 (1.3-2.3)	0.0002	1.6(1.1-2.3)	0.008	2.0(1.2-3.2)	0.007
	Alcohol at least once	2.3 (1.8-3.0)	<0.0001	2.6 (2.0-3.4)	<0.0001	1.8(0.9-3.4)	0.07
	Sex: female vs male (reference)	2.8 (2.2-3.6)	<0.0001				
	Model 2: sexual partners						
	>3 ever	2.0 (1.4-2.9)	<0.001	1.7 (1.1-2.5)	0.02	3.3 (1.5-7.2)	0.003
	1+ in past 3 mo	2.1 (1.5-3.1)	<0.001	1.9 (1.3-2.9)	0.002	2.6 (1.3-5.5)	0.009
	Sex: female vs male (reference)	3.0 (2.4-3.9)	<0.0001				
	Model 3: any lifetime use						
	Cocaine	1.2(0.8-1.9)	0.4	1.0(0.6-1.8)	0.9	1.7(0.8-3.4)	0.2
	Ecstasy	1.7(1.1-2.5)	0.01	2.2(1.3-3.5)	0.002	1.1(0.5-2.3)	0.8
	Prescription	1.7(1.3-2.3)	0.0002	2.0(1.4-2.8)	0.0002	1.4(0.8-2.3)	0.2
	Steroids	7.5 (4.7-11.9)	<0.0001	5.3 (2.6-10.9)	<0.0001	9.5 (5.1-17.4)	<0.0001
	Marijuana	2.1 (1.7-2.7)	<0.0001	1.8 (1.4-2.4)	<0.0001	2.9 (1.8-4.7)	<0.0001
	Sex: female vs male (reference)	3.2 (2.5-4.0)	<0.0001				
	Model 4: any lifetime use & sexual partners						
	Cocaine	0.8 (0.5-1.4)	0.5	0.8 (0.4-1.5)	0.5	0.9 (0.5-1.7)	0.8
	Ecstasy	1.8 (1.2-2.7)	0.007	2.2 (1.3-3.6)	0.003	1.1 (0.6-2.1)	0.7
	Prescription	1.7 (1.2-2.3)	0.002	1.9 (1.3-2.8)	0.0009	1.4 (0.8-2.4)	0.3
	Steroids	5.9 (3.3-10.4)	<0.0001	2.5 (1.0-6.0)	0.05	9.8 (4.9-19.3)	<0.0001
	Marijuana	2.0 (1.5-2.7)	<0.0001	1.6 (1.1-2.2)	0.008	4.8 (2.5-9.1)	<0.0001
	1+ in past 3 mo	1.8 (1.3-2.3)	0.0001	1.7 (1.3-2.4)	0.0009	1.7 (0.9-3.2)	0.09
	Sex: female vs male (reference)	3.9 (2.9-5.1)	<0.0001				
Florida	Model 1: use within last 30 d						
	Marijuana at least once	1.5 (1.1-2.0)	0.004	1.4 (1.0-2.1)	0.06	1.5 (1.0-2.3)	0.04
	Cigarettes at least once	2.6 (1.9-3.5)	<0.0001	2.5(1.6-3.7)	<0.0001	2.9(1.8-4.6)	<0.0001
	Alcohol at least once	2.0 (1.6-2.7)	<0.0001	2.2 (1.5-3.1)	<0.0001	1.9(1.2-2.8)	0.004
	Sex: female vs male (reference)	1.5 (1.2-2.0)	0.0005				
	Model 2: sexual partners						

State	Characteristics	Unstratified Odds Ratio (95% CI)	p Value	Female, Odds Ratio (95% CI)	p Value	Male, Odds Ratio (95% CI)	p- Value
	>3 ever	1.9 (1.4-2.8)	<0.001	1.9 (1.2-2.9)	0.006	2.0 (1.2-3.6)	0.01
	1+ in past 3 mo	2.2 (1.6-3.1)	<0.0001	2.1 (1.4-3.5)	0.001	2.3 (1.4-3.9)	0.002
	Sex: female vs male (reference)	1.8 (1.4-2.3)	<0.0001				
	Model 3: any lifetime use						
	Cocaine	--	--	--	--	--	--
	Ecstasy	--	--	--	--	--	--
	Prescription	--	--	--	--	--	--
	Steroids	--	--	--	--	--	--
	Marijuana	--	--	--	--	--	--
	Sex: female vs male (reference)	--	--	--	--	--	--
	Model 4: any lifetime use & sexual partners						
	Cocaine	--	--	--	--	--	--
	Ecstasy	--	--	--	--	--	--
	Prescription	--	--	--	--	--	--
	Steroids	--	--	--	--	--	--
	Marijuana	--	--	--	--	--	--
	1+ in past 3 mo	--	--	--	--	--	--
	Sex: female vs male (reference)	--	--	--	--	--	--
Idaho	Model 1: use within last 30 d						
	Marijuana at least once	2.0 (1.2-3.3)	0.008	2.3 (1.3-4.1)	0.005	1.6 (0.6-4.5)	0.4
	Cigarettes at least once	0.9 (0.5-1.5)	0.6	1.1(0.6-2.0)	0.8	0.6(0.2-1.6)	0.3
	Alcohol at least once	2.4 (1.6-3.5)	<0.0001	2.6 (1.7-4.2)	<0.0001	1.8(0.8-3.9)	0.2
	Sex: female vs male (reference)	4.1 (2.8-5.9)	<0.0001				
	Model 2: sexual partners						
	>3 ever	--	--	--	--	--	--
	1+ in past 3 mo	--	--	--	--	--	--
	Sex: female vs male (reference)	--	--	--	--	--	--
	Model 3: any lifetime use						
	Cocaine	1.4(0.8-2.7)	0.3	1.2(0.5-2.7)	0.7	3.4(1.2-9.5)	0.02
	Ecstasy	1.2(0.7-2.1)	0.6	1.5(0.7-3.3)	0.3	0.6(0.2-1.5)	0.2

State	Characteristics	Unstratified Odds Ratio (95% CI)	p Value	Female, Odds Ratio (95% CI)	p Value	Male, Odds Ratio (95% CI)	p- Value
	Prescription	1.5(1.0-2.3)	0.06	1.8(1.1-3.1)	0.02	0.8(0.4-1.9)	0.7
	Steroids	2.7 (1.2-5.8)	0.01	4.2 (1.2-15.2)	0.03	2.1 (0.7-6.2)	0.2
	Marijuana	2.0 (1.4-2.8)	0.0003	2.2 (1.4-3.5)	0.0003	1.4 (0.7-2.6)	0.4
	Sex: female vs male (reference)	4.2 (2.9-6.1)	<0.0001				
	Model 4: any lifetime use & sexual partners						
	Cocaine	1.4 (0.8-2.7)	0.3	1.3 (0.6-2.9)	0.5	3.4 (1.2-10.1)	0.03
	Ecstasy	1.0 (0.6-1.9)	0.9	1.4 (0.7-3.1)	0.4	0.4 (0.2-1.1)	0.08
	Prescription	1.4 (0.9-2.2)	0.2	1.6 (0.9-2.9)	0.08	0.8 (0.3-1.8)	0.6
	Steroids	2.1 (1.0-4.6)	0.07	4.2 (1.1-15.3)	0.03	1.5 (0.5-4.8)	0.5
	Marijuana	1.5 (1.0-2.3)	0.05	1.7 (1.0-2.7)	0.05	1.1 (0.6-2.3)	0.8
	1+ in past 3 mo	2.2 (1.4-3.2)	<0.001	2.1 (1.3-3.4)	0.004	2.2 (1.1-4.4)	0.03
	Sex: female vs male (reference)	4.0 (2.8-5.9)	<0.0001				
Maryland							
	Model 1: use within last 30 d						
	Marijuana at least once	1.4 (1.2-1.6)	<0.0001	1.3 (1.1-1.5)	0.003	1.7 (1.4-2.1)	<0.0001
	Cigarettes at least once	2.8 (2.5-3.1)	<0.0001	2.6(2.3-3.1)	<0.0001	3.2(2.6-4.0)	<0.0001
	Alcohol at least once	2.0 (1.8-2.3)	<0.0001	2.5 (2.2-2.8)	<0.0001	1.4(1.2-1.7)	0.0004
	Sex: female vs male (reference)	1.7 (1.6-1.9)	<0.0001				
	Model 2: sexual partners						
	>3 ever	1.9 (1.7-2.2)	<0.0001	1.9 (1.6-2.2)	<0.0001	2.1 (1.7-2.6)	<0.0001
	1+ in past 3 mo	2.4 (2.1-2.8)	<0.0001	2.2 (1.9-2.6)	<0.0001	2.8 (2.3-3.5)	<0.0001
	Sex: female vs male (reference)	1.8 (1.6-2.0)	<0.0001				
	Model 3: any lifetime use						
	Cocaine	1.9(1.6-2.3)	<0.0001	1.9(1.5-2.4)	<0.0001	1.9(1.5-2.4)	<0.0001
	Ecstasy	2.0(1.7-2.3)	<0.0001	1.7(1.4-2.1)	<0.0001	2.3(1.8-3.0)	<0.0001
	Prescription	1.4(1.3-1.6)	<0.0001	1.6(1.4-1.8)	<0.0001	1.3(1.0-1.6)	0.02
	Steroids	4.9 (4.1-5.8)	<0.0001	3.2 (2.5-4.1)	<0.0001	6.4 (5.1-8.0)	<0.0001
	Marijuana	2.0 (1.8-2.2)	<0.0001	2.1 (1.9-2.4)	<0.0001	1.7 (1.4-2.0)	<0.0001
	Sex: female vs male (reference)	1.7 (1.6-1.9)	<0.0001				
	Model 4: any lifetime use & sexual partners						
	Cocaine	1.9 (1.6-2.3)	<.0001	1.8 (1.4-2.4)	<.0001	2.1 (1.5-2.9)	<.0001

State	Characteristics	Unstratified Odds Ratio (95% CI)	p Value	Female, Odds Ratio (95% CI)	p Value	Male, Odds Ratio (95% CI)	p- Value
	Ecstasy	1.4 (1.2-1.7)	<.0001	1.4 (1.1-1.7)	0.007	1.6 (1.2-2.2)	0.002
	Prescription	1.4 (1.3-1.6)	<.0001	1.6 (1.3-1.8)	<.0001	1.2 (0.9-1.6)	0.1
	Steroids	3.9 (3.1-4.7)	<.0001	2.4 (1.8-3.3)	<.0001	5.6 (4.2-7.4)	<.0001
	Marijuana	1.6 (1.4-1.8)	<.0001	1.7 (1.5-2.0)	<.0001	1.4 (1.1-1.7)	0.007
	1+ in past 3 mo	2.2 (1.9-2.4)	<.0001	2.2 (1.9-2.5)	<.0001	2.0 (1.6-2.5)	<.0001
	Sex: female vs male (reference)	2.2 (2.0-2.5)	<0.0001				
<b>Montana</b>							
	Model 1: use within last 30 d						
	Marijuana at least once	1.5 (1.1-1.9)	0.005	1.7 (1.2-2.3)	0.001	1.3 (0.8-2.1)	0.3
	Cigarettes at least once	1.1 (0.8-1.4)	0.6	0.7(0.5-1.1)	0.1	2.0(1.2-3.2)	0.006
	Alcohol at least once	3.2 (2.5-4)	<0.0001	3.1 (2.4-4.1)	<0.0001	3.5(2.2-5.4)	<0.0001
	Sex: female vs male (reference)	4.1 (3.3-5.2)	<0.0001				
	Model 2: sexual partners						
	>3 ever	1.8 (1.3-2.3)	<0.0001	1.8 (1.3-2.5)	<0.001	1.5 (1.0-2.4)	0.06
	1+ in past 3 mo	2.0 (1.5-2.6)	<0.0001	2.0 (1.5-2.7)	<0.0001	1.9 (1.2-3.1)	0.006
	Sex: female vs male (reference)	4.0 (3.2-5.0)	<0.0001				
	Model 3: any lifetime use						
	Cocaine	1.3 (0.8-2.0)	0.3	1.5(0.8-2.5)	0.2	1.1(0.5-2.3)	0.9
	Ecstasy	1.1(0.8-1.7)	0.5	0.9(0.6-1.5)	0.8	1.4(0.7-2.8)	0.3
	Prescription	1.2(0.9-1.7)	0.1	1.3(0.9-1.8)	0.1	1.4(0.8-2.4)	0.3
	Steroids	4.9 (2.7-8.8)	<0.0001	1.5 (0.6-3.6)	0.3	7.7 (4-15)	<0.0001
	Marijuana	2.5 (2.0-3.2)	0.0001	2.8(2.2-3.6)	<0.0001	2.0(1.3-3.2)	0.003
	Sex: female vs male (reference)	4.2 (3.3-5.2)	<0.0001				
	Model 4: any lifetime use & sexual partners						
	Cocaine	1.4 (0.9-2.2)	0.2	1.6 (0.9-2.9)	0.1	1.1 (0.5-2.5)	0.8
	Ecstasy	0.9 (0.6-1.3)	0.5	0.8 (0.5-1.4)	0.5	0.9 (0.4-1.9)	0.7
	Prescription	1.3 (0.9-1.7)	0.1	1.2 (0.9-1.7)	0.3	1.6 (0.9-3.0)	0.1
	Steroids	3.6 (1.8-7.2)	0.0002	1.1 (0.4-3.0)	0.8	6.9 (3.2-14.8)	<.0001
	Marijuana	2.0 (1.6-2.6)	<.0001	2.3 (1.7-3.0)	<.0001	1.5 (0.9-2.6)	0.1
	1+ in past 3 mo	2.0 (1.6-2.5)	<.0001	1.9 (1.5-2.5)	<.0001	1.9 (1.2-3.1)	0.007
	Sex: female vs male (reference)	4.4 (3.5-5.6)	<0.0001				

State	Characteristics	Unstratified Odds Ratio (95% CI)	p Value	Female, Odds Ratio (95% CI)	p Value	Male, Odds Ratio (95% CI)	p- Value
N o r t h Carolina	Model 1: use within last 30 d						
	Marijuana at least once	1.1 (0.7-1.7)	0.7	1.0 (0.6-1.9)	1.0	1.2 (0.6-2.3)	0.7
	Cigarettes at least once	2.3 (1.4-3.8)	0.001	2.8(1.4-5.5)	0.003	1.8(0.9-3.9)	0.1
	Alcohol at least once	1.4 (1.0-2.1)	0.08	1.6 (1.0-2.6)	0.076	1.2 (0.6-2.5)	0.6
	Sex: female vs male (reference)	2.2 (1.5-3.3)	<0.0001				
	Model 2: sexual partners						
	>3 ever	1.3 (0.7-2.3)	0.4	0.8 (0.4-1.6)	0.5	3.2 (1.2-8.3)	0.02
	1+ in past 3 mo	1.8 (1.0-3.3)	0.04	2.2 (1.0-4.6)	0.04	1.5 (0.6-3.7)	0.4
	Sex: female vs male (reference)	2.2 (1.5-3.2)	0.0001				
	Model 3: any lifetime use						
	Cocaine	--	--	--	--	--	--
	Ecstasy	--	--	--	--	--	--
	Prescription	--	--	--	--	--	--
	Steroids	--	--	--	--	--	--
	Marijuana	--	--	--	--	--	--
	Sex: female vs male (reference)	--	--	--	--	--	--
	Model 4: any lifetime use & sexual partners						
	Cocaine	--	--	--	--	--	--
	Ecstasy	--	--	--	--	--	--
	Prescription	--	--	--	--	--	--
Steroids	--	--	--	--	--	--	
Marijuana	--	--	--	--	--	--	
1+ in past 3 mo	--	--	--	--	--	--	
Sex: female vs male (reference)	--	--	--	--	--	--	
N o r t h Dakota	Model 1: use within last 30 d						
	Marijuana at least once	1.3 (0.8-1.9)	0.3	1.2 (0.7-2.1)	0.4	1.4 0.7-2.9)	0.4
	Cigarettes at least once	1.3 (0.8-1.9)	0.3	1.1(0.6-1.8)	0.9	1.9(1.0-3.5)	0.06
	Alcohol at least once	3.3 (2.4-4.6)	<0.0001	3.8 (2.5-5.6)	<0.0001	2.3 (1.2-4.2)	0.008

State	Characteristics	Unstratified Odds Ratio (95% CI)	p Value	Female, Odds Ratio (95% CI)	p Value	Male, Odds Ratio (95% CI)	p- Value
	Sex: female vs male (reference)	7.0 (5.0-9.7)	<0.0001				
	Model 2: sexual partners						
	>3 ever	--	--	--	--	--	--
	1+ in past 3 mo	--	--	--	--	--	--
	Sex: female vs male (reference)	--	--	--	--	--	--
	Model 3: any lifetime use						
	Cocaine	--	--	--	--	--	--
	Ecstasy	--	--	--	--	--	--
	Prescription	--	--	--	--	--	--
	Steroids	--	--	--	--	--	--
	Marijuana	--	--	--	--	--	--
	Sex: female vs male (reference)	--	--	--	--	--	--
	Model 4: any lifetime use & sexual partners						
	Cocaine	--	--	--	--	--	--
	Ecstasy	--	--	--	--	--	--
	Prescription	--	--	--	--	--	--
	Steroids	--	--	--	--	--	--
	Marijuana	--	--	--	--	--	--
	1+ in past 3 mo	--	--	--	--	--	--
	Sex: female vs male (reference)	--	--	--	--	--	--
Nebraska							
	Model 1: use within last 30 d						
	Marijuana at least once	1.6 (0.9-3.0)	0.1	1.0 (0.5-2.0)	1.0	4.3 (1.5-11.7)	0.005
	Cigarettes at least once	1.1 (0.7-1.9)	0.7	1.1(0.6-2.1)	0.7	1.6(0.6-4.3)	0.4
	Alcohol at least once	2.7 (1.8-3.9)	<0.0001	3.5 (2.2-5.6)	<0.0001	1.0(0.4-2.2)	0.9
	Sex: female vs male (reference)	6.3 (4.3-9.3)	<0.0001				
	Model 2: sexual partners						
	>3 ever	1.0 (0.6-1.7)	0.9	1.2(0.7-2.1)	0.5	0.7 (0.2-1.9)	0.5
	1+ in past 3 mo	3.8 (2.4-6.2)	<0.0001	3.2 (1.9-5.6)	<0.0001	6.5(2.5-17.2)	<0.001
	Sex: female vs male (reference)	6.0 (4.1-8.7)	<0.0001				
	Model 3: any lifetime use						



State	Characteristics	Unstratified Odds Ratio (95% CI)	p Value	Female, Odds Ratio (95% CI)	p Value	Male, Odds Ratio (95% CI)	p- Value
	Cocaine	0.7(0.3-1.8)	0.5	0.4(0.1-2.0)	0.3	0.7(0.2-2.8)	0.7
	Ecstasy	2.3(1.0-5.1)	0.05	3.7(0.9-15.1)	0.08	1.7(0.5-5.1)	0.4
	Prescription	1.3(0.8-2.3)	0.3	1.4(0.8-2.6)	0.3	1.0(0.3-3.1)	0.9
	Steroids	3.2 (1.1-9.2)	0.04	1.1 (0.3-3.8)	0.9	6 (1.8-20.43)	0.004
	Marijuana	2 (1.4-2.9)	0.0003	2.0(1.3-3.2)	0.002	2.4(1.2-4.7)	0.01
	Sex: female vs male (reference)	5.7 (4.0-8.2)	<0.0001				
	Model 4: any lifetime use & sexual partners						
	Cocaine	0.5 (0.2-1.5)	0.2	0.7 (0.1-3.8)	0.7	0.3 (0.1-1.3)	0.1
	Ecstasy	2.1 (0.8-5.3)	0.1	2.8 (0.5-14.2)	0.2	1.4 (0.4-4.6)	0.6
	Prescription	1.1 (0.6-2.1)	0.7	1.1 (0.5-2.1)	0.9	1.1 (0.3-3.4)	0.9
	Steroids	2.2 (0.6-7.8)	0.2	0.8 (0.2-3.5)	0.8	4.7 (1.2-17.8)	0.03
	Marijuana	1.6 (1.0-2.4)	0.04	1.5 (0.9-2.5)	0.1	2.0 (0.9-4.2)	0.09
	1+ in past 3 mo	2.9 (2.0-4.3)	<.0001	2.9 (1.8-4.6)	<.0001	3.3 (1.6-6.8)	0.001
	Sex: female vs male (reference)	6.3 (4.2-9.3)	<0.0001				
New							
	Model 1: use within last 30 d						
	Marijuana at least once	2.3 (1.4-3.9)	0.001	2.5 (1.4-4.3)	0.001	2.4 (0.6-9.9)	0.2
	Cigarettes at least once	1.5 (0.9-2.6)	0.1	0.8(0.4-1.4)	0.4	7.2(2.0-25.5)	0.002
	Alcohol at least once	2.8 (1.7-4.6)	<0.0001	2.8 (1.6-4.7)	0.0003	3.5(0.8-15.7)	0.1
	Sex: female vs male (reference)	5.5 (3.3-9.1)	<0.0001				
	Model 2: sexual partners						
	>3 ever	--	--	--	--	--	--
	1+ in past 3 mo	--	--	--	--	--	--
	Sex: female vs male (reference)	--	--	--	--	--	--
	Model 3: any lifetime use						
	Cocaine	--	--	--	--	--	--
	Ecstasy	--	--	--	--	--	--
	Prescription	--	--	--	--	--	--
	Steroids	--	--	--	--	--	--
	Marijuana	--	--	--	--	--	--
	Sex: female vs male (reference)	--	--	--	--	--	--

State	Characteristics	Unstratified Odds Ratio (95% CI)	p Value	Female, Odds Ratio (95% CI)	p Value	Male, Odds Ratio (95% CI)	p- Value
	Model 4: any lifetime use & sexual partners						
	Cocaine	--	--	--	--	--	--
	Ecstasy	--	--	--	--	--	--
	Prescription	--	--	--	--	--	--
	Steroids	--	--	--	--	--	--
	Marijuana	--	--	--	--	--	--
	1+ in past 3 mo	--	--	--	--	--	--
	Sex: female vs male (reference)	--	--	--	--	--	--
Ohio	Model 1: use within last 30 d						
	Marijuana at least once	0.9 (0.5-1.6)	0.8	1.1 (0.6-2.0)	0.9	0.7 (0.3-1.8)	0.5
	Cigarettes at least once	1.7 (1.0-2.9)	0.03	1.6(0.8-2.9)	0.2	2.0(0.8-4.9)	0.1
	Alcohol at least once	2.2 (1.5-3.3)	0.0002	2.1 (1.3-3.5)	0.004	2.3(1.1-4.6)	0.02
	Sex: female vs male (reference)	4.3 (2.9-6.4)	<0.0001				
	Model 2: sexual partners						
	>3 ever	2.4 (1.4-4.0)	0.002	3.1 (1.6-6.0)	<0.001	1.4 (0.6-3.5)	0.4
	1+ in past 3 mo	1.2 (0.7-2.0)	0.6	0.8 (0.4-1.6)	0.5	2.4 (0.95-6.1)	0.06
	Sex: female vs male (reference)	3.6 (2.4-5.5)	<0.0001				
	Model 3: any lifetime use						
	Cocaine	--	--	--	--	--	--
	Ecstasy	--	--	--	--	--	--
	Prescription	--	--	--	--	--	--
	Steroids	--	--	--	--	--	--
	Marijuana	--	--	--	--	--	--
	Sex: female vs male (reference)	--	--	--	--	--	--
	Model 4: any lifetime use & sexual partners						
	Cocaine	--	--	--	--	--	--
	Ecstasy	--	--	--	--	--	--
	Prescription	--	--	--	--	--	--
	Steroids	--	--	--	--	--	--
	Marijuana	--	--	--	--	--	--

State	Characteristics	Unstratified Odds Ratio (95% CI)	p Value	Female, Odds Ratio (95% CI)	p Value	Male, Odds Ratio (95% CI)	p- Value	
S o u t h Dakota	1+ in past 3 mo	--	--	--	--	--	--	
	Sex: female vs male (reference)	--	--	--	--	--	--	
	Model 1: use within last 30 d							
	Marijuana at least once	1.2 (0.6-2.1)	0.6	0.9 (0.5-1.9)	0.8	2.1 (0.8-5.8)	0.1	
	Cigarettes at least once	0.6 (0.4-1.1)	0.1	0.6(0.3-1.1)	0.1	0.8(0.3-2.3)	0.8	
	Alcohol at least once	2.3 (1.5-3.4)	<0.0001	2.8 (1.7-4.4)	<0.0001	1.2(0.5-2.8)	0.7	
	Sex: female vs male (reference)	8.7 (5.7-13.5)	<0.0001					
	Model 2: sexual partners							
	>3 ever	0.9 (0.6-1.5)	0.7	0.7 (0.4-1.2)	0.2	2.2 (0.7-6.4)	0.2	
	1+ in past 3 mo	3.0 (1.8-5.1)	<0.0001	3.3 (1.8-5.9)	<0.0001	2.9 (0.9-8.8)	0.07	
	Sex: female vs male (reference)	8.0 (5.3-12.3)	<0.0001					
	Model 3: any lifetime use							
	Cocaine	--	--	--	--	--	--	
	Ecstasy	--	--	--	--	--	--	
	Prescription	--	--	--	--	--	--	
	Steroids	--	--	--	--	--	--	
	Marijuana	--	--	--	--	--	--	
	Sex: female vs male (reference)	--	--	--	--	--	--	
	Model 4: any lifetime use & sexual partners							
Cocaine	--	--	--	--	--	--		
Ecstasy	--	--	--	--	--	--		
Prescription	--	--	--	--	--	--		
Steroids	--	--	--	--	--	--		
Marijuana	--	--	--	--	--	--		
1+ in past 3 mo	--	--	--	--	--	--		
Sex: female vs male (reference)	--	--	--	--	--	--		
Utah								
Model 1: use within last 30 d								
Marijuana at least once	1.3 (0.6-2.6)	0.5	1.0 (0.4-2.2)	0.9	1.9 (0.7-5.6)	0.2		

State	Characteristics	Unstratified Odds Ratio (95% CI)	p Value	Female, Odds Ratio (95% CI)	p Value	Male, Odds Ratio (95% CI)	p- Value
	Cigarettes at least once	1.4 (0.7-3.0)	0.4	2.0 (0.8-5.1)	0.2	0.7(0.2-2.5)	0.6
	Alcohol at least once	3.1 (1.8-5.3)	<0.0001	2.2 (1.2-4.1)	0.02	5.4(2.2-13.1)	0.0002
	Sex: female vs male (reference)	2.9 (2.0-4.3)	<0.0001				
	Model 2: sexual partners						
	>3 ever	--	--	--	--	--	--
	1+ in past 3 mo	--	--	--	--	--	--
	Sex: female vs male (reference)	--	--	--	--	--	--
	Model 3: any lifetime use						
	Cocaine	0.8(0.4-1.7)	0.5	1.0(0.4-2.8)	1.0	0.6(0.2-2.0)	0.4
	Ecstasy	1.2(0.5-2.6)	0.7	1.4(0.4-4.2)	0.6	0.5(0.1-1.8)	0.3
	Prescription	2.2(1.3-3.8)	0.005	1.8(0.9-3.6)	0.07	2.5(1.0-6.4)	0.05
	Steroids	3.4 (1.5-8.0)	0.004	2.0 (0.7-6)	0.2	8.6 (2.5-29.4)	0.0006
	Marijuana	1.9 (1.2-3.0)	0.006	1.3 (0.8-2.2)	0.4	4.5 (2.0-10.3)	0.0004
	Sex: female vs male (reference)	3.0 (2.1-4.4)	<0.0001				
	Model 4: any lifetime use & sexual partners						
	Cocaine	--	--	--	--	--	--
	Ecstasy	--	--	--	--	--	--
	Prescription	--	--	--	--	--	--
	Steroids	--	--	--	--	--	--
	Marijuana	--	--	--	--	--	--
	1+ in past 3 mo	--	--	--	--	--	--
	Sex: female vs male (reference)	--	--	--	--	--	--
Wisconsin	Model 1: use within last 30 d						
	Marijuana at least once	1.9 (1.2-2.8)	0.004	2.6 (1.5-4.3)	0.0005	1.1 (0.5-2.2)	0.9
	Cigarettes at least once	1.2 (0.8-1.9)	0.4	1.3(0.7-2.3)	0.4	1.1(0.5-2.6)	0.8
	Alcohol at least once	2.6 (1.8-3.8)	<0.0001	2.5 (1.7-3.9)	<0.0001	2.8(1.2-6.6)	0.02
	Sex: female vs male (reference)	6.6 (4.3-10.3)	<0.0001				
	Model 2: sexual partners						
	>3 ever	2.2 (1.3-3.7)	0.003	1.9 (1.1-3.4)	0.02	3.5 (0.97-12.5)	0.06
	1+ in past 3 mo	1.7 (1.02-3.0)	0.04	1.8 (1.02-3.2)	0.04	1.6 (0.4-5.9)	0.5

State	Characteristics	Unstratified Odds Ratio (95% CI)	p Value	Female, Odds Ratio (95% CI)	p Value	Male, Odds Ratio (95% CI)	p- Value
	Sex: female vs male (reference)	5.1 (3.5-7.5)	<0.0001				
	Model 3: any lifetime use						
	Cocaine	--	--	--	--	--	--
	Ecstasy	--	--	--	--	--	--
	Prescription	--	--	--	--	--	--
	Steroids	--	--	--	--	--	--
	Marijuana	--	--	--	--	--	--
	Sex: female vs male (reference)	--	--	--	--	--	--
	Model 4: any lifetime use & sexual partners						
	Cocaine	--	--	--	--	--	--
	Ecstasy	--	--	--	--	--	--
	Prescription	--	--	--	--	--	--
	Steroids	--	--	--	--	--	--
	Marijuana	--	--	--	--	--	--
	1+ in past 3 mo	--	--	--	--	--	--
	Sex: female vs male (reference)	--	--	--	--	--	--

<sup>a</sup>Adjusted logistic regression analysis between substance use and indoor tanning (outcome of interest) controlling for the listed variables of interest.