

Violence and Drug Use in Rural Teens: National Prevalence Estimates From the 2003 Youth Risk Behavior Survey

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ABSTRACT

OBJECTIVES: The purpose of this study was to compare national estimates of drug use and exposure to violence between rural and urban teens.

METHODS: Twenty-eight dependent variables from the 2003 Youth Risk Behavior Survey were used to compare violent activities, victimization, suicidal behavior, tobacco use, alcohol use, and illegal drug use across rural, urban, and suburban teens across the country.

RESULTS: Overall, rural teens were equally or more likely than both suburban and urban teens to report experiencing many measures of violent behavior, victimization, suicide behaviors, and drug use. Among all teens, nonwhites reported equal or higher rates of violent behavior and victimization than whites, but these associations disappeared within the rural-only population.

CONCLUSIONS: Rural areas do not appear to provide a strongly protective effect against risk behaviors in teens and may be a risk factor in itself. Community prevention efforts should focus on reaching rural areas and segmenting program content based on need. Where white teens might benefit from an emphasis on preventing tobacco and alcohol use, nonwhite teens would benefit from an emphasis on preventing violence and victimization.

Keywords: rural; youth; violence; drugs.

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In the wake of multiple school shootings over the past several years, preventing and treating teen violence have become national priorities. Healthy People 2010 lists reductions in physical fighting, carrying weapons at school, and attempted suicides as 3 objectives for health improvement among adolescents.¹ Nationwide in 2002, 33% of adolescents in grades 9 to 12 were in a physical fight, 17% carried a weapon, 9% were threatened or injured with a weapon at school, and 10% experienced dating violence.² Among 15- to 19-year-olds, homicide and suicide are the second and third leading causes of death, respectively, accounting for a quarter of all deaths in this age group.³

Curbing drug use among teens is also a national priority. Four of the 7 goals for substance use and abuse in Healthy People 2010 address adolescent behaviors. These include increasing the proportion of adolescents who remain alcohol free and reducing past month use of illicit substances, steroids, and inhalants among adolescents.¹ Although overall drug use by teens declined by 18% from 2001 and 2004, rates of painkiller and inhalant abuse have increased and other drug use rates remain high.⁴ For example, in 2004 three fourths (77%) of all 12th graders had tried alcohol and roughly half of all 12th graders had used cigarettes (53%), marijuana (46%), or any illicit drug (51%) at least once.⁵

Violent behavior and substance use appear to be mutually reinforcing. For example, youth who carry weapons are more likely to consume alcohol or to smoke.⁶ Likewise, illicit drug use during youth is a significant predictor of violent behavior,⁷ and a significant portion of adolescents who use drugs engage in physical fighting while under the influence.⁸ Drug use and violence are also associated with victimization and suicide. For example, both female and male victims of forced sexual intercourse report higher rates of heavy cigarette use and binge drinking, as well as suicidal contemplation.⁹ Likewise, being the victim of bullying is consistently related to engaging in violent behaviors.¹⁰ Conversely, research has found that alcohol, marijuana, and other drug use all increase with higher levels of victimization.¹¹ *The Surgeon General's Call to Action to Prevent Suicide* and other recent research recognize substance abuse as a primary risk factor for suicidal behavior.¹²⁻¹⁵

Violence, Drug Use, and Rural Teens

Traditionally, research on teen violence has been based on data from large urban areas, which excluded the rural experience.¹⁶ This focus on urban violence most likely reflects a stereotype that rural areas protect youth from exposure to and participation in violent behavior.^{17,18} More recent research, however, has recognized the unique crime and violence issues of rural areas and found surprisingly high levels of violent

behaviors and victimization among rural youth. For example, a study comparing teens from rural, urban, and suburban school districts in New York found rural teens to be more likely than urban or suburban teens to report being the victim of dating violence.¹⁹ A related study in New York showed significantly higher risk for rural teens of carrying a weapon at school, carrying a gun on or off school grounds, and using tobacco, alcohol, or other drugs.²⁰

Research on teen drug use has also focused on the urban experience, but studies of drug use among rural teens are starting to emerge. One such study compared substance abuse prevalence across 3 types of rural areas (farm, country, and small towns) and found less drug use in the least populated places.²¹ Another study in west-central Ohio found that boys in rural schools reported less use of marijuana, inhalants, and LSD and fewer recent episodes of drunkenness than boys in suburban schools.²² These studies suggest that rural life may offer a protective effect against adolescent drug use, but the scarcity of research in this area indicates a significant gap in the literature.

Race and Residence

Differences in the prevalence of teen violence between racial groups are unclear in current research. A meta-analysis conducted by Stein et al²³ reviewed over 37 research articles concerning youth exposure to community violence. Of these 37 articles, only 9 compared exposure to violence across racial or ethnic groups: 7 found higher prevalence of exposure to violence for minority youth, while 2 found no difference. Nationwide youth risk behavior statistics show that black students were significantly more likely than other students to be injured in a fight and forced into sex, while white and Hispanic students were significantly more likely to plan suicide.²

Racial differences in drug use appear to be clearer. A 2003 report from the National Institute on Drug Abuse on drug use among racial minorities summarized prevalence estimates from several national youth risk behavior surveys. According to the report, Hispanic and white youth often show higher risks of using alcohol, tobacco, and many illegal drugs than black youth.²⁴ The same report also notes that American Indian and Alaskan Native youth in reservation schools may be at especially increased risk of drug involvement. Evaluations of the joint effects of race and rural residence on teen violence and drug youth are missing from the literature, leaving the question of interaction unanswered.

The purpose of this study was to explore the prevalence of exposure to violence and drug use among rural and minority teens. The primary research questions are (1) whether risk of exposure to violence and drug use differs for rural, urban, and suburban teens,

and (2) whether rural minority teens have a different risk of exposure to violence and drug use than rural whites.

METHODS

Data Source

Data were drawn from the 2003 Youth Risk Behavior Survey (YRBSS), which provides nationwide sampling data on the prevalence of youth risk behaviors. The YRBS is conducted every 2 years by the Centers for Disease Control and Prevention. It uses a 3-stage sampling design structured to yield accurate national estimates of children in the 9th to 12th grades. The 2003 YRBS national sample data used in this analysis contain a total of 15,214 respondents: 2394 living in rural areas, 7027 living in suburban areas, and 5793 living in urban areas.

Dependent Variables

This study explored 28 dependent variables grouped into 2 major areas: experience with violence and drug use. Experience with violence was assessed using 3 sets of variables. These include 6 measures of *violent behaviors* (carried a weapon, carried a gun, carried a weapon at school, in a fight, injured in a fight, in a fight at school), 4 measures of *victimization* (feared to attend school, threatened with a weapon at school, hit by dating partner, coerced into sex), and 4 measures of *suicidal behaviors* (considered suicide, planned suicide, attempted suicide, and injured in a suicide attempt). Respondents were asked to report weapons carrying behaviors, fear of attending school, and attempted suicide that occurred within the past 30 days. The variable representing a coerced sexual encounter encompassed the respondent's lifetime experience. All other violence exposure variables were assessed within the past 12 months.

Drug use was measured using 14 reported behaviors in 3 subareas: tobacco use (smoking and chewing, on and off school grounds), alcohol use (on and off school grounds), and illegal drug use (marijuana, cocaine/crack, inhalants, heroin, methamphetamines, and steroids). The time period for measuring drug use was during the past 30 days, except for heroin, methamphetamines, and steroids, which were lifetime use measures.

Summary variables were also created by collapsing across items with the 6 indexes resulting in 6 variables that measured any violent behaviors, victimization, suicide behaviors, tobacco use, alcohol use, or illegal drug use.

Independent Variables

The principal independent variables were school location (urban, suburban, or rural) and race (minor-

ity or white). Urban was defined by the YRBS as being located within the "central city" of a metropolitan statistical area (MSA), suburban as being located in an MSA, but outside of the central city, and rural as any non-MSA area.²⁵ The YRBS included race data that distinguished separate minority groups; however, stratifying race by urbanization groups produced sample sizes that were too small for statistical reliability. Therefore, all racial minority groups were collapsed into a single "nonwhite" group for comparison with white responses. Even with the use of this aggregated category, some comparisons included a very small number of rural/nonwhite respondents and should be interpreted with caution. Also, all Hispanics are grouped into the nonwhite group. Estimates derived from cells with less than 30 positive responses are identified in the results tables. Unfortunately, the YRBS does not include any additional variables (like family income) that would allow a deeper examination of the relationship between socioeconomic status and the risk behaviors examined here, especially in light of the strong relationship between race and socioeconomic status.

Analysis

All analyses were conducted using SAS Callable SUDAAN (SAS Institute Inc., Cary, NC) taking into account the survey design and weights of the YRBS. For the bivariate analysis, chi-square tests of independence were used for testing differences in the proportions of reported violent or drug activities across residence and race. All tests were 2 sided and conducted at $\alpha = 0.05$. The multivariate analysis tested the associations between rural/urban residence, race, sex, grade in school, and region (as defined by US Census Bureau "census regions") with the collapsed dependent variables. Unweighted sample sizes in the results tables reflect the number of teens responding. All percentages are appropriately weighted to be representative of the US population of youth in 2003. The percentages of missing responses for dependent variable items were low for most items ranging from 0.23% (threatened with weapon at school during the past year) to 7.0% (drinking alcohol during the past month). One exception, attempting suicide in the past year, had 13.6% missing responses. Because most of these missing response rates were considered relatively low, violence and drug use behavior percentages were calculated from those responding to the question excluding the missing responses.

RESULTS

Demographic Comparisons

Roughly half of the respondents were female (49.8%) and half lived in the South (52.9%). Individuals were distributed fairly equally over grade levels

and age groups, with almost two fifths of respondents (43.6%) classified as white. Rural, suburban, and urban residents did not differ by gender, grade in school, or region of the country. Rural residents, however, were more likely to be white than suburban and urban residents. There were no other racial differences by age, sex, grade in school, or geographic region with rural, suburban, or urban locations.

Experience With Violence

Nearly two fifths of the population reported some type of experience with violent behavior, with no significant difference across urbanization levels. Of the 6 measures of violent behavior, 3 were statistically significantly different by residence (Table 1). Specifi-

cally, rural teens were significantly less likely to report being in a fight than were suburban or urban teens, being injured in a fight, and being in a fight at school. The remaining 3 measures dealing with weapon carrying were not statistically significantly different across levels of rurality. Three of the 6 measures of violent behavior, all pertaining to fighting, were statistically significantly different by race. Non-white teens reported being in a fight, being injured in a fight, and being in a fight at school more often than white teens. Additionally, nonwhites were significantly more likely to be involved in any form of violent behavior than whites. When rural teens were studied separately, these race-based differences remained statistically significant (Table 2).

Table 1. Experience With Violence and Drug Use in US Teenagers by Location, YRBS 2003

	Rural (Unweighted Count = 2394)		Suburban (Unweighted Count = 7027)		Urban (Unweighted Count = 5793)	
	%	SE	%	SE	%	SE
Violent behaviors						
Carried any weapon (past month)	18.9	1.9	16.5	1.4	17.1	0.9
Carried a gun (past month)	7.5	1.2	6.0	0.8	5.0	0.6
Carried any weapon to school (past month)	6.3	0.7	6.4	1.0	5.6	0.8
In a fight (past year)*	29.7	1.6	33.1	1.2	35.5	2.2
Injured in a fight (past year)*	2.8	0.5	4.3	0.8	5.3	0.7
In a fight at school (past year)**	10.0	1.4	12.8	1.2	14.8	1.3
Any violent behavior	36.2	2.5	39.4	1.5	38.2	2.6
Victimization						
Feared to attend school (past month)**	3.4	0.5	5.1	0.4	7.6	1.0
Threatened with weapon at school (past year)	8.2	1.5	8.8	1.1	10.6	1.4
Hit by dating partner (past year)	7.4	1.1	8.5	0.8	9.8	0.7
Coerced into sex (ever)*	10.9	2.2	7.3	0.7	10.6	1.3
Any victimization*	20.0	2.3	19.6	1.3	26.1	2.1
Suicide behaviors						
Considered suicide (past year)	16.5	1.1	17.7	0.5	15.8	0.6
Planned suicide (past year)	20.5	6.8	14.0	0.7	18.1	3.8
Attempted suicide (past year)	7.4	0.8	8.9	0.7	8.7	1.0
Injured of those who attempted (past year)*	98.4	0.5	97.1	0.4	95.6	0.9
Any suicide behavior	27.1	6.8	21.1	0.7	25.4	4.3
Tobacco use						
Smoke cigarettes (past month)	23.5	2.5	23.0	1.9	18.6	0.9
Smoke cigarettes at school (past month)	8.5	1.3	8.4	1.3	6.8	0.7
Chew tobacco (past month)*	9.9	1.4	5.5	0.7	6.6	2.2
Chew tobacco at school (past month)	12.9	5.8	3.3	0.4	5.3	2.2
Smoke cigars (past month)	16.3	2.2	13.6	0.8	16.0	2.0
Any tobacco use	36.1	4.1	27.6	1.7	26.5	2.2
Alcohol use						
Drink alcohol (past month)	45.3	2.4	46.5	2.1	41.5	1.5
Drink alcohol at school (past month)	4.8	0.5	4.8	0.5	6.1	0.9
Any alcohol use	41.2	3.4	45.4	2.1	39.4	1.7
Illicit drug use						
Marijuana (past month)	19.9	2.8	22.8	1.9	23.5	1.7
Marijuana at school (past month)*	3.9	0.6	6.0	1.0	6.9	1.1
Cocaine or crack (past month)	4.1	0.6	4.1	0.7	4.3	0.5
Inhalants (past month)	3.6	0.5	4.1	0.4	3.9	0.7
Heroin (ever)	3.4	0.6	2.9	0.4	3.8	0.8
Methamphetamines (ever)	8.4	1.3	8.1	0.6	6.3	1.0
Steroids (ever)	7.8	2.0	5.0	0.4	6.7	2.0
Any illegal drug use	27.3	2.3	27.8	1.9	28.9	2.1

**p = .01; *p = .05.

Table 2. Experience With Violence and Drug Use in US Teenagers by Race, YRBS 2003

	Total				Rural Only			
	White (Unweighted Count = 6585)		Nonwhite (Unweighted Count = 8511)		White (Unweighted Count = 1551)		Nonwhite (Unweighted Count = 831)	
	%	SE	%	SE	%	SE	%	SE
Violent behaviors								
Carried any weapon (past month)	16.7	1.0	17.6	1.4	18.1	2.1	22.8	3.3
Carried a gun (past month)	5.9	0.7	6.2	0.8	7.4	1.3	7.8	2.3
Carried any weapon to school (past month)	5.5	0.6	7.1	0.9	5.9	0.8	8.3	1.5
In a fight (past year) (***)	30.5	1.1	36.8	1.0	28.2	1.9	35.1	3.0
Injured in a fight (past year) (***)	2.9	0.4	6.3	0.8	2.1 [†]	0.4	5.8	1.6
In a fight at school (past year) (***)	10.0	0.7	17.1	1.0	8.5	1.5	16.7	2.1
Any violent behavior (**)	36.5	1.3	41.1	1.3	34.6	2.7	42.7	3.4
Victimization								
Feared to attend school (past month) (***)	3.1	0.3	9.1	0.7	2.6	0.3	7.2	1.4
Threatened with weapon at school (past year) (***)	7.8	0.8	11.3	1.0	7.5	1.5	11.6	2.2
Hit by dating partner (past year) (***)	6.9	0.5	11.5	0.7	6.3	1.2	11.9	1.7
Coerced into sex (ever) (***)	7.3	0.8	11.6	0.9	9.5	2.1	18.0	3.7
Any victimization (***)	17.7	1.1	27.5	1.4	18.1	2.4	28.5	3.6
Suicide behaviors								
Considered suicide (past year)	16.5	0.5	17.5	0.7	15.2	0.9	22.0	3.0
Planned suicide (past year)	16.2	2.4	16.8	1.9	19.6	7.8	24.7	5.9
Attempted suicide (past year) (**/-)	6.9	0.5	11.2	0.8	6.3	0.6	13.1	2.8
Injured of those who attempted (past year) (**/-)	98.2	0.3	94.9	0.7	98.6	0.4	97.4	0.8
Any suicide behavior	23.0	2.6	24.3	2.1	26.3	7.7	30.3	5.5
Tobacco use								
Smoke cigarettes (past month) (**/-)	24.9	1.3	17.0	1.0	23.4	2.9	24.2	3.7
Smoke cigarettes at school (past month) (**/-)	8.9	0.9	6.5	0.7	8.6	1.6	8.4	2.0
Chew tobacco (past month)	7.6	1.0	5.3	1.0	10.7	1.6	6.8 [†]	2.0
Chew tobacco at school (past month)	6.7	2.1	4.6	1.0	13.8	6.5	8.9	3.1
Smoking cigars (past month)	15.1	1.0	14.2	1.0	16.0	2.6	17.9	3.2
Any tobacco use (**/-)	32.5	1.9	23.7	1.4	36.5	4.6	34.1	4.0
Alcohol use								
Drink alcohol (past month) (**/-)	47.1	1.5	41.2	1.2	45.1	2.5	46.2	5.0
Drink alcohol at school (past month) (**/-)	3.9	0.5	7.2	0.8	3.8	0.5	9.1	2.2
Any alcohol use (**/-)	45.2	1.6	39.1	1.2	41.0	3.8	42.1	4.5
Illicit drug use								
Marijuana (past month)	21.7	1.2	23.3	1.4	19.1	3.0	24.0	2.9
Marijuana at school (past month) (**/-)	4.5	0.7	7.6	0.9	3.4	0.8	6.1	1.3
Cocaine or crack (past month)	3.8	0.5	4.7	0.6	3.8	0.8	5.1	1.5
Inhalants (past month)	3.6	0.4	4.4	0.8	3.4	0.5	4.3 [†]	1.6
Heroin (ever) (*/-)	2.6	0.3	4.2	0.7	2.8	0.6	6.1 [†]	1.4
Methamphetamines (ever)	8.1	0.6	6.9	0.7	8.0	1.4	10.7	1.7
Steroids (ever)	6.3	0.9	5.8	1.0	7.7	2.3	8.1	1.7
Any illegal drug use	27.5	1.4	28.6	1.7	26.2	2.6	32.5	2.9

***p = .001; **p = .01; *p = .05.

-, not significant.

[†]Estimate based on <30 positive responses per cell (asterisks in parentheses are for total white vs nonwhite and rural white vs nonwhite comparisons, respectively).

In multivariate analysis of the overall risk of engaging in violent behavior, nonwhite suburban and nonwhite urban youth were more likely to engage in violent behaviors than urban whites (Table 3). Rural residence was not protective with race held constant. Of the other YRBS characteristics available for analysis, male sex was associated with increased risk for violence, while the risk decreased with increasing grade level.

More than one fifth of YRBS respondents reported being victimized. Rural teens were least likely to have

feared to attend school within the past month. Suburban teens were statistically significantly less likely to report coerced sex. No difference was found by residence for being threatened with a weapon at school or being hit by a dating partner. Urban teens were more likely to have experienced any form of victimization (Table 1). Nonwhites were more likely to be affected by every measure of victimization in this analysis, and accounting for rurality did not remove the significance of any of the measures (Table 2). In multivariate analysis, nonwhites in every residence

Table 3. Adjusted Odds for Risk of Violent Experience and Drug Use Among Teens, YRBS 2003

	Violent Behaviors (N = 15,014)	Victimization (N = 15,020)	Suicide Behaviors (N = 14,986)	Tobacco Use (N = 14,999)	Alcohol Use (N = 14,704)	Illicit Drug Use (N = 14,966)
Residence/race						
Rural/nonwhite	1.48 (0.98-2.21)	1.78 (1.21-2.61)	1.27 (0.49-3.26)	1.03 (0.65-1.63)	0.83 (0.57-1.23)	1.10 (0.74-1.62)
Rural/white	1.17 (0.74-1.87)	0.89 (0.63-1.25)	0.96 (0.39-2.38)	1.23 (0.79-1.91)	0.80 (0.55-1.17)	0.84 (0.56-1.27)
Suburban/nonwhite	1.51 (1.07-2.14)	1.33 (1.01-1.76)	0.68 (0.30-1.54)	0.62 (0.43-0.89)	0.90 (0.70-1.16)	0.88 (0.66-1.16)
Suburban/white	1.38 (0.96-1.99)	0.84 (0.65-1.07)	0.67 (0.32-1.39)	1.00 (0.68-1.45)	1.12 (0.84-1.50)	0.91 (0.70-1.17)
Urban/nonwhite	1.50 (1.11-2.03)	1.85 (1.56-2.20)	0.88 (0.46-1.70)	0.70 (0.48-1.02)	0.71 (0.56-0.91)	0.97 (0.73-1.29)
Urban/white	1.00	1.00	1.00	1.00	1.00	1.00
p value for residence/race	.0163	<.0001	.3071	<.0001	.0052	.6875
Sex						
Female	1.00	1.00	1.00	1.00	1.00	1.00
Male	2.71 (2.43-3.02)	0.89 (0.81-0.98)	0.62 (0.56-0.69)	1.35 (1.16-1.57)	0.90 (0.83-0.98)	1.36 (1.24-1.50)
p value for sex	<.0001	.0247	<.0001	.0003	.0123	<.0001
Grade in school						
9 th	1.00	1.00	1.00	1.00	1.00	1.00
10 th	0.82 (0.69-0.96)	1.04 (0.80-1.36)	0.99 (0.74-1.32)	1.26 (1.08-1.47)	1.37 (1.17-1.61)	1.15 (0.96-1.37)
11 th	0.78 (0.66-0.93)	1.04 (0.80-1.36)	0.91 (0.77-1.07)	1.50 (1.24-1.82)	1.55 (1.30-1.83)	1.25 (1.03-1.53)
12 th	0.65 (0.54-0.77)	0.96 (0.76-1.20)	0.84 (0.65-1.09)	1.75 (1.40-2.19)	2.17 (1.82-2.59)	1.32 (1.07-1.63)
p value for grade	.0002	.8361	.0579	.0001	<.0001	.0435
Region						
Northeast	1.00	1.00	1.00	1.00	1.00	1.00
Midwest	0.97 (0.72-1.31)	0.75 (0.54-1.05)	0.59 (0.29-1.20)	0.91 (0.59-1.41)	1.04 (0.74-1.47)	0.63 (0.47-0.84)
South	1.08 (0.81-1.44)	0.70 (0.50-0.98)	0.69 (0.37-1.29)	1.10 (0.73-1.67)	1.10 (0.83-1.47)	0.85 (0.60-1.20)
West	0.81 (0.60-1.09)	0.72 (0.46-1.11)	0.88 (0.41-1.89)	0.62 (0.35-1.08)	0.76 (0.51-1.13)	0.70 (0.43-1.14)
p value for region	.0643	.2042	.4492	.0298	.1166	.0037

Values in bold are significant at $p < .05$.

category were statistically significantly more likely to have been victimized than their white counterparts. Females were statistically significantly more likely than males to report victimization, and teens in the South were less likely to report victimization. Grade level was not statistically significantly associated with victimization (Table 3).

Nearly a quarter of teens reported a suicidal behavior, with no statistically significant difference by residence. Of the 5 suicide behaviors, only 1 differed significantly by residence in bivariate analyses: of those attempting suicide, rural teens were statistically significantly more likely to have been injured (Table 1). Nonwhite teens were more likely than white teens to report attempting suicide in the past month, but white teens were more likely to be injured during the attempt than nonwhites. Among rural teens, there were no statistically significant race-based differences in suicide behaviors (Table 2). Multivariate analysis indicated no statistically significant residence/race, grade, or regional differences when accounting for covariates, though males were less likely to engage in any suicide behaviors (Table 3).

Tobacco, Alcohol, and Drug Use

Approximately one third reported any experience with tobacco, with rural teens more likely to report the use of chew tobacco within the past month (9.9%) than either suburban (5.5%) or urban (6.6%)

teens. There were no statistically significant differences in unadjusted tobacco use rates across levels of rurality. Whites were more likely to report smoking cigarettes, smoking cigarettes at school, and any tobacco use as compared to their nonwhite counterparts. Among rural teens, there were no statistically significant race-based differences in any unadjusted measure of tobacco use. From the multivariate analyses, suburban nonwhites were less likely to report any tobacco use as compared to urban whites. While geographic region did not statistically significantly affect reporting any tobacco use, males were more likely to report any use of tobacco, and there was a clear association between increasing grade level and increasingly higher rates of reporting any tobacco use (Table 3).

Over one half of all teens reported experience with alcohol, with no statistically significant differences reported by urbanization level. There were no statistically significant differences by residence found in the overall use of alcohol or the use of alcohol at school. However, alcohol use did vary by race, with white teens more likely than nonwhite teens to drink alcohol but less likely to drink alcohol at school. Neither of these differences was found to be statistically significant in rural areas. Urban nonwhites were significantly less likely to report any use of alcohol as compared to urban whites. Males were less likely to report alcohol use, though increasing grade was clearly associated with an increase in alcohol use.

Geographic region was not statistically significantly associated with alcohol use in teens when adjusted for covariates.

Fewer than 30% of teens reported experience with illicit drugs. The only statistically significant difference in unadjusted reported illicit drug use was in the use of marijuana at school, with urban teens (6.9%) more likely than rural (3.9%) or suburban (6.0%) teens to report this behavior within the past month (Table 1). Comparisons across racial groups found that nonwhite teens were more likely to smoke marijuana at school and also more likely to have ever used heroin (Table 2). These statistically significant relationships were not found within the rural-only population estimates.

Multivariate analysis found no significant effect of residence/race on illicit drug use. Males were more likely to report illicit drug use, and teens in the Northeast were more likely to report drug use than their Midwestern counterparts. Teens in the higher two grades (11th and 12th grades) were more likely to report drug use (Table 3).

DISCUSSION

Overall, rural teens were as likely as both suburban and urban teens to report experiencing many of the 28 measures of violent behavior, victimization, suicide behaviors, and drug use examined. The only adverse behaviors against which rural residence appeared to confer a protective effect were marijuana use in schools, fearing to attend school, and fight-related behaviors (participation, injury, and school locale). In contrast, rural teens reported a greater likelihood of being coerced into sex, injuring themselves during suicide attempts, and the use of chewing tobacco (Table 1). Overall, these results suggest that rural residence offers a very minimal, if any, protective effect for teens against exposure to violence or drug use and could constitute a risk factor for some unhealthy behaviors.

Most surprising was the reported drug use behaviors: with the exception of use of marijuana at school (highest in urban settings) and use of chewing tobacco (highest in rural areas), the prevalence of tobacco, drug, and alcohol-related behaviors were equal across rural, urban, and suburban teens. In all areas, the prevalence of alcohol use, cigarette smoking, and marijuana use were quite high and pose serious health risks for teens.

We found a higher risk of violent behavior and victimization, but lower risk of tobacco and alcohol use behaviors, among nonwhite teens when compared to white teens. Violence and victimization differences between white and nonwhite students were found within rural as well as urban and suburban youth.

These results, which support findings from previous literature, could help guide community prevention efforts. Where white teens might benefit from a greater emphasis on preventing tobacco, alcohol, and drug use, nonwhite teens would benefit from a greater focus on preventing violence and victimization.

Other independent risk factors for violence, victimization, and drug-related behaviors included sex, grade in school, and region. Male teens in general were more likely than female teens to report engaging in violent behaviors and use of tobacco and illegal drugs but less likely than female teens to report suicide behaviors, alcohol use, or victimization. All measures of drug use increased as grade in school advanced, while violent experiences decreased as grade in school advanced. The former seems predictable—as children age they are more likely to try drugs of any sort.²⁶ The latter effect could be due to a tendency of violence-prone children to be suspended or expelled from school, leaving behind classmates who are less inclined to engage in violent activities. More research is required to explain this relationship.

Although the 2003 YRBS data set used in this study oversampled minority youth, it did not include enough rural minority youth to allow stratification of the analysis by specific racial groups. This necessitated grouping all nonwhite respondents into a single category. Further research should investigate differences in violence and drug use behaviors within the nonwhite racial groups of rural teens. Cultural differences between African American, Hispanic, Asian, Native American, or other racial groups may affect each individual group's propensity to engage in or suffer from high-risk behaviors. Another limitation of this study is the inability to directly control for the effects of socioeconomic status (by using family income, for instance), as socioeconomic factors often underlie relationships between race and risk behaviors.

The scope of the present study was limited to exploring the gap between level of exposure to teen violence and drug use between rural, urban, and suburban teens. It did not attempt to forecast the effects of these disparities on physical and emotional health, criminal activity, community health, or quality of life. Mental health care providers are in short supply in rural areas, suggesting that opportunities for early intervention with rural teens are limited.²⁷ Further research should focus on the long-term effects of exposure to violence and drug use among rural teens, including an exploration of how availability of services may attenuate such effects. From a population perspective, the findings reported here can be used to help inform program development by tailoring content to specific population characteristics, such as racial composition and rurality.

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