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Alcohol Use Among Rural Middle School Students: Adolescents, Parents, Teachers, and Community Leaders' Perceptions*

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ABSTRACT

BACKGROUND: Although rural adolescents use of alcohol is at some of the highest rates nationally, rural adolescent alcohol use has not been studied extensively. This study examines how community attitudes and behaviors are related to adolescent drinking in rural environments.

METHODS: Data were gathered in 22 rural communities in the Upper Midwest (North Dakota, South Dakota, Wisconsin, and Wyoming). Surveys were collected from 1424 rural sixth- to eighth-grade adolescents and 790 adults, including parents, teachers, and community leaders. Census data were also collected.

RESULTS: Drinkers differed from nondrinkers by the following factors: higher perceptions of peer, parental, and overall community drinking, as well as lower levels of parental closeness and religiosity. Factors distinguishing binge and nonbinge drinkers were increased drinking to reduce stress, drinking to fit in, perceptions of peer drinking, and perceived lack of alternatives to drinking. Parents were significantly less likely to perceive adolescent alcohol use as a problem than other community adults; school officials were most likely to perceive it as a problem. Parental perceptions were also the least correlated to actual adolescent use, while adolescent perceptions were the most highly correlated.

CONCLUSIONS: Community factors such as overall prevalence of drinking, community support, and controls against drinking are important predictors of reported use in early adolescence. School officials were more likely to view adolescent alcohol use as a problem than were parents. School officials' perceptions of adolescent use were also more related to actual adolescent use than were parental perceptions of adolescent use.

Keywords: adolescent alcohol use; school effects; rural adolescents.

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Over 14 million children and adolescents, comprising 20% of US children, live in rural areas. Although the rural economy has changed significantly over the past 50 years (ie, less reliance on farming, aging demographics, smaller family size), many policy makers rely on “outdated yet still popular images of rural family life.”^{1(p1)} Rural adolescents face fewer curricular choices, structured school activities, fewer job prospects, and geographic isolation.² These factors may be why risk behaviors among adolescents living in rural areas are accelerating concurrently and, in many cases, faster than national levels.³ One important risk behavior is alcohol use. When examining alcohol use among rural and urban adolescents, studies have found either few differences⁴ or increased rural adolescent consumption,³ with adolescents living in the Midwest and Northern Plains the most likely to consume alcohol.⁵ Rural adolescents were also considerably more likely to drink and drive.⁶ One study of rural high school students found that 75% had reported lifetime alcohol use.⁷

One factor predicting long-term negative outcomes is age of onset. Early alcohol use has been found to significantly predict higher levels of use later in adolescence and adulthood.^{4,8-11} Drinking during the pre-adolescent years (aged 10-12 years) was strongly associated with later alcohol misuse in a national sample of adolescents.¹² The correlation between early and later use persisted until young adulthood, even if alcohol use was reduced at some time during adolescence.¹³ Thus, understanding early adolescent use in rural areas is particularly important.

Few studies have focused on both adolescent and adult community norms, that is, attitudes regarding adolescent alcohol use. Parental norms have been related to adolescent alcohol use both in late childhood and in early adolescence.^{14,15} Adolescents who perceived their parents’ views toward alcohol as negative started drinking later and were less influenced by peer norms.¹⁶ Adolescent perceptions of friends’ and peer drinking were also significantly related to actual use.^{17,18}

One alcohol-related norm is the estimation of perceived use by both adolescents and adults. Students in middle/high school and college overestimated the alcohol consumption levels of both their friends and the general student body,¹⁹ but parents of both younger and older adolescents were more likely to underestimate their children’s drinking.^{20,21} In a rural study, both adolescents and adults overestimated community adolescent alcohol use, but middle school adolescents were more restrictive about drinking acceptability than older adolescents.²² Less is known about the attitudes of other community leaders or how these norms relate to actual adolescent alcohol use in rural communities.

This article focuses on alcohol-related attitudes and behaviors of rural middle school students, parents, teachers, and other community leaders in 22 rural

communities in the Upper Midwest. Three research questions are explored: (1) Which factors distinguish between adolescents who have tried alcohol, or have been drunk, from those who have not? (2) Are there differences in attitudes among community parents, teachers, and other community leaders in relation to adolescent alcohol use? and (3) Are these attitudes related to actual use?

METHODS

Four states were selected from the 1999 National Household Survey on Drug Abuse²³ and scored among the highest nationally in adolescent (aged 12-17 years) binge drinking: North Dakota (the highest nationally), South Dakota, Wyoming, and Wisconsin. Because these states are in the Upper Midwest and have predominately Caucasian populations, findings may have limited generalizability to other racial and ethnic groups.

Selection of Communities

Census data were used to determine towns meeting necessary criteria in terms of population and distance from urban areas. The list of qualifying towns was reduced to 360 by requiring that the towns have a complete sixth- to eighth-grade middle school. A computer program was written to randomly assign each town a unique number between 1 and 360. Towns were then selected in numerical order until 22 agreed to participate. There were 7 communities in North Dakota and Wisconsin, 5 in South Dakota, and 3 in Wyoming. Ten communities were 30-75 miles away from urban areas and 12 were more than 75 miles. Eight communities had populations between 250 and 500, 7 between 501 and 1000, and 7 between 1001 and 2500. Fourteen (64%) communities were in frontier counties (less than 7 residents per square mile). Eight communities had experienced significant population loss in the past 10 years.

Selection of Participants

Data were gathered from all individuals through survey instruments. Data were collected during the winter and spring of 2005. Adolescents completed the surveys during schooltime. Adult surveys were administered through telephone interviews, which took place after respondents were informed about the project by letter. For each participant who participated, \$10.00 was donated to participating schools, with total donations to each school based on the number of adolescent and adult participants.

Adolescents

All adolescents from the sixth to eighth grades in each community were asked to participate. If a given community had more than 1 public school serving

sixth- to eighth-grade students, all schools were surveyed. The adolescent sample of 1424 sixth to eighth graders was 47% male and 84% Caucasian, with a mean age of 12.48 years. The response rate was 73% (Table 1).

Parents

In each community, parents of middle school students were selected (20% from each community) to participate in a telephone interview. Parent data were not matched to individual children but were aggregated to serve as a reference group. Parents were asked about attitudes of their community in general and toward adolescent drinking in particular. As they were not asked about their own children, it was not problematic if they had more than 1 middle school child. Efforts were made to obtain a roughly equal number of fathers and mothers. For single-parent homes, data gatherers spoke to that parent, regardless of gender, so that the number of single parents in the sample would be more likely to reflect the community population. Stepparents could participate in the study, provided they were living in the child's primary residence (Table 1). There was an 86% response rate for parents.

Table 1. Characteristics of Adolescent and Adult Samples

	n	%
Characteristics of adolescent sample		
Grade		
6	441	32
7	486	35
8	478	33
Race		
White	1268	84
Hispanic	57	4
African American	16	1
Native American	107	7
Asian	29	2
Place of residence		
Town	760	53
Farm	264	19
Country, not farm	393	28
Characteristics of adult sample		
Race		
White	777	98
Black or African American	0	0
Native American	5	<.1
Hispanic	9	.1
Group		
Parent of a 6th, 7th, or 8th grader	244	31
Teacher	216	27
Principal	24	3
School counselor	19	2
Law enforcement	24	3
School/community administration	43	5
Pastor/youth minister	61	8
Coach/youth club leader	61	8
Business owner	21	3
who employs youth		
Other school employee	59	8
Attends youth activities	18	2

Community Leaders

All sixth- to eighth-grade teachers in each community were asked to participate. Community leaders also included the following: 2 law enforcement officers, 1 principal, 1 social service coordinator, 1 mental health counselor, 1 newspaper editor, 1 mayor, and 3 members of the clergy. Community leaders were identified in collaboration with community school officials and community social service agencies. Every effort was made to obtain comparable samples of community leaders across communities, but not every community offered the same services, so community leader sample sizes varied slightly. There was an 85% response rate for community leaders.

Thirty-one percent of the adult sample were parents, 27% teachers, and the rest community leaders. The adult sample was 98% Caucasian and 42% male, with 70% having children under the age of 18. The average age was 44 years, ranging from 20 to 81. It should be noted that there were fewer minorities in the adult sample than in the adolescent sample because fewer school officials or other community leaders identified themselves as minorities. The ethnic background of parents and adolescents was more similar.

Instruments

Dependent Variables

Lifetime alcohol usage was assessed with questions developed by Armor and Polich:²⁴ "Have you ever tried alcoholic beverages, such as beer, wine, or hard liquor?" Among those who had tried alcohol (n = 619), *past-month alcohol use* was also assessed with an index developed for adolescents. Individuals were asked, "How many days in the past 30 days did you drink [beer, wine, hard liquor]?" Responses ranged from 0 to 30. Individuals were also asked, "When you had alcohol, on average, how much did you usually drink?" Responses ranged from 0 to 7. Frequency and quantity scores were combined. Adolescents were also asked if they had ever *binge drank*: "Have you ever had more than three alcoholic beverages in the same day?" and "How old were you the first time that you had more than three alcoholic beverages in the same day?"

Independent Variables

Scales for adolescents

Community controls against adolescent drinking. Nine items were developed for this study based on theoretical work related to tolerance for drinking.²⁵ Pilot tests revealed that adolescents perceived controls on adolescent drinking along a continuum of harsher or more lenient controls. Pilot tests among college students revealed that these items had high internal consistency and were significantly correlated to reported adolescent alcohol use. Factor analyses found these items loaded onto a single item. This scale assessed the extent to

which adolescents perceived that their community attempted to “crack down” or reduce adolescent drinking, with higher scores meaning increased controls against adolescent drinking (internal consistency $\alpha = .82$).

Family and community involvement was assessed with 5 questions also developed and pilot tested for this study, which focused on adolescents’ perceptions of whether adults in the community cared about them, the presence of a nonparental adult they could turn to, as well as the adolescents’ perceptions of enough time spent with their parents. Pilot study results revealed a high reliability (.88) and strong factor loadings ($\alpha = .70$).

Prevalence of adolescent alcohol in community. This variable was measured by a scale adapted from a 14-item instrument,²⁰ assessing the prevalence and acceptability of teenage drinking in the community, whether or not adults provided alcohol to teenagers, and policies for controlling adolescent drinking. As this survey was developed for adults and was designed for use by both parents and nonparents, many items were not applicable for adolescents. Four items were acceptable for the adolescent sample ($\alpha = .52$).

Community supportiveness was measured by a 12-item instrument,²⁶ assessing the degree that adolescents felt that nonparental adults in their community cared about each other (sample item, “people in this community pitch in to help each other”). Items were changed from neighborhood to community, as this scale was developed for an urban sample ($\alpha = .91$).

Adolescent perception of peer drinking was assessed with a 6-item scale,²⁷ assessing perceived social norms of what “other kids at school” do regarding alcohol use. Items focused on how often and how much peers are perceived to drink, alcohol-impaired driving, and binge drinking ($\alpha = .90$) (1 item from the original scale was deleted to increase reliability).

Economic strain was assessed with 7 items developed and validated for rural adolescents,²⁸ measuring how often adolescents perceived that their family experienced economic hardship. A sample item was “There’s no money left over to do something fun as a family” ($\alpha = .92$).

Scales for adults

Collective efficacy was a 10-item measure,²⁹ which examines the capacity of adults to monitor and support community adolescents. It asked whether respondents perceived that neighbors would get involved in a variety of circumstances, such as children painting graffiti, skipping school, and loitering on the street corner. Internal consistency was .80 in the original sample consisting of urban adults and .86 in the current study.

Prevalence of adolescent alcohol in community was adapted from a 14-item instrument,²⁰ measuring the prevalence and acceptability of teenage drinking in the community, whether or not adults provided alcohol to teenagers, and policies for controlling adolescent drinking. This survey was developed for adults

and was designed for both parents and nonparents. Because 5 items reduced internal consistency in the current study, there were 9 items for the adult sample ($\alpha = .74$).

Community life was a 12-item instrument,²⁶ including the subscale of *community supportiveness*. Items were changed from neighborhood to community, as this was developed for an urban sample. The 8-item *community supportiveness scale* had an internal consistency of .93 in the adult sample.

Sense of agency. A 5-item scale, developed for this study, assessed the extent that parents and adults perceived that they had an impact on adolescent risk-taking behavior. Questions focused on the extent to which adults felt they could “keep teenagers out of trouble” ($\alpha = .82$ for adults in this sample, with 1 item deleted to increase internal consistency).

Perceptions of adult drinking was assessed with 2 items concerning whether alcohol was present at most community functions and the frequency that alcohol was present at most community family gatherings. Items were significantly correlated ($r = .51, p < .001$).

Data Analyses

Descriptive analyses were first conducted to determine the prevalence of adolescent alcohol use in the 22 rural communities. In order to examine which variables best distinguished between drinkers and nondrinkers as well as binge drinkers and nonbinge drinkers, discriminant function analyses were then performed. Finally, adult attitudes toward community life in general, and adolescent alcohol use in particular, were examined by conducting a series of eight 1-way analyses of variance (ANOVAs).

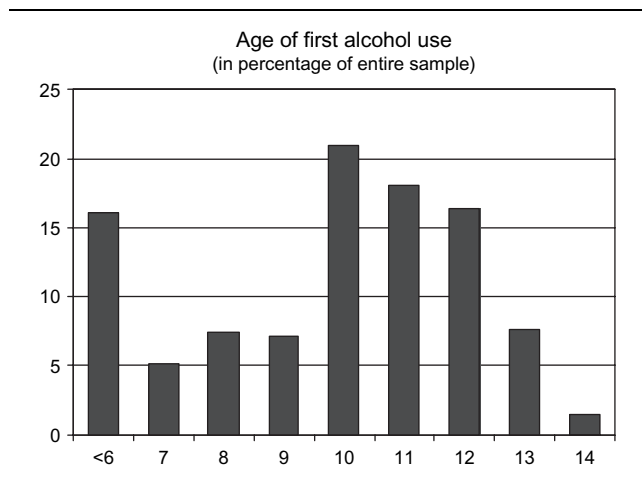
RESULTS

Adolescent Use of Alcohol

In this sample, 53% of participants reported never having tried alcohol, 27% reported tried alcohol but not in the past month, 10% of the total sample reported drinking in the past month, and 10% reported having been drunk (22% of those who had tried alcohol). In order to compare the current sample to a sample of national eighth graders,³⁰ the alcohol use of the eighth graders in our study was examined. These eighth graders reported greater lifetime alcohol use (61% vs 44%) and greater past-month use (26% vs 19%) than eighth graders nationally.

The average age of first use of alcohol in our sample was 9.5 years (Figure 1). Among those who had tried alcohol, 40% reported some use in the past month. The amount of past use ranged from 0 to 30 drinks, with an average of 5 drinks in the past month. Among those who had tried alcohol, 22% reported having been drunk (consuming 4 or more drinks at 1 sitting).

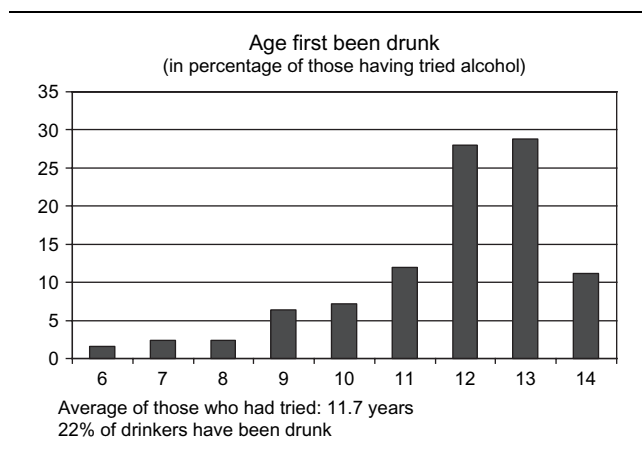
Figure 1. Age of First Alcohol Use Among Rural Middle School Students



The average age reported for the first time being drunk was 11.74 years. Almost a third reported being 13 years old when they were drunk for the first time and 28% were 12 years old (Figure 2).

The amount of adolescent alcohol use varied markedly in these rural communities, with some communities reporting virtually no alcohol use, while consumption was quite common in others. When aggregates were computed for adolescent alcohol use in each community, ranges for lifetime use ranged from 9% to 47%. Among those who had tried alcohol, past-month use also exhibited sizable variability, with community aggregates ranging from 0 to 14 drinks in average past-month alcohol use. Although community differences were present, a 1-way ANOVA revealed no state-level differences in alcohol consumption, $F(3, 1420) = 0.23, p = .87$. When asked where they obtained alcohol, over two thirds of middle school students reported parents as their source

Figure 2. Age of First Binge Drinking Episode Among Rural Middle School Students



(responses did not indicate whether this was with parental knowledge). Friends were another popular source (61%). Retail outlets were not commonly reported, with bars accounting for 6% and stores for 9%. Other methods were reported by 16% of the adolescents who had consumed alcohol, such as finding alcohol in trash cans, sneaking alcohol at weddings, or buying it from “older adults who don’t care.”

Characteristics Distinguishing Levels of Alcohol Consumption

Due to the exploratory nature of this research question, a step-wise discriminant function procedure was warranted,³¹ with all variables except the dependent variable (lifetime use) entered as independent. First, subjects were grouped according to experimentation with alcohol, with 47% ($n = 671$) indicating ever having tried alcohol. Seven significant predictors were identified with lifetime use, $\lambda(7, 934) = .74, p < .001, r_c = .51$: perception that classmates were drinking (pooled within-groups correlation between discriminating variable and standardized canonical discriminant functions = .63), perception that community adults are drinking (.53), perceived parental alcohol use (.51), parental closeness and discipline (-.40), drug use (.37), religious involvement (-.36), and age (.35). Accuracy of this model to correctly classify adolescent lifetime use was 70%. Table 2 describes means and standard deviations according to group membership, as well as listing variables not included in the analysis.

Among those who had tried alcohol, discriminant function analyses were conducted to distinguish between those who had been drunk and those who had not. (It should be noted that drinking to reduce stress, fit in, or because of nothing else to do was not included in the first set of analyses, as nondrinkers did not answer these questions.) Subjects were grouped according to whether or not they had reported being drunk, with 22% ($n = 147$) reporting this behavior. Seven significant predictors emerged, $\lambda(7, 428) = .72, p < .001, r_c = .53$: drinking to reduce stress (pooled within-groups correlation between discriminating variable and standardized canonical discriminant functions = .71), drug use (.65), drinking as a normative activity (.57), peer drinking (.44), depression (.09), available activities for youth (-.37), and number of parents in household (-.03). Accuracy of this model to classify ever having been drunk was 81% (Table 2). Table 3 describes means and standard deviations according to group membership, as well as listing variables not included in the analysis.

Attitudes About Community and Alcohol Among Parents, School Personnel, and Community Leaders

Adults were coded into 1 of 3 groups: parents of middle school children, school personnel (teachers, principals, and others), and other community leaders.

All 8 ANOVAs were statistically significant. Post hoc analyses revealed that school officials perceived significantly more alcohol use (mean = 2.57, SD = 0.3) among adolescents than did community leaders (mean = 2.46, SD = 0.4) and parents, $F(2, 787) = 24.18, p < .001$, and middle school parents were the least likely to perceive that community adolescents were drinking (mean = 2.34, SD = 0.4). School officials (mean = 7.99, SD = 1.6) also reported significantly higher alcohol use among community adults, $F(2, 781) = 9.29, p < .001$, than did community leaders (mean = 7.56, SD = 1.7) and parents (mean = 7.37, SD = 1.7) who were not significantly different from each other. School personnel, $F(2, 786) = 22.38, p < .001$, also perceived significantly fewer controls against adolescent drinking (mean = 2.69, SD = 0.8) than did parents (mean = 3.17, SD = 0.9) or other community leaders (mean = 3.01, SD = 0.8).

When considering overall community life, school officials reported significantly lower, $F(2, 786) = 5.40, p < .01$, levels of community support (mean = 3.76, SD = 0.7) than did parents (mean = 3.92, SD = 0.6) and community leaders (mean = 3.91, SD = 0.6). School officials (mean = 2.60, SD = 0.7) also perceived significantly lower levels of community economic health, $F(2, 786) = 12.61, p < .001$, than did parents (mean = 2.79, SD = 0.8) and community leaders (mean = 2.93, SD = 0.7). School officials (mean = 3.61, SD = 0.6) also perceived significantly lower levels of collective efficacy, $F(2, 787) = 9.99, p < .001$, than did parents (mean = 3.85, SD = 0.6) and community leaders (mean = 3.76, SD = 0.6). Parents perceived significantly, $F(2, 786) = 17.86, p < .001$, higher levels of a sense of agency (mean = 3.48, SD =

0.8) than did school (mean = 3.07, SD = 0.8) or community leaders (mean = 3.21, SD = 0.8). Finally, community leaders perceived significantly more, $F(2, 787) = 6.46, p < .01$, activities available for youth (mean = 2.99, SD = 0.8) than did parents (mean = 2.81, SD = 0.9) or school officials (mean = 2.75, SD = 0.8).

After aggregating how much school officials and parents perceived that adolescents were drinking, and comparing these scores to actual past-month use among adolescents, middle school officials' responses were more closely related to actual use ($r = .54, p < .01$) than were parental perceptions, which were not significantly related to reported past-month use ($r = .38, p = .08$). It should also be noted that adolescent perceptions of peer use were more accurate than either parents or school officials, as their averaged perception of peer use correlated with actual use at significantly higher levels ($r = .66, p < .001$).

DISCUSSION

Among rural middle school students living in the Upper Midwest, alcohol use is pervasive. Almost half of the students surveyed reported trying alcohol at least once, and 15% reported drinking in the past month, both rates are higher than national averages. Of additional concern was the fact that 10% of the sixth- to eighth-grade students (22% of those who had tried alcohol) had reported being drunk at least once. Eighth-grade students in the current sample also had higher levels of lifetime and past-month use than a nationally representative sample.³⁰ Because early onset is strongly related to later problems,^{8,9} this frequency and intensity of use in rural populations are

Table 2. Accuracy of Prediction in Discriminant Function Analyses for Lifetime Use*

Prediction Variables	N	Grouped Predictor Variables				Prediction Accuracy (%)
		Never Tried Alcohol		Tried Alcohol		
		N	%	N	%	
Never tried alcohol	750	543	72	207	28	70
Tried alcohol	671	221	33	450	67	
Ungrouped cases	3	1	33	2	67	
Means and standard deviations of significant predictor variables by group membership						
Significant Prediction			Mean	SD	Mean	SD
$\lambda(7, 934) = .74^{***}, r_c = .51$	Wilke's λ	Structure Matrix	Never Tried Alcohol		Tried Alcohol	
Perceived peer drinking	.88	.63	1.71	0.8	2.36	1.0
Parental alcohol use	.81	.51	3.51	1.3	4.32	1.4
Community alcohol prevalence	.79	.53	1.56	0.4	1.82	0.4
Religious involvement	.78	-.36	3.48	0.9	3.06	1.0
Age	.77	.35	12.31	1.0	12.71	1.0
Drug use	.75	-.37	1.00	0.1	1.14	0.4
Parental closeness/discipline	.74	-.40	3.34	0.5	3.09	0.6

*Variables not in the analysis: number of hours unsupervised by an adult, community controls against drinking, community supportiveness, activities for youth, economic hardship, involvement in school activities, number of parents living in the household, and depression.

*** $p < .001$.

Table 3. Accuracy of Prediction in Discriminant Function Analyses for Ever Having Been Drunk*

Prediction Variables	N	Grouped Predictor Variables				Prediction Accuracy (%)
		Never Binge Drank		Binge Drank		
		N	%	N	%	
Never binge drank	521	445	85	76	15	81
Binge drank	147	50	34	97	66	
Ungrouped cases	756 [†]	710	94	46	6	

Means and standard deviations of significant predictor variables by group membership

Significant Prediction	Wilke's λ	Structure Matrix	Mean	SD	Mean	SD
			Never Binge Drank		Binge Drank	
$\lambda(7, 428) = .72^{***}$ $r_c = .53$						
Drinking to reduce stress	.84	.71	1.11	0.3	1.66	0.9
Drug use	.80	.65	1.07	0.3	1.51	0.8
Drinking as normative	.78	.57	1.18	0.4	1.58	0.7
Perceived peer drinking	.76	.44	2.27	0.9	2.93	1.1
Depression	.74	.09	1.78	0.7	1.87	0.8
Activities for youth	.73	-.36	3.35	0.9	2.83	1.0
Number of parents in household	.72	-.03	3.26	0.8	3.23	0.6

*Variables not in the analysis: age, number of hours unsupervised by an adult, community controls against drinking, general community alcohol prevalence, community supportiveness, parental closeness and discipline, perceived parental drinking, economic hardship, age, involvement in school activities, religious involvement, and drinking due to lack of alternatives.

[†]The ungrouped cases category includes those who had never tried alcohol and were thus excluded from the analysis.

***p < .001.

troubling. The most common sources for obtaining alcohol were parents and friends, indicating that adolescents were not using commercial outlets but rather were procuring alcohol (whether with permission or not) from community residences. This suggests that efforts to reduce access to alcohol among early adolescents should focus on educating parents that their own homes are the most likely source for adolescents' access to alcohol.

Several family and community factors are able to distinguish drinkers from nondrinkers. Belief that peers were drinking was the best predictor of lifetime experimentation. Perceptions of elevated community and parental drinking are also positively related. Adolescents who reported having a supportive as well as monitoring relationship with their parents were less likely to have tried alcohol, as were adolescents with high religious involvement. Older adolescents were more likely to have tried alcohol but not more likely to have reported being drunk. This indicates that in terms of the decision to try alcohol, the behaviors of not only peers, but also adults and parents, are influential. Parents can be effective in reducing adolescent alcohol use in not only controlling access to alcohol but also providing a supportive relationship with their children, one that includes clear disciplinary standards.

Different factors were related to ever having been drunk. The most important distinguisher between binge and nonbinge drinkers was that binge drinkers were more likely to report drinking to reduce stress, indicating that alcohol use among middle school students may be an attempt to cope with higher levels of stress and anxiety. Binge drinkers were also distinguished from nonbinge drinkers by higher levels of depression. Drinking as a perceived way to fit in,

increased perceptions of peer drinking, and a lack of activities for youth were also associated with binge drinking. Parental relationships and prevalence of drinking in the community are not influential predictors in distinguishing between binge and nonbinge drinkers, indicating that peers and personal factors were more influential than adult or community factors in terms of binge drinking. Parental influence may be stronger in adolescents' decisions whether or not to start drinking but does not appear to be as effective in reducing binge drinking.

Analyses of adult attitudes revealed that parents were significantly less likely to perceive adolescent alcohol use as a problem than were other community leaders, while school officials perceived alcohol use as a more serious problem. School officials also reported lower levels of community support and collective efficacy than did parents or other community leaders. Parental perceptions of adolescent drinking, while more optimistic, were the least correlated to actual use. Student perceptions of how much their peers were drinking, even though higher than actual reported use, were the most highly correlated to actual reported drinking, followed by other community leaders. This finding signifies the challenges in educating parents about adolescent alcohol use, as parents seem less willing to acknowledge adolescent alcohol use as a problem.

It is also noteworthy that school officials were most likely, among adults, to perceive adolescent alcohol use as a problem and were the least likely to consider their communities as supportive, economically healthy, or effective in dealing with adolescent alcohol use. As teachers and other school personnel appear to feel less positive about their communities,

this may be associated with increased stress levels as they work with community adolescents.

When examining responses of middle school parents and middle school officials, it was evident that parents expressed significantly more positive community attitudes and were significantly less likely to perceive adolescent alcohol use as a problem than were other community leaders. This leads to the question of whether parental or school official perceptions of adolescent alcohol use were more accurate. Adolescent perceptions were reasonably reliable indicators of actual use and were more accurate indicators than any of the adult perceptions. Assessing adults may not give a reliable assessment of adolescent alcohol use.

Implications for School Officials

School officials undoubtedly need little reminding that alcohol use is a significant issue among rural youth. This study highlights both the importance and the challenges inherent in working with parents to reduce early adolescent drinking, particularly in delaying alcohol initiation. As a close relationship with parents is associated with less lifetime use, and parents were the most commonly cited source for obtaining alcohol, parent education may be as central as student-directed programs in reducing alcohol use. However, as parents were less likely to perceive adolescent alcohol use as a problem, this presents a challenging task.

Heavier alcohol use was strongly associated with drinking to reduce stress as well as depression. School counselors who have identified a student as having problems with anxiety or depression should be alerted that this student may also be at greater risk for alcohol use and vice versa. School officials not only perceived adolescent alcohol use as a more serious problem than other community adults but also had lower perceptions about the general quality of community life. Identifying and providing additional sources of support for teachers may be beneficial in helping teachers and other school personnel tackle issues relating to adolescent alcohol use.

Even though adolescents from the Upper Midwest are among the highest consumers of alcohol, results from this study cannot be extrapolated to all rural communities, particularly as there are few minority students in the Upper Midwest. As this was a cross-sectional study, causal inferences cannot be made. Finally, future studies would benefit from examining the attitudes and behaviors of older high school students.

This study underscores the considerable diversity present in rural communities regarding adolescent alcohol use, even in the relatively homogeneous area of the Upper Midwest. Identifying the factors that lead adolescents and adults to perceive their communities as more effective in controlling adolescent alcohol use, as well as being more supportive, would aid efforts in lowering alcohol use in rural areas. More

study is needed regarding how alcohol use in middle school translates into later alcohol use in rural areas within specific rural community contexts.

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