

Original article

Drug selling among high school students: related risk behaviors and psychosocial characteristics

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Abstract

Purpose: To identify risk behaviors and psychosocial characteristics associated with high school students' selling drugs.

Methods: In 2000, an anonymous standardized survey assessed substance use, drug selling and related risk factors (e.g., friends' use; messages about use) among high school students ($n = 38,999$) in a large metropolitan area. The sample was 51% female and included adolescents who were white (70%), African-American (18%), Asian (3.3%), Hispanic (1.7%) or who reported other ethnicities (7%). Logistic regression analyses examined whether selling drugs was associated with variables from different explanatory models, net of risk behavior and demographic characteristics.

Results: Twelve percent of students reported selling drugs in the past year. In the final logistic regression model, selling drugs was associated with being male, violence, delinquency and marijuana use. Students who sold drugs were less involved in religious and family activities but did not differ in their perceptions of, or participation in, school. Friends and school adults' support of substance use was associated with selling drugs, as was daily employment. Social competence, but neither purposeful planning nor self-efficacy, was associated with selling drugs.

Conclusions: Despite popular perceptions, drug selling is not limited to out-of-school youth but occurs frequently among students who attend high school. School-based prevention efforts should discourage drug selling in order to reduce students' access to drugs and protect young people from the dangers associated with drug selling. © 2005 Society for Adolescent Medicine. All rights reserved.

Keywords:

Drug distribution; Drug usage; High school students; Juvenile delinquency

To curtail adolescent substance use, community-level programs often focus on the sources of alcohol, tobacco and illicit drugs. Stricter laws encourage businesses to stop selling tobacco or alcohol to minors and media campaigns advertise the penalties for adults who host parties where underage drinking and drug use occur [1,2]. These efforts may discourage some youths from substance use altogether, yet prompt others to look for alternative sources. One such alternative source is peers. Previous research suggests that friends are an important source of cigarettes, alcohol, and

illicit drugs [3–6]. In addition, 13% of 17 year old boys in a national sample report having sold illegal drugs at least once during the past year [7].

Given these trends, it is important that practitioners understand why some students sell drugs. Whereas considerable research has examined drug trafficking among gangs and high risk youth [8,9,10,11], this literature may have limited relevance for the large number of students who sell drugs yet remain relatively well-integrated into school and other social institutions. To date, however, few studies have examined drug selling among a general population of high school students [7,12]. Research in this area may not only help limit the availability of drugs but can guide efforts to identify and help young people who engage in this risky behavior. The present study aims to identify the patterns of

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risk behaviors associated with selling drugs and describe psychosocial variables that distinguish selling drugs from other risk behaviors.

Models of selling drugs

Selling drugs is often part of a more generalized pattern of risk behavior, as youths who sell drugs also tend to use them and may engage in vandalism, theft and violent behavior [10,12,13,14,15]. Several models may help explain why some youths engage in selling drugs above and beyond their involvement in a general pattern of risk behavior. Although these models are not mutually exclusive, they do provide a framework for studying the phenomenon and guiding prevention efforts.

Social bonding

Many theories of adolescent risk behavior highlight social bonding as an important domain of influence [13]. Youths who remain active in school, family, and other social institutions are said to “bond” to these institutions, as they develop attitudes and beliefs that value conventional notions of success and fulfillment. In contrast, adolescents who fail to become involved in such institutions are more likely to form an oppositional identity based more on autonomy and unconventional goals. As such, youths may feel they have little to lose in selling drugs if they are less concerned about going to college or living a long life [7]. Previous research provides support for this model, as family involvement [16], academic achievement [17], extracurricular activity [18] and frequency of church attendance [19] have all been found to be negatively associated with selling or using drugs.

Social networks that support drug use

Youths who have difficulty bonding with social institutions are also at risk because they are more likely to affiliate with each other and with other individuals who hold unconventional values. To the extent that these social networks support substance use, they may also influence youths’ likelihood of selling drugs. Peer attitudes and behavior, for example, are central to most theories of adolescent substance use [20] and evidence suggests that having peers who do not object to dealing drugs may influence youths’ drug selling [9]. Exposure to adults who support substance use may be particularly important in distinguishing drug selling from other types of risk behavior as it may connect youths to organized drug distribution networks. Relationships with these adults may develop through family members, school, or work. Indeed, youths who are employed are more likely to also sell drugs [21].

Purposeful business activity

Investigators who study youthful drug selling in low income neighborhoods often highlight the economic rationale for the behavior [22]. In neighborhoods where

youths find limited opportunities for employment and little hope for the future, some individuals may engage in selling drugs as a purposeful business activity. Even as selling drugs is associated with other risk behaviors, young sellers may possess relatively high levels of self-confidence, social competence and other entrepreneurial traits [23]. It is unclear, however, whether such traits are associated with drug selling in communities where more youths are more hopeful about the future.

Figure 1 depicts how the three models described above relate to the two aims of this study. The dashed arrows represent the first aim of the study: to identify which risk behaviors are most strongly associated with selling drugs. The solid arrows represent the study’s second aim: to describe the psychosocial processes that influence drug selling, above and beyond its association with other risk behaviors. Note that the figure presents drug selling as one of several dimensions of problem behavior. In addition, the three models examined in this study are presented as having both unique and shared effects on drug selling. Students’ social networks, for example, may influence drug selling directly as well as through their association with social bonding and/or business activity.

Methods

Data were collected using the Primary Prevention Awareness Attitude and Use Survey (PPAAUS). The PPAAUS was developed by the Safe and Drug Free Schools Consortium of Franklin County, Ohio to assess adolescent substance use, violence, delinquency, drug selling and related risk and protective factors to guide public health policy in the county. The PPAAUS has been administered every three years since 1988 and data for the present study are based on the 2000 administration.

Trained teachers and school staff administered the PPAAUS during the second class period in sixteen public school districts, six private schools, and thirty-six Catholic schools during the fall of 2000. Passive parental consent was utilized, and students were given the option of not participating in the survey. Students completed the surveys anonymously, with the only identifiers being the respondent’s school building and grade. No effort was made to include students who were unavailable on the day the survey was administered. The Institutional Review Board of The Ohio State University approved the analyses for the present study.

Sample

The PPAAUS is a census of all students in grades six through twelve in Franklin County, Ohio. According to the U.S. Census, 119,437 sixth through twelfth grade age-appropriate youth lived within the catchment area of Franklin County’s schools in 2000, 99,345 or 83% of whom were enrolled in Franklin County schools (Per-

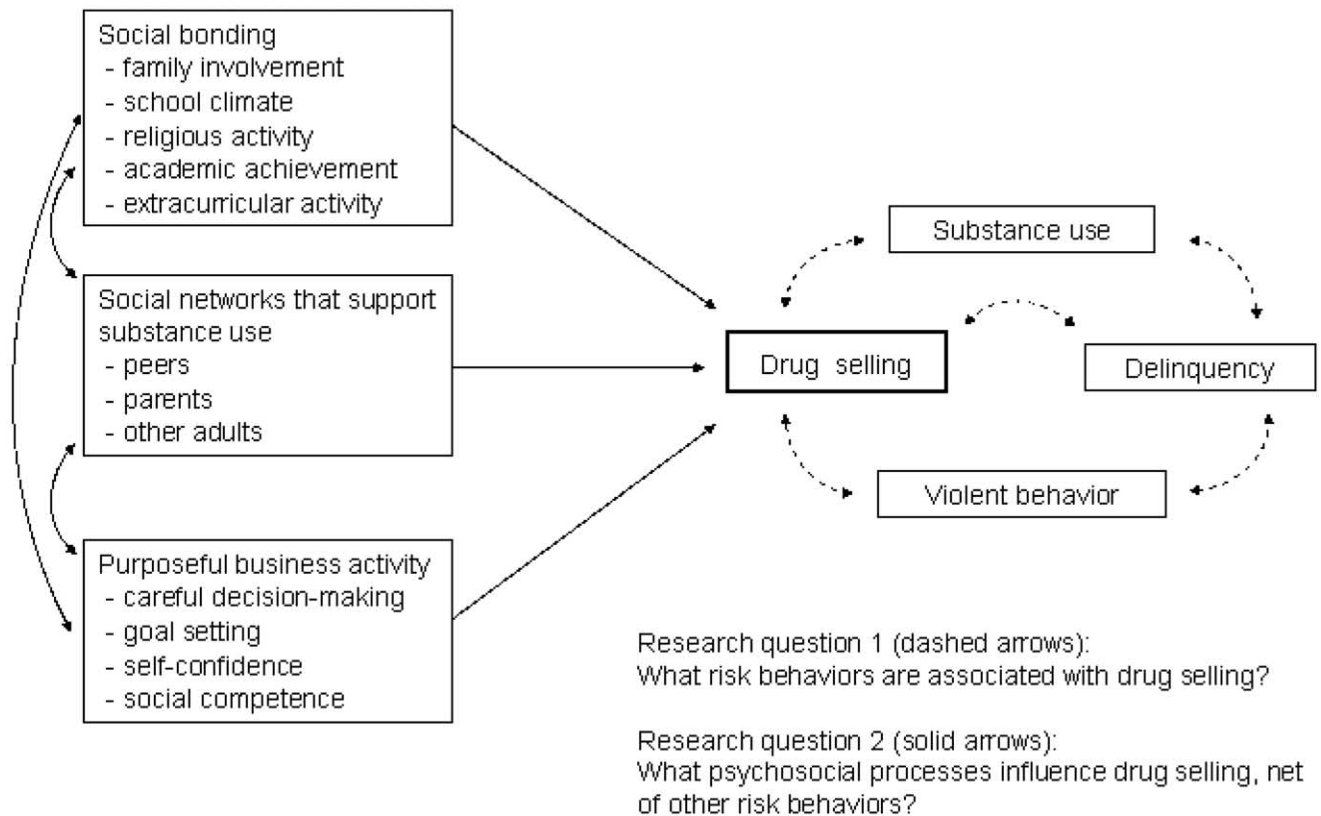


Fig. 1. Research questions for studying drug selling among high school students.

sonal communication, Ohio Department of Education, 9/30/2002). The 2000 PPAAUS included data from 75,818 students, excluding 1,600 surveys with exaggerated or careless responses and 1,626 students who refused to participate. The final data set included 63.5% of the total age-eligible population, 78.0% of the total school-enrolled population, and 97.9% of those completing the questionnaire. The most common reasons for failing to participate in the study included being chronically absent, home-schooled, or otherwise not enrolled in school. As such, the data are only representative of students who regularly attended schools in Franklin County in 2000.

Because selling drugs was uncommon among younger students, data for the present study are limited to students in grades nine through twelve ($n = 38,999$). Just over half of the sample was female (51%) and included students who were white (70%), African-American (18%), Asian (3.3%), Hispanic (1.7%), or reported other ethnic group membership (e.g., Native American, mixed; 7%).

Measures

The dependent variable, drug selling, was assessed by a single item that asked, "During the past year, how often have you sold drugs?" On a five point scale, response options ranged from "never" to "eleven or more times."

Among students who said they had sold drugs, most (53%) reported doing so at least four times in the past year. Because the study focused on students who sold any drugs, the responses were dichotomized into "ever sold drugs" (1) or "never sold drugs" (0).

In addition to gender, ethnicity, and family structure, covariates included a five item index of frequency of delinquent acts ($\alpha = .71$; e.g., "vandalized property") and a four item index of violent behavior ($\alpha = .83$; e.g., "beat someone up") during the past year. Three items assessing the past year frequency of cigarette, alcohol and marijuana use were collapsed into measures of: "no use" (0), "less than weekly use" (1), and "weekly use" (2). A similar measure of cocaine use was trichotomized as "no use" (0), "less than monthly use" (1), and "monthly use" (2).

Social bonding.

Five variables represented bonding with social institutions such as family, religious institutions, and school. Single items assessed frequency of religious activities, family activities, and self-reported grades during the past year. An index summed the number of extracurricular activities (e.g., athletics, theatre) in which a respondent engaged. Perceptions of the school environment were assessed by an 18 item scale ($\alpha = .94$) that asked students how much they agreed with statements that described their school as caring and

safe (e.g., “All students are valued at this school;” “My school is neat and clean”).

Social networks.

Three variables represented social relationships that may support drug selling. A three item scale ($\alpha = .80$) measured the extent to which the respondent’s friends discouraged use of substances such as alcohol, tobacco and marijuana. A similar nine item scale ($\alpha = .87$) was dichotomized to measure whether any school adults (e.g., teachers, coaches) gave mixed or supportive messages about substance use. Frequency of working for pay was assessed by a single item with responses ranging from “never” (0) to “almost every day” (3).

Purposeful business activity.

Four variables represented students’ orientation towards drug selling as a purposeful business activity. A scale of purposeful planning consisted of three items ($\alpha = .83$; e.g., “How often do you work on goals that you set for yourself?”). Two items constituted a self-confidence scale ($\alpha = .72$; e.g., “I think I can achieve what I want in life”). Careful decision-making was assessed by a scale of three items ($\alpha = .79$; e.g., “When I make a decision, I think about all my choices very carefully”). Another three item scale assessed students’ ability to make friends ($\alpha = .77$; e.g., “How easy it for you to make new friends?”).

Data analysis

To identify other risk behaviors associated with selling drugs, cross-tabular analyses compared the prevalence of substance use, delinquency and violence among drug sellers to the prevalence in the total sample. These tests represented the specificity with which certain risk behaviors were associated with selling drugs. These analyses also examined the sensitivity of these behaviors; that is, the proportion of drug sellers who engaged in different levels of the behavior.

A second goal of the study was to identify psychosocial variables that distinguished students who sold drugs from those who engaged in other risk behaviors. A series of logistic regression models separately tested blocks of variables from each of the three models (i.e., social bonding, social networks, purposeful business activity) after controlling for demographic variables and risk behaviors that were both sensitive and specific correlates of drug selling. Independent variables associated with drug selling at $p \leq .05$ were included in a final logistic regression model. Interaction terms in the models examined whether effects varied by gender or ethnicity. Because of the large sample size and multiple comparisons, p values $\leq .01$ were considered statistically significant.

Results

Table 1 presents the prevalence of selling drugs across gender, ethnicity, school grade and family living arrange-

Table 1
Characteristics of high school students who sold drugs in the past year

	n	% Who sold drugs	Test for differences		Post hoc contrasts ^a
			df	χ^2 value	
Gender			1	1032.19*	
Male	18,533	17.3			—
Female	19,706	6.7			
Ethnicity			4	112.81*	A WB HO
White	26,577	11.4			
Black	6,677	12.2			
Asian	1,301	7.3			
Hispanic	606	15.3			
Other	2,607	17.3			
Grade			3	122.13*	9 1011 1112
9	11,184	9.2			
10	10,467	12.2			
11	9,035	13.3			
12	7,812	13.9			
Family living arrangements			3	536.62*	P SM O
Two parents	21,811	9.0			
Parent + stepparent	5,484	14.5			
Mother only	7,388	14.4			
Other	3,443	21.1			
Total ^b	38,498	11.9			

* $p < .001$.

^a A space between letters indicates that the groups differed significantly at $p < .01$. For “Ethnicity”, W = White; B = Black; A = Asian; H = Hispanic; O = Other. For “Family living arrangements,” P = Two parents; S = Parent and stepparent; M = mother only; O = Other.

^b Sum of cases does not equal total sample ($n = 38,999$) because of missing data.

ments. Overall, 11.9% of the sample ($n = 4,594$) reported selling drugs at least once in the last year. Among high school students, ninth graders were less likely than older students to sell drugs. Selling drugs was more than twice as common among males than among females, while ethnic group differences were more modest. Compared to white and African-American students, Asian students were less likely to sell drugs, while Hispanic students and those of other ethnic groups were more likely to do so. Also, youths living with both parents were less likely to sell drugs than those living with their mother only or with a parent and a step-parent. Among students with other family living arrangements (e.g., father only; grandparents), drug selling was most common, with over one in five respondents doing so.

Association with other risk behaviors

Students who sold drugs were more likely to engage in a variety of risk behaviors, though not all risk behaviors were equally prevalent. Table 2 presents the numbers and percentages of students engaging in various levels of risk behaviors, grouped by whether they had sold drugs in the

Table 2
Risk behaviors among students who did or did not sell drugs in the past year

	Students who did not sell drugs		Students who sold drugs		At each level of behavior, % who sold drugs
	n	%	n	%	
Alcohol use					
No use	18,582	55.3	639	14.3	3.3
< Weekly use	12,602	37.5	1,976	43.8	13.7
Weekly + use	2,409	7.2	1,888	41.9	43.9
Cigarette use					
No use	26,260	77.9	1,448	32.2	5.3
< Weekly use	3,586	10.6	615	13.4	14.6
Weekly + use	3,854	11.4	2,465	54.4	39.0
Marijuana use					
No use	27,301	81.2	796	17.8	2.8
< Weekly use	4,443	13.2	1,078	24.0	19.6
Weekly + use	1,865	5.5	2,618	58.2	58.4
Cocaine use					
No use	33,485	99.4	3,947	87.8	10.5
< Monthly use	105	0.3	243	5.4	69.8
Monthly + use	92	0.3	306	6.8	76.9
Delinquency					
None	10,043	29.6	109	2.4	1.1
Some	18,189	53.7	1,194	26.0	6.2
Highest 20%	5,670	16.7	3,288	71.6	36.7
Violence					
None	11,717	34.8	447	9.9	3.7
Some	15,346	45.6	1,423	31.4	8.5
Highest 20%	6,607	19.6	2,661	58.7	28.7
Total	33,904	88.1%	4,594	11.9%	

Note: Sums may not equal total because of missing data. Overall total excludes 501 youths (1.3% of total) who did not answer the survey item.

past year. Concerning cigarette use, for example, 2,465 students, or 54.4% of those who had sold drugs also smoked weekly. In contrast, 3,854 students, or only 11.4% of those who had not sold drugs also reported smoking weekly. Thus, dividing 2,465 by the 6,319 students who smoke weekly, one can estimate that 39.0% of weekly smokers reported selling drugs. Weekly marijuana use was especially common among drug sellers (58.2%). In fact, drug sellers represented over half of the students who reported smoking marijuana weekly. Cocaine use was also much more common among students who sold drugs, yet relatively few drug sellers (12.2%) reported any cocaine use. Delinquency was strongly associated with drug selling, with 70% of drug-selling youths scoring in the highest quintile on the index and only 2% reporting no delinquent behavior (other than selling drugs). Selling drugs was also associated with violent behavior, with 58.7% of drug sellers scoring in the highest quintile. About 10% of drug-selling students, however, reported no violent behavior.

Although all of these risk behaviors were associated significantly with selling drugs, only marijuana use, delinquency and violent behavior had relatively specific and sensitive associations with the outcome of interest. These

variables were included as covariates in the logistic regression model to represent a more generalized pattern of risk behavior.

Distinguishing drug selling from other risk behaviors

A series of logistic regression analyses examined which variables from each of the models best explained the likelihood of selling drugs, above and beyond involvement in a general pattern of risk behavior. Within each model, variables that were significant at $p \leq .05$ were included in the final model.

In the social bonding model, a warm and caring school climate, religious activity, and participation in family activities were significantly associated with selling drugs. Neither academic achievement nor extracurricular activity, however, had a significant effect. Variables from the social network model included significant effects for friends' encouragement of substance use and knowing school adults who sent mixed messages about substance use. Compared to youths who never worked for pay, working once or twice per week was associated with less drug selling, but working daily was associated with an increased risk. In the purposeful business activity model, neither purposeful planning nor self-confidence was associated with the likelihood of selling drugs. Students who sold drugs, however, were less likely to make decisions carefully and were more likely to report being able to make friends easily.

The final model included variables from each of the models as well as demographic controls and variables associated with a general pattern of risk behavior (Table 3). School year, gender, ethnicity, and family living arrangements were all associated with selling drugs in the same patterns noted earlier. In addition, violent behavior, delinquency, and both occasional and weekly marijuana use remained strongly associated with selling drugs. Occasional and weekly religious activity, as well as more involvement in family activities, were associated with a reduced likelihood of selling drugs, while friends' encouragement of substance use, knowing school adults who sent mixed messages about it, and working daily (as opposed to never) increased this likelihood. Careful decision-making was associated with a reduced likelihood of selling drugs while ability to make friends was associated with an increased likelihood.

Differences by gender and ethnicity

The effects described above largely persisted across gender and ethnicity, though some differences were detected. Compared to the overall estimates, being male had especially pronounced effects among African-American (AOR = 3.007, 95% CI = 2.381–3.798, $n = 6839$, $p < .001$) and Hispanic (AOR = 7.639, 95% CI = 3.108–18.777, $n = 624$, $p < .001$) youths. In addition, the effect of weekly marijuana use on drug selling was still large, but not quite

Table 3
Logistic regression model predicting having sold drugs

	Adjusted odds ratio	95% CI		<i>p</i>
Grade	1.058	1.012	1.106	.01
Male	2.215	2.009	2.442	<.01
Family reference = (two parents)				
Parent and stepparent	1.197	1.052	1.362	.01
Mother only	1.218	1.080	1.374	<.01
Other	1.416	1.220	1.645	<.01
Ethnicity reference = (white)				
Black	1.133	.994	1.292	.06
Asian	1.247	.920	1.692	.16
Hispanic	1.531	1.087	2.156	.02
Other	1.416	1.200	1.671	<.01
Violence	1.275	1.208	1.347	<.01
Delinquency	2.178	2.075	2.287	<.01
Marijuana use reference = (no use)				
< Weekly	4.148	3.679	4.676	<.01
≥ Weekly	15.489	13.749	17.448	<.01
School climate	.939	.864	1.021	.14
Religious activity reference = (none)				
< Weekly	.806	.721	.900	<.01
≥ Weekly	.727	.645	.819	<.01
Family activities	.944	.912	.978	<.01
Friends support use	1.168	1.101	1.238	<.01
School adults support use	1.411	1.282	1.554	<.01
Work for pay reference = (never)				
< Weekly	1.016	.864	1.194	.85
1–2×/week	.986	.839	1.159	.87
Almost every day	1.255	1.078	1.461	<.01
Careful decision-making	.917	.856	.982	.01
Ability to make friends	1.211	1.112	1.318	<.01
Constant	.065			<.01

Model $\chi^2_{(24)} = 10633.188$; $n = 33,925$; $p < .001$.

as great among African-American (AOR = 10.828, 95% CI = 8.301–14.124, $n = 6839$, $p < .001$) and Hispanic youth (AOR = 11.818, 95% CI = 4.438–31.473, $n = 642$, $p < .001$), as well as among those reporting other ethnicities (AOR = 9.438, 95% CI = 6.452–13.806, $n = 2640$, $p < .001$). Significant interaction terms also indicated that violence was more strongly associated with selling drugs for females (AOR = 1.458, 95% CI = 1.329–1.599, $n = 19846$, $p < .001$) versus males (AOR = 1.194, 95% CI = 1.115–1.278, $n = 18810$, $p < .001$), but marijuana use had a stronger effect for males (AOR = 18.504, 95% CI = 15.939–21.482, $n = 18810$, $p < .001$) than females (AOR = 11.266, 95% CI = 9.177–13.829, $n = 19846$, $p < .001$).

Discussion

In this study, one in nine students reported selling drugs at least once during the past year. Although school-specific

data were not available, other evidence suggests that selling drugs is not limited to a few troubled schools. A recent national study found that over half of adolescents described their high school as a place where drugs are used, kept or sold [5]. With drug selling so widespread in this population, is it necessary to challenge the popular view of adult dealers or out-of-school youths as youths' main sources of marijuana, cocaine and other substances. Instead, many high school students need look no further than their homeroom to find a "dealer." Even if many students sell drugs only occasionally, the large number who engage in this behavior, 4,594 in one city alone, suggest that such small-time sellers may represent an important aspect of drug distribution networks and youths' access to illicit substances.

Not surprisingly, the present study found that selling drugs was strongly associated with other risk behaviors, most notably delinquency, violence and marijuana use. This finding is consistent with theories that suggest different risk behaviors tend to co-exist within individuals as manifestations of an underlying syndrome of problem behavior [13]. Nonetheless, certain psychosocial characteristics appear to distinguish drug selling above and beyond involvement in a general pattern of problem behavior.

As suggested in the social bonding model, lower levels of family and religious activity were associated with a greater likelihood of selling drugs. This finding may indicate less family connectedness, an important influence on adolescent risk behavior in general, [24] and on drug selling, in particular [16]. Youths who lack a warm and supportive relationship with their parents may be more likely to seek such connections among their peers [25] and this process of selective affiliation may be especially important in the formation of drug-using peer groups [26]. Family connectedness has also been found to relate to other parenting characteristics, including parental drug use [8] and monitoring of children's behavior and friends [27,28], that may have a more direct effect on youths' drug selling. Unfortunately, it was impossible to test these hypotheses directly, because the variables were not available in the PPAAUS data.

Curiously, students' perceptions of, and participation in school activities did not influence their likelihood of selling drugs, beyond involvement in a general pattern of risk behavior. This finding may reflect the nature of the PPAAUS sample, which best represents youths who regularly attend school. To the extent that youths who sell drugs are more likely to leave school early, these findings may underestimate the importance of academic achievement and involvement in pro-social activities. Nonetheless, this finding is encouraging in that it suggests that many teens who sell drugs are still relatively engaged in academic and school-related activities. As such, they may be easier to identify and help, compared to young people who attend school only intermittently.

The findings from this study support the notion that

selling drugs is strongly associated with social networks that support substance use. For instance, students were more likely to sell drugs if their friends supported drug use and school adults sent mixed or supportive messages about it. Teens who receive such messages might be more likely to sell drugs in order to meet the expectations of their peer group [11,29]. In a similar vein, the significant effect of working daily for pay may represent youths' exposure to adults who support drug use. Given that most teenagers' employment involves low-paying unskilled positions, the adult co-workers they see regularly may include individuals who purchase, sell and/or use illicit drugs. Whereas previous studies have found regular employment to be associated with adolescent drug use [18,24], this study suggests that working daily may have an additional influence on youths' drug selling. Because of the cross-sectional nature of this study, however, it is inappropriate to conclude that jobs for teens necessarily cause drug selling, as these relationships most likely are rooted in individual and family characteristics that emerge during childhood [30].

This study's findings provide little evidence that students who sell drugs are more entrepreneurial than their peers who only engage in other risk behaviors. Compared to non-sellers, sellers reported similar levels of self-efficacy and purposeful planning, and were even less likely to make decisions carefully. This finding contrasts with previous research that suggests youths in disadvantaged environments turn to drug dealing to acquire wealth or prestige [23]. Rather, it appears that drug selling among a general population of high school students may be better described as part of a pattern of risk behavior rather than an adaptive response to a difficult environment.

Limitations

The small number of variables in the data set limited the study's ability to identify a wide range of psychosocial correlates of drug selling. Future studies in this area should consider how the behavior and attitudes of parents, siblings and peers are associated with this worrisome behavior (cf. 9). Another concern was that drug selling was measured by a single item of unknown reliability and validity. The generality of the question, "have you sold drugs?" may have grouped together youths who sell different types of substances. Such a classification may be inappropriate to the extent that selling different types of drugs is associated with different risk behaviors and psychosocial characteristics. Smart et al [12] for instance, found that high school students who sold only marijuana students differed from those who sold both marijuana and other drugs. The latter group, reported higher levels of illicit substance use and delinquency. Nonetheless, this study provides a helpful preliminary assessment of a worrisome behavior that has received little attention among high school students.

Conclusion

Even as rates of adolescent substance use have declined, drug selling remains relatively common among high school students. Efforts to identify and help students who sell drugs may be promising because such youths remain connected to school. Nonetheless, practitioners should recognize that lack of connection to families and other social institutions may represent fundamental influences on young people's decision to sell drugs. Effective interventions may both benefit students who engage in this risky behavior and help disrupt an important source of youths' access to illicit drugs.

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References

- [1] Pritchard O. Putting pressure on parents who let teens drink at home. Philadelphia Inquirer, posted March 31, 2003. <http://philly.com/mlt/inquirer/5520929/htm>. Accessed March 31, 2003
- [2] Williams CL, Perry CL, Farbakhsh K, Veblen-Mortenson S. Project Northland: Comprehensive alcohol use prevention for young adolescents, their parents, schools, peers and communities. *Journal of Studies on Alcohol* 1999;13:112–24.
- [3] Castrucci BC, Gerlach KK, Kaufman NJ, Orleans CT. Adolescents' acquisition of cigarettes through non-commercial sources. *Journal of Adolescent Health* 2002;31:322–26.
- [4] Wagenaar AC, Toomey TL, Murray DM, et al. Sources of alcohol for underage drinkers. *Journal of Studies on Alcohol* 1996;57:325–33.
- [5] Center on Addiction and Substance Abuse. National Survey of American Attitudes on Substance Abuse VIII: Teens and Parents. http://www.kaisernet.org/health_cast/uploaded_files/EmbargoedDocumentw-TitlePage.pdf. Accessed August 22, 2003.
- [6] Grunbaum JA, Kann L, Kinche, SA, et al. Youth Risk Behavior Surveillance - United States, 2001. *Morbidity and Mortality Weekly Report* 2002;51:1–64.
- [7] Harris KM, Duncan GJ, Boisjoly J. Evaluating the role of "nothing to lose" attitudes on risky behavior in adolescence. *Social Forces* 2002; 80:1005–39.
- [8] Fagan J. The political economy of drug dealing among urban gangs. In Davis RCE, Lurigio AJ E et al (eds). *Drugs and the Community: Involving Community Residents in Combating the Sale of Illegal Drugs*. Springfield, IL: Charles C. Thomas; 1993:9–54.
- [9] Flom PL, Friedman SR, Jose B, Curtis R. Peer norms regarding drug use and drug selling among household youth in a low-income 'drug supermarket' urban neighborhood. *Drugs: Education, Prevention & Policy* 2001;8:219–32.
- [10] Friedman AS, Glassman K, Terras A. Violent behavior as related to use of marijuana and other drugs. *Journal of Addictive Diseases* 2001;20:49–72.
- [11] Li X, Feigelman S, Stanton B, et al. Drug trafficking and drug use among urban African-American adolescents: A causal analysis. *Journal of Adolescent Health* 1998;23:280–8.
- [12] Smart RG, Adlaf EM, Walsh GW. Adolescent drug sellers: Trends, characteristics and profiles. *British Journal of Addiction* 1992;87: 1561–70.

- [13] Jessor R, Jessor SL. *Problem Behavior and Psychosocial Development: A Longitudinal Study of Youth*. New York: Academic Press, 1977.
- [14] Sheley JF. Drugs and guns among inner-city high school students. *Journal of Drug Education* 1994;24:303–21.
- [15] Steinman KJ, Zimmerman MA. Episodic and persistent gun carrying among urban African-American adolescents. *Journal of Adolescent Health* 2003;32:356–364.
- [16] Friedman AS, Terras A, Glassman K. Family structure versus family relationships for predicting substance use/abuse and illegal behavior. *Journal of Child and Adolescent Substance Abuse* 2000;10:1–16.
- [17] Friedman AS, Bransfield S, Granick S, Kreisher C. Early childhood risk and protective factors for substance use during early adolescence: Gender differences. *Journal of Child and Adolescent Substance Abuse* 1995;4:1–23.
- [18] Buckhalt JA, Halpin G, Noel R, Meadows ME. Relationship of drug use to involvement in school, home, and community activities: Results of a large survey of adolescents. *Psychological Reports* 1992;70:139–46.
- [19] Johnson BR, Larson DB, De Li S, Jang SJ. Escaping from the crime of inner cities: Church attendance and religious salience among disadvantaged youth. *Justice Quarterly* 2000;17:377–91.
- [20] Petraitis J, Flay BR, Miller TQ. Reviewing theories of adolescent substance use: Organizing pieces in the puzzle. *Psychological Bulletin* 1995;117:67–86.
- [21] Reuter P, MacCoun RJ, Murphy PJ, et al. *Money from crime: A study of the economic aspects of drug dealing in Washington D.C.* Washington, D.C.: RAND Drug Policy Research Center; 1990.
- [22] Li X, Stanton B, Black MM, Feigelman S. Persistence of drug trafficking behaviors and intentions among urban African American early adolescents. *Journal of Early Adolescence* 1996;16:469–87.
- [23] McCarthy B, Hagan J. When crime pays: Capital, competence, and criminal success. *Social Forces* 2001;79:1035–59.
- [24] Resnick MD, Bearman PS, Blum RW, et al. Protecting adolescents from harm: Findings from the National Longitudinal Study on Adolescent Health. *Journal of the American Medical Association* 1997;278:823–32.
- [25] Quinton D, Pickles A, Maughan B, Rutter M. Partners, peers, and pathways - assortative pairing and continuities in conduct disorder. *Development and Psychopathology* 1993;5:763–83.
- [26] Aseltine RH. A reconsideration of parental and peer influences on adolescent deviance. *Journal of Health and Social Behavior* 1995;36:103–21.
- [27] Brook JS, Whiteman M, Balka EB. Parent drug use, parent personality, and parenting. *Journal of Genetic Psychology*, 1995;156(2):137–51.
- [28] Brown BB, Mounts N, Lamborn SD, Steinberg L. Parenting practices and peer group affiliation in adolescence. *Child Development*, 1993;64:467–82.
- [29] Dishion TJ, Capaldi D, Spracklen KM, Li F. Peer ecology of male adolescent drug use. *Development and Psychopathology* 1995;7:803–24.
- [30] Brook JS, Whiteman M, Cohen P, et al. Longitudinally predicting late adolescent and young adult drug use: Childhood and adolescent precursors. *Journal of the American Academy of Child and Adolescent Psychiatry* 1995;34(9):1230–8.