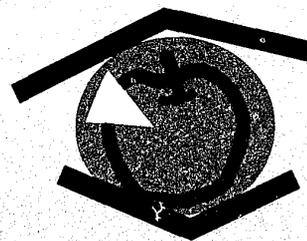
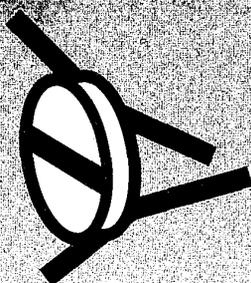
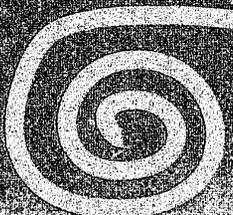


Good and bad news about youth and delinquency — documented by new research

School Safety



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**U.S. Department of Justice
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As part of the School Safety News Service, *School Safety* is published by the National School Safety Center to communicate current trends and effective programs in school safety to educators, law enforcers, lawyers, judges, government officials, business leaders, journalists and the public. Annual subscription: \$119.00. Components of the School Safety News Service are published monthly September to May.

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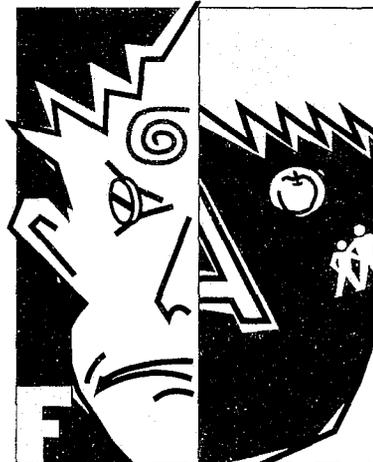
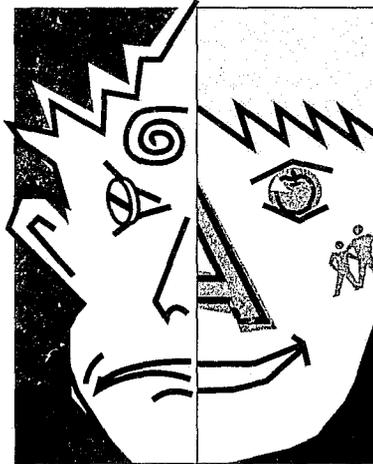
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Prepared under Grant No. 85-MU-CX-0003 and funded in the amount of \$900,000 by the Office of Juvenile Justice and Delinquency Prevention, Office of Justice Programs, U.S. Department of Justice and the U.S. Department of Education. Points of view or opinions in this document are those of the author and do not necessarily represent the official position or policies of the U.S. Department of Justice, U.S. Department of Education or Pepperdine University. Neither NSSC nor any of its employees makes any warranty, expressed or implied, nor assumes any legal liability or responsibility for the accuracy, completeness or usefulness of any information, apparatus, product or process described herein. Copyright © 1992 National School Safety Center.

About the cover:
 What causes a youth to become delinquent? New research links drug use, education, peer networks and family relationships as factors contributing to juvenile delinquency. Artwork by Tackett and Barbara Design.

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BY WELMOET VAN KAMMEN AND ROLF LOEBER

Knowledge about the early phases of substance use in young children is crucial to understanding the correlation between later substance use and delinquency.

Drugs, delinquency and discipline

The "war" on drugs increasingly has drawn attention to the early stages of use and abuse of legal and illegal substances in school-age children. Trends in substance use at an earlier age are particularly worrisome and alarming. Early substance use, as opposed to experimentation with different substances later in life, increases the likelihood of persisting use and eventually of abuse for both boys and girls.

The concern about substance use in young children initially has centered around smoking tobacco and glue sniffing. More and more, however, the focus has shifted to include beer or wine, and the use of marijuana and hard drugs has been documented in elementary school-age youngsters (van Kammen and others 1991).

Developmental progression

Substance abuse usually takes years to emerge, with the use of seemingly less serious substances generally preceding the use of more serious forms of illegal drugs. Substance use that begins in junior high and high school develops according to an orderly sequence, with

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wine or beer drinking as the first stage of use. Following is a second stage consisting of smoking and/or liquor use, which in turn may be succeeded by marijuana as the third stage. A final stage includes the use of hard drugs (Kandel 1975). Not all substance-using youth, of course, progress through all these stages. But almost invariably, a child who has used marijuana or other illegal substances has attained this behavior after previous use of gateway substances such as alcohol and tobacco.

Advancement to a higher stage of use does not mean that the substance use characteristic of an earlier stage is discarded; instead, it is quite common that early substance-use patterns are retained when new ones are added. Thus, youngsters who have started to use marijuana are much more likely to continue their previous behaviors of smoking and drinking alcohol.

It is not yet certain if the developmental progression in substance use observed in adolescents can also be found in substance-using children during the elementary school years. It is unclear whether the patterns of use in these younger children indicate haphazard experimentation or reflect an orderly developmental sequence.

Studies show that an early age of onset of substance use (typically prior to age 12) is associated with later multiple use of drugs (Kandel 1982). Again, it is cru-

cial to know more about the early phases of substance use in young children.

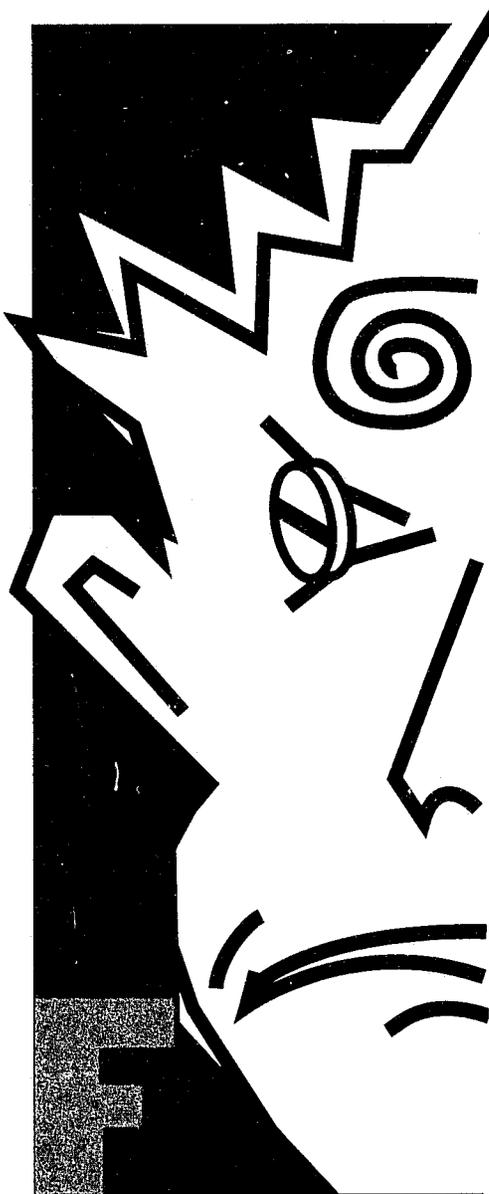
What are the characteristics that may distinguish those who become abusers from those who do not? How early in children's lives can such distinctions be noted? How early do children start sampling multiple substances? Can early patterns of experimentation with substances predict later frequent and habitual use?

Substance use and delinquency

Another important issue is the extent to which substance use is associated with conduct problems and delinquency. Do the two already co-occur early in the lives of children? And, if so, to what extent does the use of a single substance or the use of multiple substances relate to the severity of delinquent acts?

The overlap of early substance use with conduct problems and delinquent behavior goes beyond the fact that use of so-called "legal" substances is illegal for minors. The overlap also does not refer to law-breaking behaviors that may facilitate the use of substances, such as theft of alcoholic beverages. Instead, early substance use is closely associated with a greater variety of other, seemingly unconnected, serious problem behaviors.

We know from studies on older children that their involvement in any drug use increases the likelihood of subse-



VAN KAMMEN AND LOEBER

relates of early forms of delinquency and substance use. In the spring of 1987 and 1988, 2,573 boys enrolled in public schools in Pittsburgh were randomly selected from the first, fourth, and seventh grade. The boys were interviewed in their homes. Primary caregivers (usually their mothers) were also asked to participate in separate interviews. Privacy was safeguarded in such a way that other members present in the household could not overhear the interviews, and the child and mother/caregiver were assured that the information they provided was confidential. All participation was voluntary.

The mean ages for the first-, fourth- and seventh-graders were 6.9, 10.2 and 13.2 years, respectively, at the time of the interviews. The percentages of African-American boys in the three different grades were 54.3 percent, 51.8 percent and 53.5 percent, respectively, while the remaining boys were mostly Caucasian. These percentages were representative of the population of students in the first, fourth and seventh grades in the Pittsburgh Public Schools.

About half of the sample (56.2 percent) lived in households where the main caregiver had been separated, divorced, widowed or never married; 42.3 percent of the boys did not have a father or acting father in the home. High school had not been completed by 21.2 percent of the mothers or acting mothers, while at the other extreme, 17.2 percent had earned a college degree. For fathers or acting fathers living with the child, the corresponding figures were 30.6 percent and 20.9 percent, respectively. The total cooperation rate of the children and their caregivers was 84.7 percent.

Measures

The questionnaires for the seventh-graders covered 40 different types of anti-social behaviors and 16 kinds of drugs/substances. For instance, the boys were asked if they had stolen things of differing values; if they had carried a weapon or had attacked somebody with a weapon; or if they had handled stolen goods.

Some questions about school behavior, such as cheating on tests, skipping school and being suspended, were also covered.

For the first- and fourth-grade boys, the questionnaire was modified slightly from that used for the seventh-graders, because some of the questions were considered too difficult for the younger children to understand. In addition, some items dealt with problem behaviors such as joy riding and the illegal use of credit cards, which younger children were not very likely to have experienced. Also, these youngsters were not asked about illegal drugs, except for the use of marijuana.

The questionnaire for the first- and fourth-graders included items such as stealing a bike, stealing from a store and setting a fire. The younger children were also asked if they had been sent home from school, if they had damaged or taken things belonging to school and if they had hit another student. For all questions, the boys were first asked if they had ever engaged in the behavior; if they had, they were then asked how often they had done so in the previous six months.

Prevalence of substance use

A consistent increase in the use of each kind of substance was observed across grades. Between the first and seventh grades, smoking tobacco and the use of wine, hard liquor and marijuana increased by at least a factor of 10. The prevalence of beer drinking multiplied by a factor of seven.

Most of the salient increases occurred between grades four and seven. For instance, smoking increased from 3.4 percent in the first grade to 9.3 percent in the fourth grade and 34.7 percent in grade seven. A notable 7.8 percent of the first-graders had already been drinking beer, compared to more than half of the subjects in the seventh grade.

When the use of substances was restricted to those used in the past six months, the pattern of use showed similar increases for the different grades as

quent conduct problems and delinquent acts. Early problem behavior has been found to predict adolescent substance use. It is unclear, however, if substance use in young children is indicative of concurrent conduct problems and delinquency, or at what age the overlap between the two types of behaviors manifests itself. We also do not know if the relationship between these problem behaviors becomes apparent in school as well.

The Pittsburgh Youth Study

In an effort to obtain a clearer picture of the developmental sequence of problem behaviors in young children, the Pittsburgh Youth Study began as a longitudinal study to examine the causes and cor-

were shown for the lifetime rates. For instance, smoking during the previous six months was reported in 2.1 percent of the first-graders and increased to 4 percent in grade four and 13.3 percent in grade seven.

Use of multiple substances

As expected, the lifetime use of one substance was frequently associated with use of one or more other substances. More than half of the boys in the first and fourth grade who had consumed wine, 53.8 percent and 59 percent respectively, had also consumed beer.

Moreover, 23.1 percent of the first-graders and 30.8 percent of the fourth-graders who had consumed wine had also smoked cigarettes. Of the fourth-graders who had smoked, almost one-third (30.9 percent) also had been involved in drinking beer.

For the seventh-graders, an even more significant overlap between the different forms of substance use was observed. The use of marijuana overwhelmingly indicated the use of other substances, with over 83 percent of the marijuana users admitting to smoking tobacco and consuming beer or wine. Drinking hard liquor strongly implied the use of beer, wine and tobacco, but not necessarily the use of marijuana. Most smokers (80.1 percent) were also beer drinkers, while only half of the beer drinkers were smokers.

Even for the six-month recall period, the associations between the different substances remained significant for all of the previously mentioned combinations. For instance, all marijuana users and 92.9 percent of the hard liquor users had also been drinking beer in the previous six months. The association between marijuana and hard liquor use remained the same.

Thus the large majority of those seventh-graders who had consumed developmentally advanced substances (such as hard liquor or marijuana) also had used substances that typically occur earlier in the developmental sequence (such as beer, wine or cigarettes).

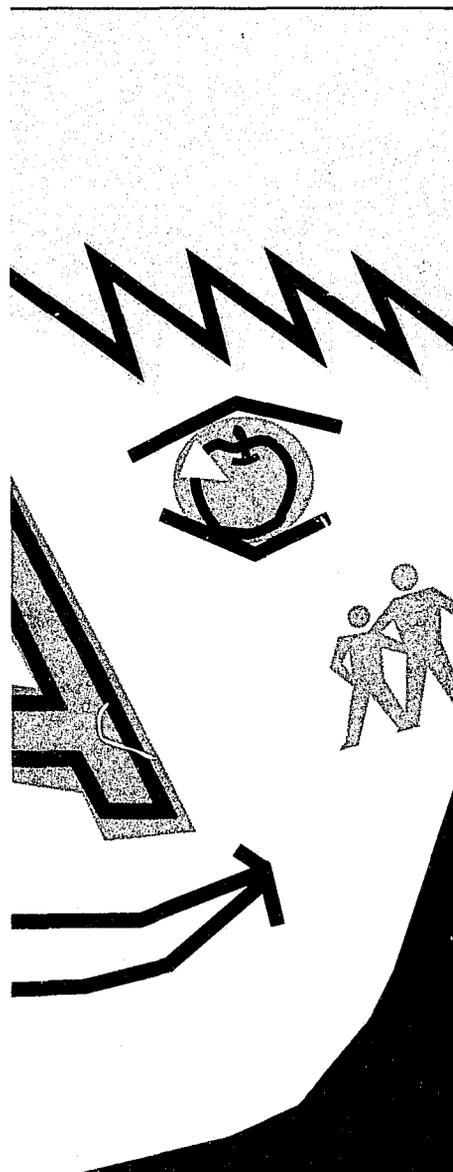
To what extent is early substance use associated with problem behavior in schools? To examine this question closely, first- and fourth-grade users were categorized as non-users, single users and multiple users. The seventh-graders were classified as those who had never used a substance; those who had used beer, wine and/or cigarettes; those who had used hard liquor; and those who had used marijuana. Thus, the students who had been involved with more advanced substances were separated from those who had been involved with lesser substances.

First- and fourth-graders

Belonging to a more serious group of substance users significantly increased the likelihood of involvement in conduct problems and delinquency. For instance, trespassing was reported by 9 percent of the first-graders and 14.4 percent of the fourth-graders who had never experimented with any substance. This increased to 31.2 percent and 37.6 percent, respectively, for the first- and fourth-graders who had used a single substance, and to 45.8 percent and 67.9 percent, respectively, for boys who had already experimented with multiple substances. A similar pattern was observed for other conduct problems and delinquent behaviors, with the likelihood of involvement in anti-social behavior dramatically increasing concurrently with the level of substance use.

The higher the level of substance use, the greater the rate of school-related problem behaviors in first- and fourth-grade boys. Almost 80 percent of the first-grade multiple substance users had also been involved in a fight with other students, while almost 40 percent of the fourth-grade multiple substance users reported cheating on a school test.

Also examined was whether increased involvement in delinquent acts was significantly higher among the different groups of substance users. This was done by separately comparing the non-users with the single-substance users, and the single-substance users with the multiple-



substance users.

Unexpected results

Surprisingly, significant increases in conduct problems and delinquent acts, such as theft and vandalism at school, were more frequently observed between the single-substance-use group and the multiple-substance-use group for first-grade boys than for fourth-grade boys. Advancement into more serious substance use was related more to conduct problems and delinquency for first-graders than for fourth-graders. This conclusion is supported by findings showing that, prior to adulthood, a developmental pathway of exclusive substance users emerges that is distinct from the developmental pathway of substance-using

youngsters who are delinquent as well (Loeber 1988).

On the other hand, fourth-grade single substance-users (compared to non-users) engaged in a higher variety of these problem behaviors than did single-substance first-grade users. Fourth-grade boys who had used a single substance had skipped school, been sent home from school for misbehavior and stolen things from school significantly more often than the boys who had never used any substance.

Some of the significant associations for different groups of substance users with certain problem behaviors, like fire setting, spray painting and skipping school, were unique for the fourth-graders but not for the first-graders. These problem behaviors were characterized as activities away from the home, where adult supervision was unlikely. In contrast, for the first-grade boys, unique associations of problem behaviors and different groups of substance users primarily involved acts at home, such as damaging family property and hitting a sibling.

Seventh-graders

The degree of advancement into the substance use sequence for the seventh-graders was clearly accompanied by increased involvement in a larger variety of more serious conduct problems and delinquent acts.

Increased involvement in substance use increased their likelihood of school-related problem behaviors. Though aggressive behavior and vandalism in school were not charted with their group, data were collected on cheating, skipping school and being suspended from school. Seventh-graders who had already experimented with marijuana were also very likely to have skipped school (73.6 percent) and to have been suspended from school (84.9 percent). These behaviors were also frequently reported in the group of boys who had already reported the use of hard liquor (60.6 percent).

Comparisons between different groups

of substance users showed that boys who consumed liquor were significantly more likely to report serious delinquent acts, such as joy riding and carrying a weapon, than boys who had only tried beer, wine and/or smoking. This behavior was further accelerated in those who admitted to marijuana use. Almost one-third of the boys (30.2 percent) who had used marijuana also reported attacking someone with a weapon, while only 9.1 percent of the boys who had used hard liquor had been involved in such an attack. Three-quarters of the marijuana users admitted to shoplifting (73.6 percent) compared to 47 percent of the liquor-using group who admitted the same.

The findings may be interpreted to show that as boys advanced into the substance-using sequence, they became less inhibited — resulting in delinquent acts. Examples of “disinhibition” are being loud, being drunk in public places, gang fights, attacks with weapons and hitting to hurt. Unfortunately, the proportion of such delinquent acts that were committed while under the influence of a substance was not studied.

An important link

This study showed an important link between advancement in substance use and involvement in anti-social and delinquent behavior. The result was replicated across the three grade samples. In particular, it showed that increased penetration into the substance use sequence was related to higher incidence of school-related problem behaviors.

The present results need to be validated by additional data from longitudinal studies. Prospective data collected on children’s substance use and delinquent behavior will extend knowledge about both the developmental sequences and interaction of these two types of problem behavior.

A dual focus on substance use and delinquency may be particularly necessary for prevention studies. Substance use and conduct problems and delinquent behaviors appear to be more closely re-

lated during early childhood than in adolescence.

It may also help to determine which early pattern of use is predictive of later continued use, focusing on which particular pattern of substance use is associated with subsequent law violations and mental health problems. Follow-up data being collected on a subsample of 1,500 boys in the Pittsburgh Youth Study will no doubt increase knowledge of these interactions over time.

In any event, substance abuse education for children in elementary school may very well serve a two-fold purpose — preventing drug and alcohol use and forestalling delinquent behaviors.

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*This paper was published in a more extensive version in the **Journal of Youth and Adolescence** (1991).*

The authors are much indebted to the staff of the Life Histories Studies Program for their valiant efforts to collect and process the data. David Farrington provided valuable comments on an earlier draft of the paper.

The study was supported by Grant No. 86-JN-CX-0009 of the Office of Juvenile Justice and Delinquency Prevention, Office of Justice Programs, U.S. Department of Justice. Points of view or opinions in this document are those of the authors and do not necessarily represent the official position or policies of the U.S. Department of Justice.