Rochester Youth Development Study

Working Paper Series

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Working Paper No. 2

Peer Influence and Initiation to Drug Use

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INTRODUCTION

Drug use is a serious and increasingly prevalent problem among American youth. By late adolescence, alcohol use is commonplace and, in the past twenty years, marijuana has joined its ranks as an easily obtained and frequently used drug. For example, the Monitoring the Future Study (Bachman et al., 1986), which asks a nationally representative sample of high school seniors about drug use during the past twelve months indicates that 85 percent of the seniors report alcohol use and about 40 percent report marijuana use. An additional 13 percent report using cocaine (Flanagan and Jamieson , 1986: 213). This level of drug use is of major concern to the American public, especially parents, teachers and policy makers. A better understanding of the social and psychological factors associated with drug use, especially prolonged use of addictive drugs, is needed if society is to successfully combat this problem. This paper attempts to contribute to this end by describing one aspect of the larger picture, the relationship between peer support for drug use and actual drug use among a sample of urban youth. In doing so it pays particular attention to the influence of peers on the initiation of drug use during early adolescence.

The scientific literature has demonstrated that adolescents are influenced by the beliefs and behaviors of their peers in a variety of behavioral areas. Initiation into the use of illegal substances is especially likely to occur in social settings with the encouragement and support of friends. Thus, a number of studies have shown that youth who associate with others who engage in delinquency, use drugs, or both, are themselves more likely to use drugs (Akers et al., 1979, Krohn et al., 1982, Kandel and Logan, 1984). Pursuing this line of inquiry, Elliott et al. (1985) found that involvement with delinquent peers, along with earlier drug use, was also the best predictor of continued drug use. This paper continues the investigation of the association between peer influence and drug use by examining the following specific questions:

1. Is the general link between associating with delinquent peers and increased drug use also observed for a sample selected to over-represent high risk youth?
2. Is the general link between associating with delinquent peers and increased drug use also observed for younger adolescents, near their initiation into drug use?

3. Is the absence of a conventional orientation among peers more important than the presence of a delinquent orientation in fostering drug use by the subject?

METHODS

To answer these questions data from the Rochester Youth Development Study are analyzed. This study, funded by the Office of Juvenile Justice and Delinquency Prevention as part of its Research Program on the Causes and Correlates of Delinquency, is designed to examine the development of delinquent behavior in a high risk, urban sample. A companion study, funded by the National Institute on Drug Abuse, focuses attention on drug use. In combination these projects provide the data needed for this analysis.

Sample: The Rochester Youth Development Study sample consists of 1,000 students who attended the seventh and eighth grades of the Rochester City schools during the 1987-1988 academic year. Seventy-five percent of the sample is male and 25 percent is female. To ensure that serious, chronic offenders are included in the study, the sample over-represents high risk youth in the following manner. All eligible students were located in their census tracts of residence and then students were selected proportionate to the arrest rates of those census tracts. Thus, students from the highest crime areas in the city are proportionately over-represented and students from the lowest crime areas are proportionately under-represented. Although over-representing high risk youth, the sample is a true probability sample and can be weighted to represent the entire student population of these grades. The current analysis is based on the 962 students who completed the first interview, less any cases for whom there are missing data on the particular scale being analyzed.

Design: The Rochester Youth Development Study is a seven wave panel study, in which each student is interviewed seven times, at six month intervals, over the course of the study. In addition, one parent is also interviewed seven times at six month intervals, and data are collected from the Rochester schools, police and other agencies that deal with youth. Although the Rochester Youth Development Study uses this broad-based data collection strategy, the present analysis is based solely on responses

collected during the first student interview, conducted in the spring of the respondent's seventh or eighth grade year.

Measures: Four characteristics of the student's perception of their peers' attitudes and behaviors are included in this analysis. All of these concepts are measured through the eyes of the student who was asked to think of the friend or friends who influenced him/her the most and then to describe the friends' commitment to conventional values and delinquent values, their involvement in delinquent behavior, and their reactions to delinquent behavior. These data are therefore filtered through the student's perceptions and are not obtained directly from the friends.

The four peer measures are:

1. Peer Conventional Values: A nine item scale measuring the importance peers attach to such activities as attending college, studying hard, and working hard. The response set is a four point scale ranging from "very important" to "not important at all" and high scores indicate stronger commitment to conventional values.

2. Peer Delinquent Values: An eleven item scale measuring how wrong peers think such activities as skipping school, using drugs, theft and assault are. The response set is a four point scale ranging from "very wrong" to "not wrong at all" and high scores indicate stronger commitment to delinquent values.

3. Peer Delinquent Behavior: An eleven item scale measuring if the subject's friends engaged in such activities as skipping school, drug use, theft and assault. The response set is a dichotomy, "yes" or "no" so higher scores indicate greater involvement in delinquent behavior.

4. Peer Reaction to Drug Use: A three item scale measuring how the friends would react if the subject used drugs. The specific items are: "drank alcohol", "used marijuana", and "used hard drugs such as heroin, cocaine, LSD, or crack". The response set is a three point scale: "say it was okay", "not say anything", "say it was dumb" and high scores indicate greater encouragement or support.

The behavior to be explained in this analysis, the dependent variable, is drawn from the Rochester Youth Development Study self-reported delinquency scale which asks if the respondent ever took part in a variety of deviant behaviors and, if so, the age of the first occurrence and other follow-up questions. Analysis here focuses on the prevalence rates for four variables: use of alcohol (beer, wine and liquor), use of marijuana, use of other drugs (ranging from inhalants to crack) and sale of drugs (either marijuana or other drugs).

RESULTS

The ever-prevalence rates for drug related behaviors are presented in Table 1. By the spring semester of their seventh and eighth grades, 26 percent of the adolescents report having used alcohol and 11 percent report having used marijuana. On the other hand, only 2 percent report using other, more serious types of drugs or selling drugs.

Table 1 also presents these prevalence rates for demographic subgroups: race/ethnicity, sex and age. Overall, there are relatively few differences by racial or ethnic group. Although there is a slight tendency for whites to report the lowest use of involvement for alcohol and marijuana and higher use of other drugs, none of these differences are statistically significant. The different racial and ethnic groups represented in the Rochester schools are equally likely to use these types of drugs.

There are somewhat greater differences by sex. Girls report significantly greater use of marijuana than do boys (15 percent versus 10 percent). On the other hand, boys are significantly more likely to report selling drugs than are girls (2 percent versus 1 percent). Because of the oversampling design used in this study, the Wave I sample of females consists primarily of minority group members, an imbalance that has been adjusted in Wave II data collection. Nevertheless, for these data females report greater involvement with less serious forms of drug use and males with more serious forms.

Far and away the largest differences in drug use occur by age. For this comparison the sample has been divided into four categories: those less than thirteen (14 percent of the students), thirteen (37 percent), fourteen (37 percent), and over fourteen (12 percent). The age differences for each of the drug behaviors are significant and large.

While fifteen percent of the youngest students use alcohol, 22 percent of the thirteen year olds, 32 percent of the fourteen year olds and 36 percent of the oldest students do. Similarly, 6 percent of the youngest students, 9 percent of the thirteen year olds, 13 percent of the fourteen year olds and 21 percent of the oldest students report marijuana use. This same trend is also evident for the more serious, albeit less frequent forms of drug behavior. Use of other drugs increases from 1 percent to 6 percent and selling increases from 1 percent to 5 percent over these age groups.

In general, the prevalence rates for the members of the Rochester Youth Development Study suggest an involvement in drug use that is similar to that found in other studies of this age range. About a quarter of the sample used alcohol and about a tenth used marijuana. Use of other drugs and selling drugs is still rather rare at these ages. The prevalence rates were notably invariant with respect to race and ethnicity, differed somewhat by gender and differed substantially by age. The older students report considerably more involvement in drug behaviors than do the younger ones.

Peer Values and Drug Use

This section examines the relationship between the peer values, at least as they are perceived by the student, and the student's own drug use. Only two forms of drug behavior -- alcohol and marijuana use -- are included in this and the subsequent analyses. For the other two forms -- other drug use and selling drugs -- the base rates at this age are too low for extended analysis. Analysis begins by examining the relationship between peer commitment to conventional values and student drug use and then turns to the relationship between delinquent values and drug use.

Conventional Values: Table 2 presents the relationship between peer commitment to conventional values and the adolescent's use of alcohol and marijuana. Both relationships are statistically significant and suggest that students whose friends are strongly committed to conventional values are less likely to use drugs. For alcohol, 22 percent of the students whose friends are strongly committed to conventional values use alcohol, but 32 percent of the students whose friends are only weakly committed to conventional values use alcohol. A similar relationship is seen for marijuana use. While 9 percent of the students whose friends are strongly committed to conventional values use

marijuana, 15 percent of the students whose friends are weakly committed to conventional values use marijuana.

In sum, it appears that associating with friends who value such things as a college education, studying hard, and working hard to get ahead reduces the likelihood of using alcohol or marijuana. While these relationships are significant it should be noted that the differences between the percentages (22 versus 32 for alcohol and 9 versus 15 for marijuana) are not exceptionally large.

Delinquent Values: Table 3 displays the association between peer commitment to delinquent values and the adolescent's use of alcohol and marijuana. These relationships are statistically significant and appear to be slightly larger in effect than those associated with conventional values.

Thirty-nine percent of the adolescents who perceive their friends to be more supportive of delinquent activities use alcohol, as compared to only 13 percent of those who perceive their friends to be less supportive of delinquent activities. The comparable percentages for marijuana use are 17 percent and 5 percent. Clearly, adolescents who associate with peers who are even somewhat supportive of delinquent acts such as skipping school, using drugs, stealing and assaulting others are far more likely to use drugs themselves.

Peer Delinquent Behavior and Drug Use

The previous findings suggest that associating with peers who are not strongly committed to conventional values but who are committed to delinquent values tends to increase one's own drug use. Analysis now examines the relationship between the student's perceptions of the peers' behavior and the student's drug use. Two behavioral issues are examined -- associating with friends who engage in delinquent behavior and the reactions of those friends when the subject uses drugs.

Delinquent Behavior: From the data presented in Table 4 it is clear that friends' delinquent behavior is strongly related to the student's own drug use. As the amount of peer delinquency reported increases there are monotonic and sizeable increases in the student's drug use.

Looking at alcohol use first it can be seen that if the peers are relatively non-delinquent only 13 percent of the adolescents report alcohol use. As peer delinquency increases to the middle category

however, 30 percent of the adolescents report alcohol use and by the highest category of peer involvement in delinquency alcohol use increases to 61 percent. In other words, as one moves from the least to the most delinquent peer groups, the rate of alcohol use by the adolescent increases five-fold!

Even more dramatic differences are seen when marijuana is examined (Table 4). Here, 4 percent of the students whose friends are in the least delinquent category report using marijuana, a figure which increases to 12 percent for the middle category and to 32 percent in the highest delinquency category. The marijuana usage for students with the most delinquent friends is eight times that of the students with the least delinquent friends.

Reactions to Drug Use: The second aspect of peer behavior measured in the interview concerned peer reaction to the adolescent's own drug use. Each adolescent was asked whether his/her friends would react positively, neutrally or negatively if they knew he/she had used alcohol, marijuana, or other drugs.

There is a very strong relationship between anticipated peer reactions and one's own drug use (Table 5). If peer encouragement for drug use is low, 19 percent of the adolescents report using alcohol, but if peer encouragement is high 55 percent report using alcohol. Similarly for marijuana, if peer encouragement for drug use is low, 6 percent of the adolescents report using marijuana, but if peer encouragement is high 31 percent report using marijuana.

Clearly, there are very sizeable differences in drug use depending upon the behavior of one's peers. Both alcohol and marijuana use are strongly related to peer involvement in delinquency and to peer encouragement for drug use.

Peers and Drug Use

Previous sections examined separately different aspects of the relationship between peers and drug use. Here these same influences are analyzed conjointly by examining two multiple regression equations, one for alcohol use and one for marijuana use. These equations estimate the effect of each peer variable on alcohol and marijuana respectively, while holding constant the influence of other peer variables and the demographic variables. Results are presented in Table 6, which uses the full range of

scores for the peer variables and not the categorized versions presented above. (A slightly more technical discussion of regression analysis and of these results is presented in Appendix.)

Results for the equation for alcohol use are quite similar to those presented in the cross-tabular analyses. The significant regression coefficients indicate that alcohol use increases with age, and with associating with peers who value delinquent behavior, who engage in delinquent behavior and who encourage the subject's own drug use. The strongest effect is related to associating with peers who engage in delinquent behavior. The only major difference between the regression results and those from the cross-tabular analysis is that the effect of peer conventional values becomes non-significant. This suggests that the delinquent orientation of peers is more important than their conventional orientation in explaining drug use.

Results for the equation for marijuana use are almost identical. In this case, both age and sex are significant predictors of the dependent variable. Of the peer variables concerned with delinquency, delinquent behavior and encouragement for drug use remain significantly related to the adolescent's marijuana use. Peer commitment to conventional values, however, again drops out of the analysis and appears not to effect the student's marijuana use.

Overall, these models, which only contain peer variables and demographic characteristics, explain substantial portions of the variance in alcohol use (22 percent) and marijuana use (19 percent). While substantial, these figures are somewhat lower than others reported in the literature on the relation between peers and drug use. This is probably due to the relatively young ages of the subjects. As they mature and their drug use increases as the strong age gradient suggests it will, the variance explained will no doubt increase as well.

SUMMARY

A number of salient dimensions about drug use in the Rochester Youth Development Study sample emerge from this analysis. First, the prevalence rates indicate that a substantial proportion of the students have initiated drug use, even by the time of the seventh and eighth grades. Twenty-six percent of the sample used alcohol and 11 percent used marijuana. On the other hand, prevalence rates for the use of "harder" drugs and for selling drugs were quite low. Only 2 percent of the sample report ever

engaging in these behaviors. Moreover, this pattern of drug use tended to be rather evenly distributed since it was unrelated to race/ethnicity and was inconsistently related to gender -- girls used marijuana more frequently than did boys, but boys sold drugs more frequently than did girls.

Age on the other hand was strongly associated with drug use. Even within two adjacent school grades the older students were significantly more likely to use alcohol, marijuana and other drugs and to sell drugs than were the younger students. On the basis of these age differences, it is very likely that the base rates for both the minor and more serious forms of drug use will increase as these adolescents mature. This in turn will allow for the examination of changing patterns of social and psychological factors that are causally associated with this form of deviant behavior.

Prominent among these factors, based on this initial analysis, will be peer associations. For it is apparent that the friends one associates with are strongly related to one's own drug use. Associating with friends who are not strongly committed to conventional values but who are committed to delinquent values increases drug use. But most importantly, associating with friends who engage in delinquent behavior and who encourage drug use significantly and substantially increases the likelihood of using alcohol and marijuana.

The results reaffirm the general finding in the literature (e.g. Kandel, 1975) that the attitudes and behavior of friends are the most important influence on adolescents' use of drugs and alcohol. The fact that this is true for this relatively young sample suggests that drug prevention strategies must begin prior to the formation of peer networks that encourage drug use. The interaction theory on which the Rochester Youth Development Study is based, suggest that parents can play an important role in steering their children toward more constructive peer networks and/or insulate children from the influence of drug using peers. The peer network increases in importance as adolescents reach their middle teenage years and seek to establish their independence from their parents. Therefore, the role of parents prior to this time is vitally important. Parenting skills, parental monitoring and supervision, and parental attitudes and behavior are all seen to be important in determining the type of friends their children will have. The longitudinal design of this study will allow for an examination of these assumptions. Support for these hypotheses would suggest that the first line of defense against

adolescent drug use is in the home, before peer networks are solidified. Prevention strategies in the preteen and early adolescent years should therefore, focus efforts on educating parents in how the role they play in determining with whom their children form friendship networks.

The arenas in which peer networks interact may also be important in understanding the influence that friends have on adolescent behavior. One of the goals of the Rochester Youth Development Study is to assess the importance of having friendship networks that exist across different arenas or contexts. It is assumed that adolescents whose friends participate with them in activities like school clubs and also participate with them outside of the school setting, have more control over their behavior than if they only participate together within one context. If this assumption is supported, it will suggest that a critical feature of peer influence is the contexts in which adolescents and their friends participate together. Thus, prevention efforts, particularly in the early and middle adolescent years, should be designed to foster such mutual integration in conventional contexts. Additionally, parents should be encouraged to include their child's friends in family activities and to be actively involved in their child's activities outside the home. Not only will such interaction increase the bond between parent and child, but it will also increase parents' ability to monitor their child's behavior.

Finally, it is likely that peer networks will not be very stable through the adolescent years, yet there has been little research on this issue. Moreover, the relative stability of peer networks at different developmental stages of drug use (e.g., initiation, maintenance, cessation) has not been examined. Instability of peer networks may be an important marker of behavioral change. If so, educators and counselors who observe such changes may be alerted to a problematic situation that could lead to drug use (or a qualitative or quantitative change in use patterns). By focusing on the composition of networks within a longitudinal design, the Rochester Youth Development Study will be able to address the importance of stability of and change in friendship networks.

In sum, the preliminary findings concerning the influence of peer attitudes and behavior on adolescent drug use have important implications for prevention efforts. However, while the importance of peers has been clearly established, a clear understanding of why they are so important has not yet been established. The theoretical basis of the Rochester Youth Development Study recognizes the

central role that peers play in the process of coming to use or abuse drugs. Moreover, it incorporates assumptions about the antecedents and consequences of the peer network that should inform general drug prevention efforts.

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Table 1. Prevalence of Alcohol and Substance Abuse by Demographic Characteristics

(Percentage Ever Using)

		Race/Ethnicity			Sex		Age			
	Total	Black	Hispanic	White	Male	Female	< 13	13	14	> 14
Alcohol	26	28	24	22	26	27	15	22	32	36*
Marijuana	11	12	11	10	10	15*	6	9	13	21*
Other Drugs	2	2	2	2	2	2	1	2	2	6*
SellingDrugs	2	2	2	0	2	1*	1	1	3	5*
Numberof Cases**	(955)	(668)	(152)	(135)	(707)	(248)	(134)	(358)	(353)	(111)

* Significant Difference ($p < .05$)

** The numbers vary very slightly across the different types of drugs; the figures presented are the typical ones.

Table 2. Relationship Between Peer Conventional Values and Subject's Alcohol and Marijuana Use

Subject's Use of:		Peer Commitment to Conventional Values: Low	High
Alcohol	No	68	78
	Yes	32	22
		100% (357)	100% (541)
		$X^2 = 10.$	$p < .00$
Marijuana	No	85	91
	Yes	15	9
		100% (357)	100% (541)
		$X^2 = 6.6$	$p < .00$

Table 3. Relationship Between Peer Delinquent Values and Subject's Alcohol and Marijuana Use

Subject's Use of:		Peer Commitment to Delinquent Values	
		Low	High
Alcohol	No	87	61
	Yes	13	39
		100% (486)	100% (455)
		$X^2 = 80.2$	$p < .00$
Marijuana	No	95	83
	Yes	5	17
		100% (486)	100% (455)
		$X^2 = 37.2$	$p < .00$

Table 4. Relationship Between Peer Delinquent Behavior and Subject's Alcohol and Marijuana Use

Subject's Use of:		Peer Delinquent Behavior		
		Low	Medium	High
Alcohol	No	87	70	39
	Yes	13	30	61
		100% (495)	100% (312)	100% (141)
		$X^2 = 137.4$		$p < .00$
Marijuana	No	96	88	68
	Yes	4	12	32
		100% (495)	100% (312)	100% (141)
		$X^2 = 86.3$		$p < .00$

Table 5. Relationship Between Peer's Reaction to Delinquency and Subject's Alcohol and Marijuana Use

Subject's Use of:		Peer Encouragement for Delinquency	
		Low	High
Alcohol	No	81	45
	Yes	19	55
		100% (764)	100% (191)
		$X^2 = 101.4$	$p < .00$
Marijuana	No	94	69
	Yes	6	31
		100% (764)	100% (191)
		$X^2 = 92.9$	$p < .00$

Table 6. Peer Factors Affecting Alcohol and Marijuana Use, Standardized Regression Coefficients (Unstandardized Regression Coefficients in Parentheses)

Independent Variables	Alcohol	Marijuana
Peer reaction to delinquency	.10* (.05)	.18* (.07)
Peer delinquent values	.18* (.02)	.05 (.00)
Peer delinquent behavior	.21* (.06)	.22* (.04)
Peer conventional values	-.02 (-.00)	.00 (.00)
Race/ethnicity	.06 (.05)	-.01 (-.01)
Age	.14* (.08)	.14* (.05)
Sex	-.07 (.07)	.09* (.07)
Constant	-1.37*	-1.08*
R^2	.22*	.19*

*Significant at .05

NOTE: Since the dependent variables are dichotomies these equations were also estimated using logit models in addition to the OLS models reported here. The results are substantively equivalent.

Appendix A

To determine if a predictor variable (e.g. peer values) truly has an effect on a variable being predicted (e.g. marijuana use), the adolescents being studied must be rendered statistically equivalent on all rival factors, thereby eliminating the impact of these factors on the relationship of interest (marijuana use). This equivalency is accomplished through Ordinary Least Squares or multiple regression analysis. Multiple regression is a comprehensive and general approach to the analysis of relationships among variables. Regression makes it possible to predict the effect that a change in the value of a predictor variable (peer values) would have on a variable being predicted (marijuana use). The procedure statistically removes distorting influences caused by other variables in the analysis, allowing estimation of the separate effects of each variable on drug use.

This technique involves fitting a line to the data that minimizes the amount of error in predicting marijuana use. Estimates of the effects of predictor variables on marijuana use are provided by coefficients or weights. These weights indicate the amount of increase (if positive) or decrease (if negative) there would be in marijuana use for a one unit change in the predictor variable of interest, while controlling or holding statistically constant the other predictor variables. For example, marijuana use is measured as either never having used (a value of zero in the analysis) or having used at some point (a value of one), and the sex variable is coded zero for male and one for female. Thus, a regression coefficient for sex indicates the difference in the probability of marijuana use for boys as opposed to girls.

The technique also provides tests of statistical significance. These tests are rules that aid in deciding whether to accept or reject the hypothesis that a given effect differs greatly from zero. The tests reveal how likely it is that conclusions based on our sample also hold true for the entire population from which the sample was selected. If an effect is statistically significant then it is probably "real" and not an artifact of chance or random errors. No effect is absolutely significant or absolutely not significant; rather, significance levels refer to the probability that an error would occur in this sample compared to the population. All sciences use these tests, in the social sciences it is customary to set the level of significance at .05 or lower, meaning that only five times or fewer in 100 would the variable's

effect under consideration be due to chance. Sometimes predictor variables seem to have large effects (coefficients) on the variable being predicted, but it could nonetheless be statistically not significant. This suggests that even this large effect is due to chance and should be ignored. For this reason it is important to consider statistical significance as well as the size of the relationship between the variables and its theoretical importance.