

# Chapter 13

## Accounting for Marijuana Use in Adolescence and Young Adulthood

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### Introduction

Although the urgency of the drug problem in American society demands constant attention and close monitoring, it was not all that long ago that one of us reviewed the psychosocial research on marijuana use for the officially sponsored *Handbook on Drug Abuse* (see Jessor, R., 1979). A year later, in 1980, another comprehensive review of that same literature was published by Kandel (1980). With a few exceptions, the generalizations and inferences drawn from the extant body of empirical work were consonant in both reviews, testifying to a rather remarkable robustness of the psychosocial findings in this field.

Rather than summarize material that is already available, it seems more useful to organize this chapter around the general question of whether—and in what ways—things may have changed as we have come to the middle of the decade of the 80s. Answering that question will require some backward glances and some comparison of the earlier findings with those that are more recent. It will be apparent, however, that we can look through only a tiny window on this question, partly because the necessary data for a comprehensive and detailed comparison are just not available, and partly because such a task is too large for the present report.

In comparing the 70s with more recent times, we need to ask several different kinds of questions about marijuana use. First, and an obligatory initial consideration, is the question of whether the use of marijuana (and, of ancillary concern, the use of cocaine) has changed. To answer this question necessitates a brief look at

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epidemiological information about the prevalence and distribution of marijuana use and cocaine use and about trends over the past decade or so. Changes in this domain that would be of interest, beyond those that may have taken place in the prevalence of use, would be those that may have occurred in the pattern of use, for example, with other illicit drugs and with alcohol.

A second question has to do with whether the use of marijuana is related to involvement in other problem behaviors in the way it has been before, or whether that nexus has been weakened with historical change and the passage of time. And the third—and, of course, the key—question is whether the psychosocial factors associated with the use of marijuana have changed from the 70s, now that marijuana use has become more or less institutionalized in American society.

In this paper the focus is on the general population and on samples drawn nationally, regionally or locally, rather than on clinical populations. The conclusions from such data may differ from what might be derived from clinical experience, but they do represent a vantage point with its own intrinsic validity. Hopefully, the general population and the clinical perspectives can supplement each other and, together, can expand our field of vision.

A final caveat is necessary before we turn to data. Change can be approached by comparing data from samples drawn at different times or by comparing data on the same persons over time. In this report we will be concerned with both; the availability of longitudinal studies of marijuana use makes possible the consideration of *developmental* change as well as the change that is associated with historical time.

## Prevalence of Marijuana and Cocaine Use

It has been the good fortune of this field—reflecting the foresight and the beneficence of the National Institute on Drug Abuse (NIDA)—that the use of drugs in the American population has been under surveillance by a series of national surveys since the early 70s. There have been, since 1975, 11 annual, national surveys of high school seniors—this is the continuing project known as Monitoring the Future (Bachman & Johnston, 1978)—that provide comprehensive information on the use of a variety of drugs and on associated lifestyle factors in a very large sample of youth. Although not covering dropouts from school or younger-age adolescents, it has been a unique source of carefully developed information. As a supplement to this school-based, questionnaire survey, NIDA has also sponsored, since 1974, the National Household Survey on Drug Abuse (Miller et al., 1983), a home-based interview survey of the general population aged 12 and older. Both of these surveys are useful for our present purposes.

In Table 13.1, the prevalence of both marijuana use and cocaine use in the Class of 1985 can be seen (Johnston, O'Malley, & Bachman, 1986). With respect to marijuana, a majority of American high school seniors have tried it at some time, a quarter of them have used it in the past month, and one out of twenty used it on a daily basis in the past month. Table 13.2 presents the data on marijuana prevalence

**Table 13.1** Percent Prevalence of Marijuana Use and Cocaine Use

% Prevalence	Marijuana			Cocaine		
	Males	Females	Total	Males	Females	Total
Lifetime (Ever Use)	56.6	51.5	54.2	19.7	14.8	17.3
Annual	43.1	37.8	40.6	14.8	11.2	13.1
Thirty Day	28.7	22.4	25.7	7.7	5.6	6.7
Daily Use/Thirty Days	6.9	2.8	4.9	—*	—*	0.4

*Monitoring the Future*: Class of 1985. *N* ~ 16,000

Source: Johnston, O’Malley & Bachman (1986)

\*Data not available

**Table 13.2** Percent Prevalence of Marijuana Use

% Prevalence	Age		
	12–17 ( <i>N</i> = 1,581)	18–25 ( <i>N</i> = 1,283)	26+ ( <i>N</i> = 2,760)
Lifetime	27	64	23
Annual	21	40	11
Thirty Day	12	27	7

*National Household Survey*: 1982

Source: Miller et al. (1983)

from the National Household Survey. Here the age range is much wider, and it can be seen that, as of 1982, the date of the most recent survey, a quarter of the 12 to 17 year olds have tried marijuana, and the figure rises sharply to 64% of the 18 to 25 year olds. When the household sample is broken into smaller age groups more comparable to the age of the high school seniors in the *Monitoring the Future* survey, the prevalence of ever use for the 16 to 17 year olds is 46% and for the 18 to 21 year olds it is 64%; these percentages bracket the prevalence of marijuana use in the data from the comparable Class of 1982 which was 59%. Both surveys make clear, then, that at least some experience with marijuana use is statistically normative for late adolescents and young adults in the general population.

These findings are buttressed by a massive survey of 27,000 students in grades 7 to 12 in New York State carried out in 1983 (Welte & Barnes, 1985). As Table 13.3 shows, the prevalence of ever use of marijuana in the 17 to 20 year olds is 66%. It is also clear in the table that use is age-graded and that prevalence increases markedly with age from early to late adolescence. The relative absence of gender differences is also notable. Gender differences among adolescents and young adults in the National Household Survey are also small—age 12 to 17: males 28%, females 25%; age 18 to 25: males 68%, females 60%. The same is true for the data from the Class of 1985—males 57%, females 52%. Indeed, in general, demographic differences in regard to gender, race, or social class have not been large, although this does vary with the severity of the criterion measure, e.g., daily use does show a sizable difference between the sexes.

**Table 13.3** Percent Ever Use of Marijuana by Age and Sex

	% Ever Use
<i>Age<sup>1</sup></i>	
11–13	18
14–16	49
17–20	66
<i>Sex</i>	
Males	47
Females	44

*New York State School Survey: 1983. N = 27,335*

<sup>1</sup>Grades 7–12

*Source: Welte & Barnes (1985)*

**Table 13.4** Percent Prevalence of Cocaine Use

% Prevalence	Age		
	12–17 (N = 1,581)	18–25 (N = 1,283)	26+ (N = 2,760)
Lifetime	7	28	9
Annual	4	19	4
Thirty Day	2	7	1

*National Household Survey: 1982*

*Source: Miller et al. (1983)*

**Table 13.5** Lifetime Prevalence (Ever Use) of Marijuana and Cocaine by Young Adulthood

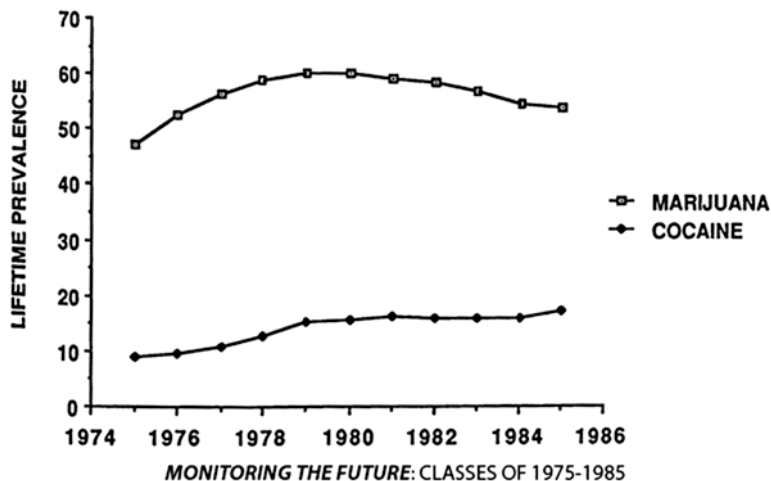
		Males %	Females %
Marijuana	Kandel (1980 data)*	77	68
	Jessor (1981 data)**		
	High School Study	78	73
	College Study	86	84
Cocaine	Kandel (1980 data)*	37	23
	Jessor (1981 data)**		
	High School Study	43	30
	College Study	42	33

\*Kandel (1984)

\*\*Jessor, Donovan, & Costa (1986)

With respect to cocaine, the data in Table 13.1 showed that 17% of high school seniors in 1985 had at least tried cocaine at some time. As Table 13.4 shows, the lifetime prevalence was 7% for the 12 to 17 year olds and 28% for the 18 to 25 year olds in the household survey of the general population in 1982. Thus, in both the late adolescent and young adult groups, experience with cocaine is substantial and significant.

Further prevalence findings on both marijuana and cocaine for a follow-up sample of young adults in New York State (Kandel, 1984) and for the sample of young adults originally drawn in Colorado (Jessor & Jessor, 1977) are shown in Table 13.5.



**Fig. 13.1** Trends in Lifetime Prevalence (Ever Use) of Marijuana and Cocaine. Source: Johnston, O'Malley, & Bachman (1986)

These data indicate that, as of the early 80s, marijuana use has been experienced by more than three quarters of these samples of young adults by the time they have reached their middle or late twenties. With regard to cocaine, the prevalence, though considerably lower, is also substantial by young adulthood in both samples.

As we noted earlier, a critical epidemiological concern is whether the situation concerning use is changing. It is quite clear from both national surveys that change *has* occurred; this can readily be seen in Fig. 13.1. The Monitoring the Future trend shows a major increase in prevalence of marijuana use from 47% in the Class of 1975 until 1979 and 1980 when it peaked at 60%; then a turnaround and decline occurs that is sustained to 1985 by which time it has dropped to 54%. It should be pointed out that the prevalence of marijuana use in the Class of 1969 was 20% (data from the smaller longitudinal sample in the Youth in Transition study; Johnston, 1973); thus the rate of use may well have tripled in the single decade between 1969 and 1979. Decline in lifetime prevalence of marijuana use is also evident for adolescents and young adults in the National Household Survey, a decline of about 4% for each of those groups from 1979 to 1982. With regard to cocaine use, however, there is no evidence of a decline in Fig. 13.1; as a matter of fact, the generally increasing trend goes from 9% in the Class of 1975 to 17% in the Class of 1985, essentially a doubling of the rate over that decade.

In summary, several major facts are clear. First, for both drugs, there has been a major increase in prevalence since the early 70s. Even though evidencing a decline since 1979, marijuana use has become part of the lives of a majority of America's young people, and remains so today. Given such a large shift in prevalence over time, can the same factors be associated with it as was the case when it was the

behavior of a minority? Second, ever use of cocaine has continued to increase and, by young adulthood in the early 80s, may involve as much as a third or more of certain subgroups. Finally, prevalence differences related to gender, race, or social class are not large, and these demographic characteristics account for little of the variation in use.

## The Relation of Marijuana Use to Other Behaviors

One of the salient generalizations that emerged from the research on adolescent drug use in the 70s was that involvement in marijuana use was associated not only with involvement with other drugs but also with involvement in *other problem behaviors* such as delinquency, precocious sexual behavior, and cigarette smoking. Indeed, in our own work, we have referred to these interrelations as a *syndrome* of problem behavior, a term intended to summarize the observed, intraindividual co-variation among a variety of topographically different behaviors.

An illustration of this co-variation, taken from the earlier phase of our own longitudinal study (Jessor & Jessor, 1977), is shown in Table 13.6. The 10th-, 11th-, and 12th-grade cohorts in the fourth year of our study in 1972 were divided according to ever-use versus never-use of marijuana and compared on three other problem behaviors and, for discriminant validity purposes, on one conventional behavior. The results are clear and important. There is a substantial association between having had experience with marijuana and the likelihood of being a problem drinker, of having had sexual experience, and of reporting a high frequency of delinquent behaviors. The prevalence differences are of a magnitude that is socially significant, a difference in rates of involvement of approximately three times for the first two behaviors and five times for the third behavior. As expected, the conventional behavior of church attendance shows a reversal in prevalence for the user versus nonuser groups.

Those data were collected in 1972; the question of interest is whether the syndrome of problem behavior, that is, the pattern of interrelatedness, still obtains among contemporary adolescents in 1986, given that the prevalence of marijuana use in the youthful population is much higher now than it was then. Preliminary analyses of recent data we have collected on a new sample of over 1600 junior-senior high school adolescents in Colorado (Donovan, Jessor, & Costa, 1986) reveal the very same patterning of co-variation between marijuana use and other problem

**Table 13.6** Relation of Adolescent Marijuana Use to Other Behavior

	% Problem Drinker	% Nonvirgins	% Delinquent-type Behavior	% High Church Attendance
Marijuana Nonusers	18	18	8	40
Marijuana Users	56	61	43	20

*High School Study: 1972*

**Table 13.7** Correlations among Selected Measures of Problem and Conventional Behavior in 1981 by Sex and Sample

Measure	High School Study—men/women <sup>1</sup>				
	1	2	3	4	5
<i>Problem Behavior</i>					
1. Times Drunk in the Past 6 Months	–	.20*	.38***	.22**	–.26**
2. Frequency of Marijuana Use in the Past Month	.53***	–	.51***	.15+	–.17*
3. Number of Other Illicit Drugs Used in the Past 6 Months	.52***	.55***	–	.29***	–.25**
4. General Deviant Behavior in the Past Year	.31**	.28**	.46***	–	–.14+
<i>Conventional Behavior</i>					
5. Church Attendance Frequency in the Past Year	–.33***	–.14	–.32**	–.13	–

Measure	College Study—men/women <sup>2</sup>				
	1	2	3	4	5
<i>Problem Behavior</i>					
1. Times Drunk in the Past 6 Months	–	.16	.43***	.54***	–.15
2. Frequency of Marijuana Use in the Past Month	.35**	–	.24*	.07	–.08
3. Number of Other Illicit Drugs Used in the Past 6 Months	.39***	.55***	–	.29**	–.15
4. General Deviant Behavior in the Past Year	.15	.37***	.33**	–	–.10
<i>Conventional Behavior</i>					
5. Church Attendance Frequency in the Past Year	–.17	–.07	–.30**	–.06	–

+ $p \leq .10$ ; \* $p \leq .05$ ; \*\* $p \leq .01$ ; \*\*\* $p \leq .001$  (two-tailed test)

<sup>1</sup>Correlations based on data from 102 men and 141 women

<sup>2</sup>Correlations based on data from 84 men and 100 women

behaviors in 1986. In short, the interrelatedness seems to be invariant over this segment of historical time and over the marked increase in lifetime prevalence of marijuana use, at least in this sample of adolescents.

It is interesting to inquire, further, whether the interrelatedness is invariant not only over history and change in prevalence but over *development* from adolescence/youth to young adulthood as well. Since we have followed-up our high school and college youth until 1981, when the former had reached the ages of 25, 26, and 27 and the latter had reached 30, it was possible to examine the pattern of interrelatedness in these samples in young adulthood, nine years later than the data shown in Table 13.6. Intercorrelations for the High School Study males and females separately are shown in Table 13.7. There is support for a continuing degree of co-variation between marijuana use (now the measure is frequency of use in the past month

**Table 13.8** Marijuana, Alcohol, and Driving (1979 Young Adult Data)

	High School Study		College Study	
	Males	Females	Males	Females
% who have driven "when high or stoned" (2 or more times/past 6 months)*	74	53	70	46
% who have driven "when had a good bit to drink" (2 or more times/past 6 months)*	53	27	51	23

\*Current users or drinkers only

rather than ever use) and other problem behaviors. There is also support from the correlations for the males and females in the College Study; those data are also shown in Table 13.7. When these correlation matrices were subjected to maximum likelihood factor analyses, a single, common underlying factor was found, providing further support for the notion of a syndrome of problem behavior in young adulthood (Donovan & Jessor, 1985).

Another facet of co-variation has to do with the interrelatedness of the use of illicit drugs themselves. In our Young Adult Follow-Up Study, the co-variation between involvement with marijuana and involvement with cocaine in young adulthood (assessed by a four-category measure of cocaine use and a four-category measure of marijuana use) is demonstrated by contingency coefficients between the two measures of .60, .53, .57, and .51 for the high school sample males and females and the college sample males and females, respectively. In the 1982 National Household Survey on Drug Abuse, Miller et al., report that "In every age group, the majority of those who have ever used cocaine say they have used marijuana on the same occasion that they took cocaine" (1983, p. 43). Thus, the observed co-variation among problem behaviors may sometimes reflect simultaneous engagement in them.

Finally, co-variation between drug use and the problem behavior of driving under the influence can be seen directly in the self-report data shown in Table 13.8. Nearly three quarters of the young adult males and about half of the young adult females who use marijuana report driving when high or stoned two or more times in the past six months; for alcohol, the proportions, while lower, are still substantial for both sexes.

What these data suggest, in summary, is that the use of marijuana is not an isolated behavior but is part of a larger constellation of behaviors that includes the use of other drugs, both licit and illicit, as well as a variety of other kinds of problem behavior. This syndrome has shown a degree of invariance across a sharp increase in prevalence, across historical time, and across individual development. These findings suggest that the relation between drugs and driving may well be a function, at least in part, of these *other* behaviors, and that "risky driving" may encompass considerably more than simply driving after the ingestion of drugs.



## Psychosocial Correlates of Marijuana Use

The key question we have sought to examine in this report is whether the psychosocial correlates of marijuana use have changed or remained invariant between the 70s and the 80s. The correlates that were established in the 70s, as indicated earlier, have already been reviewed exhaustively (Jessor, R., 1979; Kandel, 1980). For present purposes, we address the question by reviewing some of our own earlier findings which represent the consensus of a wide variety of studies, and by reporting new findings from analyses of marijuana use and cocaine use in young adulthood by our former adolescent cohorts.

Table 13.9 shows the correlations of the psychosocial measures derived from Problem Behavior Theory (Jessor & Jessor, 1977) with marijuana involvement for males and females in both the High School Study and the College Study in 1972 and 1973, respectively. In Table 13.9, the measures of personality that relate to variation in marijuana use for the high school youth include lower value on academic achievement, higher value on independence relative to value on achievement, greater social criticism, greater tolerance of deviant behavior, and lower religiosity. For the most part, these same personality factors are related to marijuana use in the college cohort. Both distal and proximal aspects of the perceived environment can also be seen, in Table 13.9, to be related to variation in involvement with marijuana for both the high school and college cohorts: lower perceived controls by friends, lower compatibility between what parents expect and what peers expect, greater influence from friends than parents, and, most strongly, greater perceived approval of and models for marijuana use and other problem behaviors among friends.

When the key variables in each of these theoretical systems are taken together in multiple regression analyses, the account they provide of variation in marijuana use can be seen in Table 13.10. The Personality System measures generally account for about a quarter of the variance; the Perceived Environment generally accounts for somewhat more, about a third of the variance; and the Overall set accounts for about 50% of the variance in marijuana use in these samples in 1972/73 (see Jessor & Jessor, 1977, for details about these multiple regressions). The psychosocial pattern is one that reflects *greater unconventionality*—the dimension that seems to underlie both the personality and the perceived environment measures.

That these findings are not parochial or restricted to these particular samples in 1972 or 1973, can be seen in the data in Table 13.11. These results are from our analyses of data from two national sample surveys of senior high school adolescents (Jessor, Donovan, & Widmer, 1980) carried out in 1974 and 1978 by the Research Triangle Institute (Rachal et al., 1975, 1980). The survey questionnaire included abridged versions of many of the measures derived from our Problem Behavior Theory framework. Given the large sample size, all of the correlations are significant at the .05 level or better. It can be seen that, for both sexes, the same pattern of psychosocial correlates emerges as obtained for the Colorado high school and college students in 1972/73. What is even more remarkable is the near identity of the

**Table 13.9** Pearson Correlations of Personality System and Perceived Environment System Measures with Marijuana Behavior Involvement, *High School Study, Year IV (1972)*, and *College Study, Year IV (1973)*

	High School Study		College Study	
	Males (N = 188)	Females (N = 244)	Males (N = 92)	Females (N = 113)
<i>Personality System Measures</i>				
<i>Motivational-Instigation Structure</i>				
Value on Academic Achievement	-.27***	-.31***	-.04	-.14
Value on Independence	.09	.19**	.09	.13
Independence-Achievement Value Discrepancy	.31***	.39***	.08	.20*
Expectation for Academic Achievement	-.16*	-.14*	-.09	-.13
Expectation for Independence	.06	.23***	.11	.03
<i>Personal Belief Structure</i>				
Social Criticism	.33***	.35***	.40***	.38***
Alienation	.08	.08	.04	.30**
Self-Esteem	.10	.08	-.10	-.17
Internal-External Control	-.17*	-.06	-.11	-.10
<i>Personal Control Structure</i>				
Intolerance of Deviance	-.41***	-.40***	-.03	-.26**
Religiosity	-.27***	-.31***	-.41***	-.29**
Drug Disjunctions	.58***	.64***	.42***	.54***
<i>Perceived Environment System Measures</i>				
<i>Distal Structure</i>				
Parental Controls	-.15*	-.07	.09	.02
Friends Controls	-.43***	-.35***	-.25*	-.33***
Parent-Friends Compatibility	-.31***	-.33***	-.16	-.35***
Parent-Friends Influence	.29***	.18**	.22*	.22*
<i>Proximal Structure</i>				
Parent Approval Problem Behavior	.34***	.28***	.28**	.30**
Friends' Approval Problem Behavior	.55***	.60***	.51***	.59***
Friends Model Problem Behavior	.60***	.61***	.49***	.55***

\* $p \leq .05$ ; \*\* $p \leq .01$ ; \*\*\* $p \leq .001$  (two-tailed test)

correlation values in these two entirely independent national samples drawn four years apart in time. Table 13.11 also shows, as we have seen before, the positive relation of other problem behaviors—in this case, drunkenness and delinquent behavior—to marijuana use, and the negative relation of a conventional behavior, church attendance. Also of interest in Table 13.11 is the absence of any relationship

**Table 13.10** Multiple Correlations of Theoretical Systems with Marijuana Behavior Involvement in the High School Study and the College Study<sup>1</sup>

Multivariate Run <sup>2</sup>	High School Study		College Study	
	Males	Females	Males	Females
4: Personality System	.52	.54	.40	.43
	.49	.45	.48	.51
7: Perceived Environment System	.65	.64	.54	.60
	.59	.60	.44	.70
8: Field Pattern	.65	.68	.57	.61
	.60	.59	.55	.70
14: Overall Set	.76	.77	.67	.68
	.71	.70	.70	.77

<sup>1</sup>For each run, the *Rs* in the first row are for the Year IV data and the *Rs* in the second row are for the replication on Year III data in the High School Study and Year II data in the College Study

<sup>2</sup>All runs are step-wise regressions with an *F*-to-enter of 2.0 and an *F*-to-delete of 1.0

of the sociodemographic measures, such as socioeconomic status, to marijuana use in these adolescent samples.

When the separate variables are combined in multiple regression analyses, the results again yield, as shown in Table 13.12, significant multiple correlations that account for about 50% of the variance in marijuana use in both surveys for both sexes.

Thus, in findings in our local Colorado sample in 1972/73 for senior high school youth aged 16 to 18 and college youth aged 22, and in findings from national samples of senior high school youth aged 16 to 18, in both 1974 and 1978, there has been a strong degree of consonance in the pattern of psychosocial correlates associated with the use of marijuana. That consonance extends even further to the year 1980 and to the data from the national sample of high school seniors in the Class of 1980, the Monitoring the Future study (Bachman, Johnston, & O'Malley, 1981). As Kandel notes in reviewing those findings, "The users in 1980 show the same pattern of disaffection from major institutions as the users in 1967....Despite the fact that over the last decade marijuana use itself has greatly increased in prevalence, the social-psychology of marijuana use is very much the same as it was 10 years ago" (1982, p. 336).

More recently still, Labouvie and McGee (1986) report on data collected from the adolescent cohorts in the Rutgers longitudinal study in 1982–83. Among their personality findings is one that parallels those reported above; namely, that earlier and heavier involvement with drugs is associated with higher scores on Autonomy and lower scores on Achievement. This is consonant with our own findings for value on independence and value on achievement in data going back to the beginning of the 70s.

Finally, we have analyzed our 1981 young adult data, when our high school participants had reached ages 25 to 27 and our college participants had reached 30, to see whether this psychosocial pattern—one that has remained fairly constant over time for different samples of adolescents—also remains constant over development for the same sample of adolescents now grown into young adults. The approach we

**Table 13.11** Pearson Correlations of the Personality System Measures, Perceived Environment System Measures, Behavior System Measures, and Socio-demographic Measures with Marijuana Behavior Involvement for Males and Females in the 1974 and 1978 National Studies of Adolescent Drinking

	10–12 Males		10–12 Females	
	1978 (n = 1985)	1974 (n = 2353)	1978 (n = 2405)	1974 (n = 2706)
Psychosocial Measures				
Personality System Measures				
<i>Personal Instigations</i>				
Value on Achievement	-.16	-.14	-.20	-.20
Value on Independence	.16	.16	.10	.13
Independence-Achievement Value Discrepancy	.27	.25	.24	.26
Expectation for Academic Achievement	-.19	-.13	-.18	-.12
<i>Personal Controls</i>				
Intolerance of Deviance	-.39	-.38	-.43	-.41
Religiosity	-.30	-.31	-.34	-.35
Perceived Environment System Measures				
<i>Distal Structure</i>				
Parent-Friends Compatibility	-	-.21	-	-.21
Parent-Friends Influence	.19	.23	.24	.21
<i>Proximal Structure</i>				
Friends' Pressure for Marijuana Use	-	.51	-	.56
Friends Models for Marijuana Use	-	.72	-	.71
Behavior System Measures				
<i>Problem Behavior Structure</i>				
General Deviant Behavior	.47	.51	.54	.55
Times Drunk in Past Year	.66	.58	.69	.64
<i>Conventional Behavior Structure</i>				
Church Attendance Frequency	-.24	-.21	-.29	-.26
Socio-demographic Measures				
Age in Months	.07	.07	.02	.00
Father's Education	-.01	.03	.03	.09
Mother's Education	-.03	.01	.02	.10
Father's Occupational Group	.00	.04	.02	.06
Family Socioeconomic Status	.01	.03	.02	.07

Note: correlations of .05 are significant at  $p \leq .001$  (two-tailed test)

took was to divide our young adult cohorts into four groups based on their experience with marijuana. The groups and their frequency of use in the past month are: Never Users (0 times); Infrequent Users (an average of less than once); Occasional Users (about 6 times); and Heavier Users (about 35 times for the young adults originally from the High School Study, and 25 times for those originally from the College

**Table 13.12** Multiple Correlations Predicting Marijuana Behavior Involvement 1978 and 1974 National Studies

	10–12 Grade Males		10–12 Grade Females	
	1978 ( <i>n</i> = 2176)	1974 ( <i>n</i> = 2502)	1978 ( <i>n</i> = 2550)	1974 ( <i>n</i> = 2815)
Marijuana Involvement	Multiple <i>R</i>	Multiple <i>R</i>	Multiple <i>R</i>	Multiple <i>R</i>
Personality Set	.46	.45	.49	.48
Perceived Environment Set	.43	.46	.42	.50
Combined Set	.52	.53	.53	.56
Total Set	.70	.66	.74	.71

Study). One-way analyses of variance were then run for a variety of the psychosocial measures of Problem Behavior Theory across these four groups of young adults. The findings are shown in Table 13.13 for the High School Study males and females separately and, because of the small *Ns* in some of the user groups, for the College Study sexes combined.

It is apparent in Table 13.13, that there are significant *F*-ratios for a large number of the very same psychosocial variables we have been examining throughout this paper, and that, for most of them, the significance holds across all three samples of young adults. Thus, social criticism, attitudinal tolerance of deviance, religiosity, friends controls, perceived friends approval and models for problem behavior, and a variety of problem behaviors, as well as the conventional behavior of church attendance, are all still associated in the expected direction with marijuana use in young adulthood as of 1981. It is important to take note, however, that a number of the variables that were previously associated with marijuana use in adolescence no longer are associated in young adulthood. Although not shown in the table, these include value on achievement, expectations for achievement, and parent-friends compatibility, among others. Thus, the invariance holds for most but not all of the earlier psychosocial correlates of marijuana use.

That our young adult findings are not parochial or limited to this particular sample can be established by comparison with the findings reported by Kandel (1984) from her analyses of the young adult follow-up data on her own New York State cohorts. Her conclusion is worth quoting: "...in a random representative sample of young adults, marijuana involvement is associated with the same factors that had previously been reported for younger populations of junior high school, senior high school, and college students" (1984, p. 208).

A similar kind of analysis was carried out for variation in cocaine use in our young adult samples in 1981. Table 13.14 shows the one-way analyses of variance for four groups established on the basis of their use-nonuse of cocaine in the past six months: Never Users; Non-Current Users; Current Users, 1–5 times; and Current Users, 6 or more times. As can be seen, the psychosocial correlates of cocaine use are for the most part identical with those for marijuana use that were shown in the preceding table.

**Table 13.13** Psychosocial Correlates of Marijuana Involvement in Young Adulthood

	High School Study		College Study
	Males (N = 154)	Females (N = 220)	Sexes Combined (N = 181)
<i>Personality System Measures</i>			
<i>Motivational-Instigation Structure</i>			
Value on Independence	**	*	NS
<i>Personal Belief Structure</i>			
Social Criticism	*	NS	***
Internal-External Locus of Control	*	NS	NS
Sex-Role Liberalism	*	***	*
<i>Personal Control Structure</i>			
Attitudinal Tolerance of Deviance	***	**	*
Moral Attitudes	***	***	***
Religiosity	**	***	***
<i>Perceived Environment System Measures</i>			
<i>Distal Structure</i>			
Friends Controls	***	*	+
Parents vs Friends Influence	NS	**	NS
<i>Proximal Structure</i>			
Friends' Approval of Problem Behavior	***	***	***
Friends Models for Problem Behavior	***	***	***
<i>Personality/Perceived Environment System</i>			
Total Conventionality Index	***	***	***
<i>Behavior System</i>			
<i>Problem Behavior Structure</i>			
Smoking Status	***	***	***
Daily Alcohol Intake	***	***	***
Frequency of 5 or More Drinks/Sitting	***	***	***
Times Drunk/Past 6 Months	***	***	***
Frequency of Driving under the Influence	***	***	***
General Deviant Behavior	***	**	**
Current Use of Other Illicit Drugs (Number)	***	***	***
<i>Conventional Behavior Structure</i>			
Church Attendance	***	***	**

*High School Study* (1981) and *College Study* (1981)

(One-way Analyses of Variance: Never User; Infrequent User; Occasional User; and Heavier User Groups)

+ $p < .10$ ; \* $p < .05$ ; \*\* $p < .01$ ; \*\*\* $p < .001$  for the *F*-ratios

**Table 13.14** Psychosocial Correlates of Cocaine Involvement in Young Adulthood

	High School Study		College Study
	Males ( <i>N</i> = 157)	Females ( <i>N</i> = 221)	Sexes Combined ( <i>N</i> = 184)
Personality System Measures			
<i>Motivational-Instigation Structure</i>			
Value on Independence	NS	NS	NS
<i>Personal Belief Structure</i>			
Social Criticism	*	*	**
Internal-External Locus of Control	NS	NS	+
Sex-Role Liberalism	NS	*	NS
<i>Personal Control Structure</i>			
Attitudinal Tolerance of Deviance	***	***	NS
Moral Attitudes	***	***	***
Religiosity	***	***	***
Perceived Environment System Measures			
<i>Distal Structure</i>			
Friends Controls	***	*	NS
Parents vs Friends Influence	NS	**	NS
<i>Proximal Structure</i>			
Friends' Approval of Problem Behavior	***	***	***
Friends Models for Problem Behavior	***	***	***
Personality/Perceived Environment System			
Total Conventionality Index	***	***	***
Behavior System			
<i>Problem Behavior Structure</i>			
Smoking Status	***	**	+
Daily Alcohol Intake	***	***	***
Frequency of 5 or More Drinks/Sitting	***	***	***
Times Drunk/Past 6 Months	***	***	***
Frequency of Driving under the Influence	***	***	***
General Deviant Behavior	***	***	*
Current Use of Other Illicit Drugs (Number)	***	***	***
<i>Conventional Behavior Structure</i>			
Church Attendance	***	**	**

*High School Study* (1981) and *College Study* (1981)

(One-way Analyses of Variance: Never User; Non Current User; Current User, 1 to 5 Times; Current User, 6 or more Times)

+ $p < .10$ ; \* $p < .05$ ; \*\* $p < .01$ ; \*\*\* $p < .001$  for the *F*-ratios

## Conclusion

The primary aim of this paper has been to determine whether the pattern of psychosocial correlates of marijuana (and, secondarily, of cocaine) use have changed or remained essentially the same since an earlier review of the research literature (Jessor, 1979). In the interim, there has been a major and marked increase in the prevalence

of both marijuana use and cocaine use, and at least some experience with the former has become statistically normative in the late adolescent and young adult population in American society. Findings from studies carried out from the mid-70s to the early 80s, for both adolescents and young adults, were examined and compared with those reported for the early 70s and before. What emerges rather compellingly is that there is a relatively invariant pattern of psychosocial unconventionality that continues to be associated with variation in marijuana use. It includes: less attachment to the conventional institutions of church and school, lower expectations of doing well in school, greater criticism and a more jaundiced view of the larger society, greater tolerance of transgression, and less commitment to religion; less perceived control from friends, less compatibility between the expectations of friends and of parents, greater influence of friends than of parents, and greater friends' approval of and models for problem behavior; finally, greater involvement in *other* problem behaviors, such as problem drinking, delinquency, and precocious sexual behavior, and less involvement in conventional behavior, such as church attendance.

This pattern has been shown to be relatively invariant over time into the early 80s, as well as over development from adolescence into young adulthood. This invariance is all the more remarkable for the fact that it obtains despite a major increase in prevalence in which marijuana use has shifted from a minority to a majority experience in those age groups.

These findings, showing that marijuana use and cocaine use are embedded in a larger network of personal, social, and behavioral attributes, ought to have important implications for how we approach and try to understand the role of drug use in traffic safety. It may well be that we are seeing in risky driving not just "drug effects" but the consequences of a larger pattern of unconventional and risk-taking behavior of which drug use is but one component. If that is indeed the case, then the design of prevention and intervention programs for traffic safety ought to be quite different than they are at present.

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