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ABSTRACT

A household survey of 3,253 rural persons, conducted as part of the 1979 National Survey on Drug Abuse, focused on comparisons between rural and non-rural drug usage patterns. The findings indicated that rates of illicit drug use in rural areas increased through the 1970's and that rural/non-rural differences in illicit drug use declined. Rural and non-rural users of illicit drugs resembled each other demographically; age, education, and gender were associated with illicit drug use in the same ways in both types of areas. Rural and non-rural residents began using illicit drugs at approximately the same age. More than half of the rural young adults (age 18-25) and more than one-fourth of the rural youth (age 12-17) had used marijuana at least once: of the two groups, half were current users, i.e., they had used marijuana within the month prior to the interview. Rural/non-rural differences were much more noticeable in the South and North Central regions; in contrast, rural and non-rural areas in the West and Northeast showed much smaller differences. The findings suggest that the emergence of drug abuse in rural areas may be related to variations in the rural environment. (Author/NRB)

National Institute on Drug Abuse

TREATMENT RESEARCH REPORT

Drug Abuse in Rural America

Adele V. Harrel and Ira H. Cisin

U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES
Public Health Service
Alcohol, Drug Abuse, and Mental Health Administration

The Treatment Research Reports and Monograph Series are issued by the Treatment Research and Assessment Branch, Division of Prevention and Treatment Development, National Institute on Drug Abuse (NIDA). Their primary purpose is to provide reports to the drug abuse treatment community on the service delivery and policy-oriented findings from Branch-sponsored studies, innovative service delivery models for different client populations, innovative treatment management and financing techniques, and treatment outcome studies.

This report was written for the National Institute on Drug Abuse by the Social Research Group of George Washington University, Washington, D.C., and the Response Analysis Corporation, Princeton, New Jersey, under Contract No. 271-78-3508.

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FOREWORD

In 1979 the Secretary of the Department of Health, Education, and Welfare issued a "Report on Drug Abuse in Rural Communities." The report cited evidence of increasing substance abuse among high school seniors in rural areas, particularly such substances as cocaine, hallucinogens, and inhalants. Notwithstanding the obvious importance of that study of high school seniors, there was a need to make comparison of drug use in urban and rural settings within the general population. Therefore, simultaneously with the development and issuance of the Secretary's report, the National Institute on Drug Abuse (NIDA) implemented a special survey of the rural population as part of its 1979 National Survey on Drug Abuse. The study addition involved a household survey of 3,253 persons in rural areas.

The purpose of this report of the study undertaken is to provide descriptive information on the nature and extent of drug abuse in rural areas of the United States. The report has three parts: (1) rural drug abuse prevalence and trends; (2) a comparison of rural and nonrural illicit drug experience; and (3) an investigation of the process of diffusion of illicit drug use into rural areas.

The importance of the findings are centered around study indications of increasing rates of illicit drug use in rural areas through the 1970s. This increase suggests a picture of declining rural/nonrural differences in illicit drug use.

Given the increasing rates of drug abuse in rural communities, it will be important to monitor trends and changes regarding drug abuse in the rural communities and also to explore treatment and prevention initiatives appropriate to the rural settings.

Philip Wirtz and Susan Somerville, research associates with the Social Research Group, George Washington University, assisted in the statistical analysis and data preparation for this study. Joan Dunne Rittenhouse, Office of Medical and Professional Affairs, NIDA, was coordinator for the rural side study of the National Survey on Drug Abuse, 1979. Rebecca Sager Ashery, Treatment Research and Assessment Branch, Division of Prevention and Treatment Development, NIDA, served as project officer.

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SUMMARY

The following represent highlights from the report:

- For most classes of drugs except heroin, the 1979 lifetime prevalence rates among rural inhabitants were approximately two-thirds the corresponding nonrural prevalence rates. For example, across all age groups the prevalence of lifetime experience with marijuana was 23 percent in rural areas and 33 percent in nonrural areas; cocaine, 6 percent in rural areas and 10 percent in nonrural areas; hallucinogens, 6 percent and 9 percent, respectively.

- The pattern of increases in rural drug abuse suggests that rural/nonrural prevalence differences are declining and will disappear entirely if current trends persist.

- Rural and nonrural users of illicit drugs resemble each other demographically: age, education, and sex are associated with illicit drug use in the same ways in both types of areas. In both rural and nonrural areas, the ratio of male users to female users is 3 to 2; those who have attended college are much more likely to use drugs than those who have not attended college; young adults (ages 18-25) in both rural and nonrural areas are most likely to have used illicit drugs.

- Rural and nonrural residents began their use of illicit drugs at approximately the same age.

- Rural/nonrural differences are much more noticeable in the South and North Central regions of the country. In contrast, rural and nonrural areas in the West and Northeast show much smaller differences.

- More than one-half of the rural young adults (18-25) and more than one-fourth of rural youth (12-17) had used marijuana at least once. Of the youth and young adults who had used marijuana at least once, one-half were current users (had used within the month prior to the interview).

- Lifetime experience with nonmedical use of psychotherapeutic prescription drugs including stimulants, tranquilizers, sedatives, and analgesics ranged between 13 percent and 17 percent among rural young adults.

Marijuana use is more likely to occur in certain kinds of rural environments: those located within 10 miles of colleges and/or resorts, and in rural areas with 2,500 persons or more. The latter indicates that population density is a factor in the utilization of drugs.

Rural residents who move to nonrural areas are more likely to begin marijuana use than their same age peers who do not migrate.

DRUG ABUSE IN RURAL AMERICA

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Section 1
INTRODUCTION

The purpose of this special report is to make widely available descriptive information on the nature and extent of drug abuse in rural areas of the United States. Consistent with the National Institute on Drug Abuse commitment to monitoring drug use, the report provides estimates of the prevalence of the use of a broad sprectrum of licit and illicit substances. The intention is to provide for health professionals, policy planners, and interested members of the general public an overview of the current levels of rural drug abuse and a comparison of patterns of drug abuse in rural and nonrural areas. In addition, special emphasis is given to an exploration of the rapid rise in the 1970s of illicit drug use outside of metropolitan areas.

The term "rural" as used in this report refers to areas that are outside of Standard Metropolitan Statistical Areas and have populations of fewer than 25,000 persons. Almost one-third of the population of the United States lives in such rural areas; over 40 percent of the population living in the South and one-third of those living in the North Central region live in rural areas, compared to one-fifth of the population living in the West and Northeast regions.

The two measures of drug use prevalence used in this report are "lifetime experience" and "current use." The prevalence of lifetime experience with a particular drug is defined as the percentage of respondents who report ever having used that drug. The prevalence of current use refers to the percentage of respondents who report having used the drug during the month (30 days) prior to interview. These two measures are applied to a variety of substances, including marijuana/hashish (referred to simply as "marijuana" in the text) and three "stronger" illicit drug classes--cocaine, hallucinogens, and heroin. Lifetime experience and current use data are also provided for the following drug use classes: the recreational or nonmedical use of four classes of psychotherapeutic drugs--sedatives, tranquilizers, stimulants, and analgesics--that are legally available only under a doctor's prescription and the consumption of alcohol and cigarettes, constituting legal adult behavior that is generally prohibited for youth. The illicit drugs and drug classes covered in this report are described in the Glossary.

The report is based on the 1979 National Survey on Drug Abuse, the sixth in a series of studies of the general population of the United States. The 1979 National Survey consists of personal interviews with over 7,000 respondents aged 12 and older randomly selected from the household population. Residents of rural areas, as well as young adults aged 18 through 25, were chosen with a higher probability of selection than other persons (with compensating weights applied to their responses) to yield a rural sample of 1,017 youths aged 12 to 17; 883 young adults aged 18 to 25; and 1,353 older adults aged 26 and over. Additional information on the design and execution of the 1979 survey may be found in the Technical Note at the end of this report and in National Survey on Drug Abuse: Main Findings, Fishburne, Abelson, and Cisin, 1980. For a summary of the substantive results of this study, see Miller and Cisin (1980).

Four earlier similar surveys provide the basis for reporting trends in metropolitan and nonmetropolitan drug abuse across the decade of the seventies. The 1974, 1976, and 1977 studies were, like the present survey, undertaken jointly by the Social Research Group of George Washington University and the Response Analysis Corporation, under the sponsorship of the National Institute on Drug Abuse. The 1972 study was conducted by the Response Analysis Corporation for the National Commission on Marijuana and Drug Abuse.

Survey results are generalizable to the population from which the sample was drawn. As in any sample survey, however, there is some degree of statistical uncertainty. For this reason, many of the tables in this report include ranges which surround estimates of drug use prevalence. For example, 28 percent of the rural young adults participating in the 1979 survey report using marijuana during the month prior to the interview. The range surrounding this current use prevalence estimate is 25 percent to 32 percent. This range is referred to as the "95 percent confidence interval" because if corresponding ranges were calculated for all possible similar samples, the population value would be included in the range 95 out of 100 times. Thus, the reader can be 95 percent sure or confident that the range presented includes the value which would be obtained in a complete census of the population group.

Section 2 of this report provides rural prevalence estimates for a variety of substances and describes trends in rural drug use across the decade of the seventies. Section 3 compares illicit drug use prevalence among selected subgroups of the rural and nonrural population, and examines the thesis that rural residents who move to nonrural areas are more likely to begin marijuana use than their age peers who do not migrate. Section 4 investigates the process of diffusion of illicit drug use to rural areas.

Section 2
RURAL DRUG ABUSE PREVALENCE AND TRENDS

Among the youth and young adults of rural America, marijuana use is both widespread and on the rise.

Marijuana is typically the first illicit drug used in the United States: over 90 percent of all drug users in the 1977 National Survey on Drug Abuse began their illicit drug use career with marijuana, supporting marijuana's reputation as the "gateway" illicit drug (Harrell and Wirtz 1980; Rittenhouse 1980). In 1979 more than half of the young adults and more than one out of every four youths in rural areas had used marijuana at least once. Marijuana is the only illicit drug ever used by more than 10 percent of rural youth. Lifetime experience with the stronger illicit drugs and nonmedical pill use is uncommon among this age group. Of the youth and young adult marijuana users in rural areas, about half used the drug in the month prior to the interview. Fewer rural adults over age 25 reported marijuana use: about one in eight older adults has ever used marijuana and only one-quarter of the older adults with marijuana experience used it in the prior month. Estimates of the prevalence of the use of marijuana and other illicit drugs across each of the three age groups--youth, young adults, and older adults--are shown in tables 1 and 2.

In rural areas, lifetime experience with the stronger illicit drugs and the nonmedical use of psychotherapeutic prescription drugs is most widespread among young adults. About one-fifth of the young adults have used cocaine or a hallucinogen. Heroin, virtually unused by the general household population, is the only illicit drug included in the survey not tried by more than 10 percent of rural young adults. Lifetime experience with nonmedical use of psychotherapeutic prescription drugs, including stimulants, tranquilizers, sedatives, and analgesics (table 3), ranges between 13 and 17 percent among rural young adults--the highest rate of use (by a considerable margin) of the three age groups. The estimates of nonmedical pill use among young adults do not reveal a marked preference for any particular drug class, although the aggregated figures for each drug class may conceal pill preferences among the many substances included in each class (see Glossary).

More than half of the 1979 respondents who began illicit drug use with marijuana went on to use at least one other illicit drug. When this is added to the fact that older rural youth, 15 through 17, are much more likely to have used marijuana than those under age 15, it seems reasonable to assume that many of these youths are at the threshold of their illicit drug use career and may go on to try a stronger illicit drug in early

Table 1: Prevalence of Lifetime Experience with Licit and Illicit Drugs in Rural Areas Across Three Major Age Groups: 1979

Percent who ever used each drug or drug class

DRUG/DRUG CLASS[b]	MAJOR AGE GROUPS[a] Youth (1017)	Young adults (883)	Older adults (1353)
MARIJUANA/HASH	27%	60%	13%
(95 percent confidence interval)[c]	*(23% to 30%)*	*(56% to 64%)*	*(11% to 15%)*
INHALANTS	9%	14%	2%
(95 percent confidence interval)	*(7% to 11%)*	*(11% to 17%)*	*(1% to 3%)*
COCAINE	4%	21%	3%
(95 percent confidence interval)	*(3% to 6%)*	*(17% to 24%)*	*(2% to 4%)*
HALLUCINOGENS	6%	20%	3%
(95 percent confidence interval)	*(4% to 8%)*	*(17% to 24%)*	*(2% to 5%)*
HEROIN	1%	2%	1%
(95 percent confidence interval)	*(* to 2%)*	*(1% to 3%)*	*(* to 2%)*
ALCOHOL	71%	94%	86%
(95 percent confidence interval)	*(67% to 74%)*	*(92% to 96%)*	*(84% to 88%)*
CIGARETTES	56%	51%	54%
(95 percent confidence interval)	*(52% to 59%)*	*(47% to 55%)*	*(50% to 57%)*

[a]Youth are ages 12 to 17 years; young adults are ages 18 to 25; older adults are age 26 or older.

[b]Definitions of drug classes are provided in the Glossary at the end of this volume.

[c]The logic of the 95% confidence interval is explained in the introduction to this volume. In some cases, the upper or lower confidence limit may be the same as the sample estimate, due to rounding.

**Less than one-half of one percent.*

Table 2. Prevalence of Current Use of Licit and Illicit Drugs in Rural Areas Across Three Major Age Groups: 1979

Percent who used each drug during month prior to interview

DRUG/DRUG CLASS[b]	MAJOR AGE GROUPS[a] Youth (1017)	Young adults (883)	Older adults (1353)
MARIJUANA/HASH	14%	28%	3%
(95 percent confidence interval)[c]	*(12% to 17%)*	*(25% to 32%)*	*(2% to 5%)*
INHALANTS	1%	2%	*
(95 percent confidence interval)	*(* to 2%)*	*(1% to 3%)*	
COCAINE	1%	7%	1%
(95 percent confidence interval)	*(1% to 2%)*	*(6% to 10%)*	*(* to 1%)*
HALLUCINOGENS	2%	4%	*
(95 percent confidence interval)	*(1% to 3%)*	*(3% to 6%)*	
HEROIN	*	*	*
(95 percent confidence interval)			
ALCOHOL	35%	71%	50%
(95 percent confidence interval)	*(31% to 38%)*	*(67% to 75%)*	*(47% to 54%)*
CIGARETTES	12%	40%	32%
(95 percent confidence interval)	*(10% to 15%)*	*(36% to 44%)*	*(29% to 35%)*

[a] Youth are ages 12 to 17 years; young adults are ages 18 to 25; older adults are age 26 or older.

[b] Definitions of drug classes are provided in the Glossary at the end of this volume.

[c] The logic of the 95% confidence interval is explained in the introduction to this volume. In some cases, the upper or lower confidence limit may be the same as the sample estimate, due to rounding.

** Less than one-half of one percent.*

Table 3. Prevalence of Lifetime Experience with Psychotherapeutic Prescription Drugs in Rural Areas Across Three Major Age Groups, 1979

Percent who ever used each drug or drug class

DRUG/DRUG CLASS[b]	MAJOR AGE GROUPS[a] Youth (1017)	Young adults (883)	Older adults (1353)
SEDATIVES	2%	14%	2%
(95 percent confidence interval)[c]	*(1% to 3%)*	*(11% to 17%)*	*(1% to 3%)*
TRANQUILIZERS	2%	13%	2%
(95 percent confidence interval)	*(1% to 4%)*	*(10% to 16%)*	*(1% to 3%)*
STIMULANTS	3%	17%	5%
(95 percent confidence interval)	*(2% to 4%)*	*(14% to 21%)*	*(3% to 6%)*
ANALGESICS	2%	13%	2%
(95 percent confidence interval)	*(1% to 4%)*	*(10% to 16%)*	*(1% to 3%)*

[a] *Youth are ages 12 to 17 years; young adults are ages 18 to 25; older adults are age 26 or older.*

[b] *Definitions of drug classes are provided in the Glossary at the end of this volume.*

[c] *The logic of the 95% confidence interval is explained in the introduction to this volume. In some cases, the upper or lower confidence limit may be the same as the sample estimate, due to rounding.*

adulthood. Thus, the low levels of lifetime experience with stronger drugs and nonmedical pill use should not be interpreted as suggesting these rural youths will confine their drug use to marijuana over the next several years.

Although current use of both illicit drugs and the psychotherapeutic prescription drugs is generally below 5 percent in rural areas, higher current use of marijuana and cocaine are reported by certain age groups: 14 percent of the youth and 28 percent of the young adults used marijuana in the prior month, while 7 percent of the young adults used cocaine.

Young adults are more likely to continue their marijuana or cocaine use than their use of inhalants or hallucinogens: the percentage of marijuana and cocaine ever-users who used in the month prior to interview exceeds the percentage of inhalant ever-users and hallucinogen ever-users who used in the prior month. Tables 1 and 2 highlight this effect: the ratios of marijuana and cocaine "Current Users" to "Ever-Users" (0.5 and 0.3, respectively) are noticeably higher than the corresponding inhalant and hallucinogen ratios (0.15 and 0.2, respectively). Current nonmedical use of pills by young adults is uniformly low across tranquilizers, sedatives, stimulants, and analgesics as are the ratios of "Current Users" to "Ever-Users" which range from .11 to .18 (see tables 3 and 4).

Young adults lead the rural population in the current use of licit as well as illicit substances: 71 percent used alcohol and 40 percent used cigarettes in the month prior to the interview. Many older adults in rural areas also use alcohol and cigarettes: half are current alcohol users and about a third are current smokers. Although current alcohol and cigarette use are lower among youth than adults, over a third used alcohol in the prior month. Since the prevalence of current alcohol use is twice that of current marijuana use in this age group, alcohol is clearly the most widely used intoxicant among rural youth.

The relatively high rates of illicit drug use among young adults in rural areas appear to be the outcome of a sharp rise in drug abuse in nonmetropolitan areas in the 1970s, similar in magnitude to that which occurred in metropolitan areas in the 1960s. Nonmetropolitan areas--places outside Standard Metropolitan Statistical Areas--consist largely of rural areas: over 90 percent of the 1979 National Survey nonmetropolitan sample lived in places with a population under 25,000. For this reason, trends in illicit drug use in the 1970s in nonmetropolitan areas reflect to a large extent trends in rural drug use. In the absence of earlier surveys on rural drug use, data from the series of five National Surveys conducted in 1972, 1974, 1976, 1977, and 1979 are used to examine the growth in drug use.

Table 4. Prevalence of Current Use of Psychotherapeutic Prescription Drugs in Rural Areas Across Three Major Age Groups: 1979

Percent who used each drug during month prior to interview.

DRUG/DRUG CLASS[b]	MAJOR AGE GROUPS[a] Youth (1017)	Young adults (883)	Older adults (1353)
SEDATIVES	*	2%	*
(95 percent confidence interval)[c]		*(1% to 4%)*	
TRANQUILIZERS	*	1%	*
(95 percent confidence interval)		*(1% to 3%)*	
STIMULANTS	*	3%	1%
(95 percent confidence interval)		*(2% to 5%)*	*(* to 1%)*
ANALGESICS	*	1%	*
(95 percent confidence interval)		*(1% to 3%)*	

[a] *Youth are ages 12 to 17 years; young adults are ages 18 to 25; older adults are age 26 or older.*

[b] *Definitions of drug classes are provided in the Glossary at the end of this volume.*

[c] *The logic of the 95% confidence interval is explained in the introduction to this volume. In some cases, the upper or lower confidence limit may be the same as the sample estimate, due to rounding.*

* *Less than one-half of one percent.*

in metropolitan and nonmetropolitan areas during these years. The results suggest that a rapid rise in rural drug use occurred across this period of time.*

In 1962 fewer than 5 percent of the young adult household population in the United States had ever used a drug illicitly; a figure which rose to approximately 50 percent in 1972 (Cisin, Miller, and Harrell 1978). The results of the 1972 survey conducted for the Marijuana Commission indicate, however, that most of the growth in young adult illicit drug use from 1962 to 1972 occurred in metropolitan areas. As figure 1 illustrates, in 1972 one-fifth of the young adult residents of nonmetropolitan areas reported experience with marijuana compared to over one-half of those in metropolitan areas. Likewise, fewer than 10 percent of the young adults in nonmetropolitan areas had tried a stronger drug compared to a quarter of their peers in metropolitan areas. In 7 years the metropolitan-nonmetropolitan gap in drug use prevalence has closed considerably. By 1979 the prevalence of marijuana use exceeded 60 percent in nonmetropolitan areas and 70 percent in metropolitan areas--indicating a 7-year increase of 40 percentage points in nonmetropolitan areas compared to an increase of 15 percentage points in metropolitan areas. Stronger drug use followed a similar pattern, rising by over 20 percentage points in nonmetropolitan areas compared to an increase of 10 percentage points in metropolitan areas. Should these rates of increasing prevalence be sustained for only a few years, the metropolitan-nonmetropolitan differences in illicit drug use among young adults may become a thing of the past.

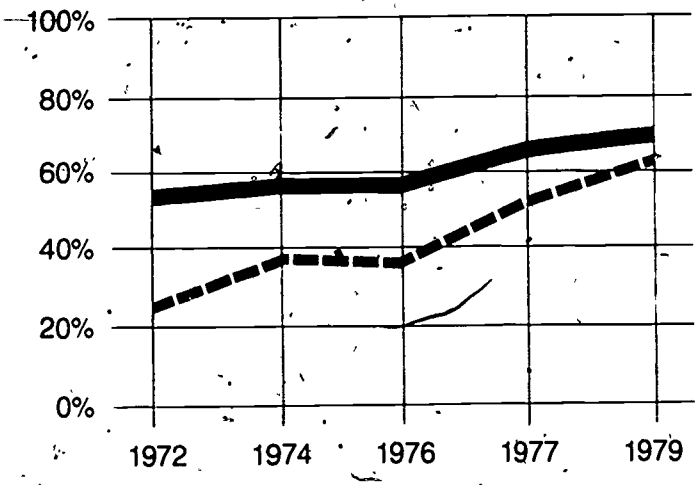
The picture of declining rural-nonrural differences in illicit drug use is reinforced by the increases from the late sixties to the late seventies in the proportion of marijuana users who began using this substance while living in rural areas. As figure 2 shows, a growing proportion of marijuana users of all ages report that they lived in a rural area at the time they first used marijuana. Data reconstructed from the respondent's age at first marijuana use, current age, and residence at first marijuana use indicate that 25 percent of the marijuana users

*Metropolitan: Includes Standard Metropolitan Statistical Areas in 1970 census of those areas with a population under one million (small metropolitan) and those with a population of over one million (large metropolitan).

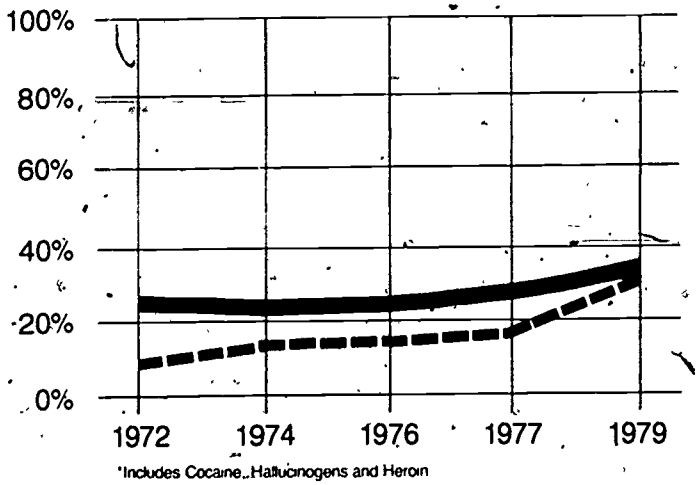
Nonmetropolitan: Those areas not part of the Standard Metropolitan Statistical area as of 1970. Includes smaller communities, rural nonfarm and rural farm areas.

Figure 1. Trends in Lifetime Experience with Marijuana and Stronger Drugs* Among Young Adults in Metropolitan and Nonmetropolitan Areas

Marijuana



Stronger Drugs*

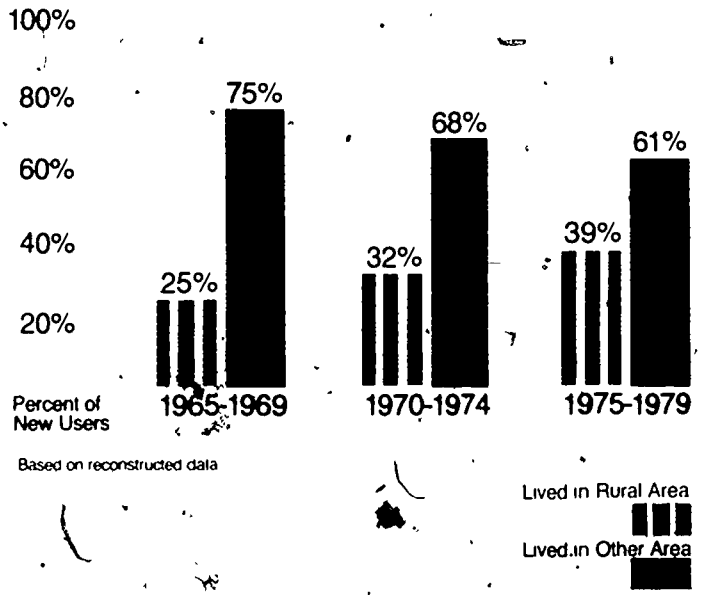


*Includes Cocaine, Hallucinogens and Heroin

Metropolitan Areas

Nonmetropolitan Areas

Figure 2. The Distribution of New Marijuana Users by Rural and Nonrural Residence: 1965-1979.*



who began use from 1965 to 1969 lived in a rural area at the time they first used marijuana. This percentage rose to almost 40 percent for those who began use in the period from 1975 through 1979. In 1979 the proportion of residents of both rural and nonrural areas who began marijuana use in the prior year was identical--2 percent in both types of areas.

Thus, illicit drug use has expanded rapidly in nonmetropolitan areas in the 1970s, resulting in over half of the young adults and one-quarter of the youth in rural areas reporting lifetime experience with marijuana. The pattern of increases suggests, moreover, that rural-nonrural prevalence differences are declining and may disappear entirely if current trends persist for only a few years. The following section extends the comparison of illicit drug use in rural and nonrural areas to clarify further the patterns of drug abuse across diverse areas of the country and segments of the population.

Section 3
A COMPARISON OF RURAL AND NONRURAL DRUG EXPERIENCE

Rural drug abuse, although increasing, has not yet reached the overall levels reported in nonrural areas, i.e., in nonmetropolitan areas with a population over 25,000 and in metropolitan areas. For most classes of drugs, the 1979 lifetime prevalence rates among rural inhabitants are approximately two-thirds the corresponding nonrural prevalence rates. For example, across all age groups the prevalence of lifetime experience with marijuana is 23 percent in rural areas and 33 percent in nonrural areas, with cocaine 6 percent in rural areas and 10 percent in nonrural areas, with hallucinogens 6 percent and 9 percent, respectively.

These overall estimates may, however, mask important similarities and differences in the prevalence of illicit drug use. For example, rural/nonrural prevalence levels may be more similar in some age groups and/or regions of the country than in others. This section compares the rates of lifetime experience with, and current use of, marijuana and stronger drugs among selected segments of the population to further explicate current prevalence patterns. In addition, patterns of use, that is, the age at which illicit drugs are first tried, as well as the cumulative lifetime experience with illicit substances in rural and nonrural areas are described. The generally higher prevalence of illicit drug use in nonrural areas suggests that rural youth who move to nonrural areas may be at greater risk for subsequent involvement wth illicit drugs, a subject explored by examining the incidence of marijuana use among movers and nonmovers.

The detailed comparison of illicit drug use in rural and nonrural areas shown in tables 5 and 6 reveals that age and type of area interact; that is, when looking at young adults and older adults separately, the overall 2:3 ratio of rural to nonrural drug use does not apply. For older adults, the rural rate is much lower than the 2:3 ratio. Conversely, among young adults the rates in rural and nonrural areas are more nearly similar. For youth the rates are much closer to the 2:3 rural/nonrural average rate.

One reason for the prevalence differences across age groups between rural and nonrural areas may be related to the status of illicit drug use as a nontraditional socially stigmatized behavior relatively new in historical terms to a great many persons in this country. In general, older persons are thought to be more conservative than younger persons; likewise rural areas are considered more traditional than nonrural areas. In support of this thesis, Somerville and Miller (1980) found that older

adults were the age group least likely to take advantage of the opportunity to use an illicit drug. Similarly, young adults in nonmetropolitan areas of the South were less likely to use a stronger drug, given the opportunity, than their age peers in other areas. If older persons and residents of rural areas in the South represent pockets of conservatism in the popula- tion, then the lower rates of new and socially stigmatized behaviors among these persons are not surprising. Thus, mari- juana use, which was relatively widespread in 1979, may have been accepted by many in all but the most conservative group -- older adults in rural areas. Stronger drug use, which is less widespread, may be regarded generally as more dangerous or unac- ceptable and, therefore, has not spread to rural areas even among young adults--the high risk age cohort.

Such an explanation is consistent with the regional comparisons also shown in tables 5 and 6. Rural versus nonrural area differences are much more noticeable in the South and North Central regions, strongholds of traditional behavior patterns, than in other regions of the country. For example, current use of marijuana is much lower in rural areas of the South and North Central regions than in rural areas in other regions. In contrast, rural and nonrural areas in the West and Northeast show much smaller differences. This pattern holds generally for lifetime experience with marijuana and stronger drugs.

The age and regional distribution of the rural population may contribute to some extent to the explanation of the differences in drug abuse prevalence by region and age group reported in National Survey on Drug Abuse: Main Findings 1979, Fishburne, Abelson, and Cisin, 1980. Not only are the rural-nonrural differences most obvious in the South and North Central regions, but a larger proportion of the population of these regions lives in rural areas than in the Northeast and West regions. Likewise, in comparison to the population in nonrural areas, a slightly larger proportion of the rural population is over 26 years old.

Further comparison of rural and nonrural drug users reveals some consistent similarities in the tendency of certain subgroups to use illicit drugs. For both lifetime experience and current use, certain patterns in marijuana use rates can be observed regardless of the type of area. For example, in both rural and other areas the ratio of male users to female users is about 3 to 2; adults who have attended college are much more likely to have illicitly used drugs than those who have not attended college, regardless of the type of area they live in. Likewise, the comparison of users of at least one of the stronger drugs (hallucinogens, cocaine, and heroin) suggest that certain groups, like young adults and persons who attended college, are the portion of the population most likely to use these illicit drugs in both rural and nonrural areas.

Table 5. A Comparison of Rural and Nonrural Marijuana Use by Age Group, Sex, Race, Region, and Education

	LIFETIME EXPERIENCE WITH MARIJUANA		CURRENT USE OF MARIJUANA	
	Rural Areas	Nonrural Areas	Rural Areas	Nonrural Areas
AGE[a]				
Youth	27% (1017)	33% (1148)	14% (1017)	18% (1148)
Young adults	60% (883)	71% (1161)	28% (883)	38% (1161)
Older adults	13% (1353)	22% (1662)	3% (1353)	7% (1662)
SEX				
Male	28% (1541)	40% (1816)	12% (1541)	20% (1816)
Female	18% (1712)	27% (2155)	6% (1712)	10% (2155)
RACE				
White[b]	22% (2904)	33% (3303)	9% (2904)	15% (3303)
Black and other	27% (349)	36% (668)	14% (349)	14% (668)
REGION				
North East	28% (551)	32% (1160)	14% (551)	15% (1160)
North Central	19% (864)	34% (978)	7% (864)	15% (978)
South	19% (1232)	30% (1143)	7% (1232)	13% (1143)
West	32% (606)	39% (690)	13% (606)	16% (690)
EDUCATION[c]				
Attended college	32% (686)	43% (1090)	11% (686)	18% (1090)
Did not attend college	18% (1534)	28% (1711)	7% (1534)	12% (1711)

[a] *Youth are ages 12 to 17 years; young adults are ages 18 to 25; older adults are age 26 years and older.*

[b] *White includes all persons of Hispanic origin.*

[c] *Education estimates based on the adult sample only; cases with no information on educational attainment are omitted.*

Table 6. A Comparison of Rural and Nonrural Stronger Drug Use by Age Group, Sex, Race, Region, and Education

	LIFETIME EXPERIENCE[a] WITH STRONGER DRUGS		CURRENT USE OF[a] STRONGER DRUGS	
	Rural Areas	Nonrural Areas	Rural Areas	Nonrural Areas
AGE[b]				
Youth	7% (1017)	9% (1148)	2% (1017)	3% (1148)
Young adults	26% (883)	36% (1161)	9% (883)	12% (1161)
Older adults	4% (1353)	7% (1662)	1% (1353)	1% (1662)
SEX				
Male	11% (1541)	16% (1816)	3% (1541)	5% (1816)
Female	6% (1712)	10% (2155)	2% (1712)	2% (2155)
RACE[c]				
White	8% (2904)	13% (3303)	2% (2904)	3% (3303)
Black and other	8% (349)	13% (668)	2% (349)	4% (668)
REGION:				
North East	12% (551)	12% (1160)	3% (551)	4% (1160)
North Central	6% (864)	13% (978)	2% (864)	3% (978)
South	5% (1232)	11% (1143)	1% (1232)	3% (1143)
West	16% (606)	16% (690)	4% (606)	5% (690)
EDUCATION[d]				
Attended college	13% (686)	18% (1090)	4% (686)	4% (1090)
Did not attend college	6% (1534)	11% (1711)	1% (1534)	3% (1711)

[a] *Stronger drug use includes use of an hallucinogen, cocaine and/or heroin.*

[b] *Youth are ages 12 to 17 years; young adults are ages 18 to 25; older adults are age 26 years and older.*

[c] *White includes all persons of Hispanic origin.*

[d] *Education estimates based on the adult sample only; cases with no information on educational attainment are omitted.*

The rural/nonrural similarities extend to the timing of drug use initiation and to cumulative drug experience. Rural and nonrural residents begin their use of illicit drugs at approximately the same age. As table 7 shows, approximately one-fifth of all marijuana users in both rural and nonrural areas first tried marijuana prior to age 15, and one-fifth tried it at age 22 or older. The majority began marijuana use between age 15 and 21. Approximately two-thirds of the stronger drug users in both location begin use between 15 and 21 years of age. In addition, the cumulative lifetime experience of rural drug users resembles that of nonrural users. In every age group, more than half of both rural and nonrural marijuana users have used marijuana more than 10 times, while over 40 percent of both rural and nonrural stronger drug users have used one of these drugs 10 or more times.

Table 7. A Comparison of Rural and Nonrural Marijuana Use: Age at First Use and Cumulative Lifetime Experience Among Illicit Drug Users

	PERCENT OF MARIJUANA USERS*		PERCENT OF STRONGER DRUG USERS*	
	Rural Areas (1035)	Nonrural Areas (1688)	Rural Areas (379)	Nonrural Areas (695)
AGE AT FIRST USE				
14 or younger	21%	22%	11%	11%
15-17 years old	33	29	32	30
18-21 years old	25	25	33	34
22 or older	20	23	17	18
CUMULATIVE LIFETIME EXPERIENCE				
10 times or less	47%	42%	58%	54%
11-99 times	23	25	26	31
100 or more times	29	31	6	7

Does not add to 100% because respondents who used the illicit drug class, but responded "not sure" to the question on age of first use are omitted.

In regard to race, there is no difference within rural areas between whites and nonwhites (all ages) on lifetime prevalence for marijuana and stronger drugs. Rural whites were significantly lower in lifetime prevalence for all drugs than nonrural whites. Rural nonwhites were also lower in lifetime prevalence than nonwhites in nonrural areas. Due to the smaller sample size of nonwhites, the difference does not attain statistical significance.

One of the consistent trends of this century has been the growing urbanization of our society. Census estimates indicate a precipitous decline in the percentage of the population of the United States living in the most sparsely populated rural areas from 60 percent to 25 percent (Bureau of the Census 1975). Not only have cities and suburbs grown, engulfing adjoining rural areas, but substantial migration from farms to cities has continued across this period of time. A great many persons have moved from rural to nonrural areas--and in recent years this has meant movement from areas of low drug abuse prevalence to areas of higher prevalence. This continued migration raises a serious question about the risk of subsequent illicit drug involvement for rural youth who move to nonrural areas: Are these youths more likely to initiate illicit drug use than their same-age peers who remain in rural areas?

The higher rates of illicit drug use in nonrural areas suggest that migration to an urban community might increase the probability of beginning use of marijuana, the "gateway" illicit drug. To investigate this risk, the incidence of marijuana use across the teen years is compared for two groups of previous nonusers: youths who move from a very rural area to a nonrural area, the movers, and those who live in very rural areas continuously, the nonmovers.

Based on the ages at which respondents reported that they lived in a rural area of fewer than 2,500 people, 1,139 persons who lived in very rural areas at age 12 have been selected for this analysis. To make the comparison as sensitive and unambiguous as possible, the following steps were taken:

1. To control in part for historical changes in drug use prevalence, the analysis is restricted to persons who are now under 35 years old, that is, persons whose early teen years were in the 1960s and 1970s.

2. Only persons who had been in a rural area at the age of 12 are eligible. All those who moved before the age of 12 are excluded.

3. Only those who never moved, or who moved only once from a rural area to a nonrural area, are included. Persons who moved more than once in and out of nonrural areas are excluded.

4. Only the marijuana incidence at ages 14 through 19 was examined because, as indicated earlier, the majority of marijuana users began use during these years.

The incidence of marijuana use is the proportion of users among those who had not previously used, e.g., the incidence rate answers the question, "Among persons who reach a given age without using marijuana, what proportion used marijuana for the first time at that age?" Previous users and youth who did not reach a given age are excluded from the calculation of all subsequent year incidence rates.

The results of this comparison, shown in table 8, provide some support for the idea that movement from very rural areas to more densely populated areas increases the probability of illicit drug involvement. At 5 of the 6 years of age from 14 through 19, the incidence of marijuana use is higher among youths who moved out of very rural areas than among their nonmoving peers. For example, 5 percent of the 14-year-old youths who had not previously used marijuana and who remained in rural areas used marijuana for the first time at that age compared to 8 percent of their peers who had previously moved to nonrural areas.

While there is not much difference between the incidence rates among movers and the comparable incidence rates among nonmovers, the preponderance of evidence supports a conclusion that the urban environment is at least slightly more conducive to beginning marijuana use at early ages than the rural environment. The importance of this finding lies in the fact that small differences in the incidence of marijuana use during the teenage years can translate into large differences in the prevalence of lifetime experience with marijuana by age 20. Thus, movement to more urban environment by residents of very rural areas appears to increase the probability of illicit drug experience by young adulthood.

Beyond these regional and age group differences, remarkable similarities in rural and nonrural patterns of drug use exist. In both rural and nonrural areas, first use of illicit drugs occurs at approximately the same age, and about the same amount of lifetime use is reported by users.

Table 8. Incidence Rates of Marijuana Use Among Movers and Nonmovers by Age

NEW MARIJUANA STARTS AT AGE:	INCIDENCE RATES OF MARIJUANA USE[a]	
	Rural Nonmovers	Rural-to-Nonrural Movers
14	.05 *(1054)*	.08 *(85)*
15	.07 *(897)*	.04 *(93)*
16	.08 *(740)*	.10 *(93)*
17	.07 *(602)*	.10 *(100)*
18	.09 *(485)*	.11 *(114)*
19	.04 *(374)*	.07 *(134)*

[a] *Incidence rate* = $\frac{\text{new marijuana starters}}{\text{previous nonusers}}$. *The unweighted number of previous nonusers at each age is shown in parenthesis under the incidence rate.*

Although the prevalence of illicit drug use in rural areas averages about two-thirds of the rates in nonrural areas, two significant departures from this general pattern can be observed. When rural and nonrural differences are compared within age groups, young adults in rural areas are only slightly less likely to have used illicit drugs than their nonrural peers. In contrast, older adults in rural areas are far less likely to have used drugs illicitly than older adults in nonrural areas. When rural and nonrural drug use is compared within regions, sharp differences in rates are observed in the South and North Central regions in contrast to slight differences in the West and Northeast. Moreover, similar subgroups of the population in both rural and nonrural areas are those most likely to use illicit drugs; age, education, race, and sex appear similarly associated with illicit drug use within both types of areas. The generally higher rates of illicit drug use in nonrural areas appear, however, to increase slightly the probability of beginning marijuana use during the teen years for rural youth who move to more urban communities.

Section 4
RURAL DRUG ABUSE ENVIRONMENTS

Rural areas in the United States vary widely in population density, in degree of organization, and in mobility among residents. About two-thirds of the rural population live in communities of fewer than 2,500 persons, while one-third live in areas of 2,500 to 25,000 persons. Rural areas contain towns and their suburbs in addition to farmland and open country. Some are close to facilities such as colleges or resorts which attract large numbers of visitors or transient residents, while others are relatively isolated.

The emergence of drug abuse in rural areas may well be related to such variations in rural environment. The previous section has already documented a relationship between population density and drug abuse. Within rural areas, regional differences further suggest that patterns of use vary by locale. The finding that the prevalence of illicit drug use is almost as high in rural and nonrural areas in the Northeast and West regions of the country points to the possibility that some rural areas may be far more likely than others to have drug abuse problems. This section will examine in more detail the prevalence of illicit drug use in diverse rural environments in an effort to identify the kinds of rural areas in which illicit drug use prevalence is highest.

As the prior section demonstrated, the emergence of illicit drug use in nonmetropolitan areas of the United States occurred in large part during the decade of the seventies: in nonmetropolitan areas the prevalence of lifetime experience with marijuana grew among young adults from approximately 21 percent in 1972 to 61 percent in 1979, and among adults over 25 from around 3 percent in 1972 to 13 percent in 1979. By 1979, 60 percent of all rural respondents age 12 and older reported that they were personally acquainted with a marijuana user. Illicit drug use thus rapidly changed from relatively rare behavior to one familiar to large numbers of rural residents.

One explanation for the rapid rise in marijuana use in nonmetropolitan areas in the 1970s is that it was spread via a process of social diffusion from metropolitan to nonmetropolitan areas; that is, residents of rural areas may have acquired drug use knowledge and opportunities through exposure to persons from areas in which illicit drug use became familiar during the 1960s. This explanation draws on a model of social learning which suggests that new behaviors and attitudes can be learned from other persons--directly through observation and social interaction as well as indirectly through the mass media. The social contact of residents in nonmetropolitan areas with

persons familiar with illicit drug use may have been a crucial factor in its emergence in rural areas. If so, rural environments that provide frequent opportunities for learning about drug use through contact--direct and indirect--with persons familiar with drug abuse should be characterized by higher prevalence of marijuana use and familiarity than areas in which such opportunities are more infrequent.

Special learning opportunities can be arranged on a continuum of closeness of interpersonal contact. At one end of the continuum are indirect contacts with the ideas of others. Virtually everyone in this country has the opportunity to be exposed to illicit drug use indirectly through the mass media. Television, newspapers, and movies reach even the most isolated rural areas. Over 95 percent of both rural and nonrural respondents to the 1979 National Survey reported that they had heard of marijuana, cocaine, and heroin. At the other end of the continuum of interpersonal contact is conversation on a regular basis with a close friend or observation of behaviors among intimate associates. Falling in the center are occasional conversations with, or observations of, strangers or casual acquaintances. This type of opportunity to learn about drug use depends to some extent on the availability in the area of others familiar with illicit drug use.

It is the likelihood of encountering others from whom an understanding of illicit drug use can be acquired through conversation and/or observation that may vary widely across diverse rural environments. Factors such as population density, degree of urbanization, and the influx of visitors or transient residents can affect the availability in a rural community of opportunities to learn about and/or experience illicit drug use. Rural areas that are more densely populated would seem to provide more frequent opportunities for verbal and visual contact with a variety of persons beyond one's immediate family and neighbors than would less densely populated areas. Similarly, the degree of urbanization may predict more extensive contacts with others: residents of towns may be more likely to encounter persons other than family members and close friends than residents of farms or ranches.

In addition to the enhanced potential for more frequent social interaction in more densely populated and urbanized rural areas, certain aspects of the environment can be expected to relate to qualitative differences in interpersonal contacts. In particular, rural locations in which temporary residents or visitors abound would seem to offer a larger number of "new" persons who might bring with them drug use experience and knowledge accumulated elsewhere. The likelihood that these temporary residents would be familiar with drug use is enhanced in the case of college students and members of the Armed Forces,

among whom drug use is believed to be widespread. Other transients, such as vacationers at resorts, may be particularly inclined to engage in recreational use of illicit drugs away from the constraints of home and family responsibilities. In addition, temporary work sites like logging camps and big construction projects attract transient workers. The presence of facilities that attract transients may thus contribute to the chance that rural residents would have the opportunity to learn about illicit drug use.

Finally, the regional differences in both rural and nonrural illicit drug use noted in the prior section may reflect the likelihood of contact with persons from whom marijuana use can be learned. From the early seventies, and probably before, the prevalence of drug use has been higher in the West and Northeast than in the South and North Central areas. The perpetuation of regional differences in the spread of drug abuse to rural areas occurs at least in part because of the proximity of persons familiar with illicit drug use in the metropolitan areas of these regions. This section focuses on the use of the most widespread illicit drug, marijuana, across rural communities that differ in opportunities for learning about illicit drug use. Marijuana is probably the primary drug in the social diffusion of illicit drug use. It is typically the first illicit drug used (Harrell and Wirtz 1980) and is likely to be the first drug introduced into rural areas.

To identify communities with differential levels of opportunities for learning about marijuana use, each rural location in the Survey was assigned an estimated prevalence rate for acquaintance with a marijuana user, lifetime experience with marijuana, and current use of marijuana and alcohol based on the answers of the respondents in each location. Each rural area was classified by region of the country by population density based on census data (areas with fewer than 2,500 persons versus areas with 2,500-24,999) and by interviewer rating of the degree of urbanization (towns/suburb or open country). In addition, access to facilities that bring guests or transient residents to each area was determined on the basis of whether or not there was within 10 miles: (1) a military or naval base; (2) a college with students who live away from their regular homes; (3) a resort area which attracts vacation or business travelers; or (4) an employer of temporary workers, such as a logging or mining camp, a large temporary construction site, a ranch or farm with migrant workers or hired hands. Of the 210 rural locations included in the Survey, 37 had too few respondents to permit area prevalence estimates; each of these 37 locations was therefore combined with another rural location similar in population density, region, degree of urbanization, and transient facilities.

Two key indicators of the levels of diffusion of marijuana use into rural areas are shown in table 9: the prevalence of personal acquaintance with a marijuana user and the prevalence of lifetime experience with marijuana. The average prevalence of acquaintance with a marijuana user is generally high (over 50 percent) across all types of rural environments. The largest differences occur between rural areas in the South and North Central regions versus those in the West and Northwest; the prevalence of acquaintance with a marijuana user ranges from 53 percent in the North Central region to 73 percent in the West. In contrast, acquaintance with a marijuana user is quite similar in rural areas that differ in population density, degree of urbanization, and proximity to a temporary work site. Some support for the social diffusion thesis is provided by the consistently higher prevalence of acquaintance with a user in areas within 10 miles of a military base, residential college, or a resort, as well as in areas near two or more types of transient facilities. However, these differences only approach, but do not attain, statistical significance.

Similar conclusions can be reached about the relationship of lifetime experience with marijuana and features of the rural environment. Again the largest differences in prevalence rates appear to depend on regional location; lifetime experience with marijuana is lower in rural areas in the South and North Central region and higher in the West and Northeast. In addition, the prevalence of marijuana ever-use is significantly higher in rural areas within 10 miles of a college or a resort, as well as in areas with more different types of facilities for transients. In both cases the figures suggest that proximity to resorts or colleges is a more potent factor in the emergence of marijuana use in rural areas than population density and degree of urbanization.

A somewhat different picture of drug abuse emerges when looking at the average prevalence of current marijuana use by rural environment, as table 10 illustrates. As before, current marijuana use is higher in areas near a resort or college, in the Northeast and West, and in areas with a greater number of types of transient facilities. In addition, current marijuana use is also higher in more densely populated and more urbanized areas. This suggests that not only does proximity to facilities with transients enhance the likelihood that illicit drug use will be reported in rural areas, but also that the more populous and/or urbanized rural areas provide a setting conducive to continuing marijuana use. Moreover, the ratio of the prevalence of current marijuana use to lifetime experience with marijuana is particularly high in certain rural areas: in rural areas near resorts, areas with 2,500 persons or more, areas consisting of towns or suburbs, and areas in the Northeast region. The current use prevalence rate is half the lifetime experience prevalence rate, indicating a strong tendency toward continuation of marijuana use in these areas.

Table 9. The Average Prevalence of Acquaintance with a Marijuana User and of Lifetime Experience with Marijuana in Rural Environments

KIND OF RURAL AREA (Number of areas = 173)	AVERAGE PREVALENCE OF ACQUAINTANCE WITH A MARIJUANA USER	AVERAGE PREVALENCE OF LIFETIME EXPERIENCE WITH MARIJUANA
Population Density		
2500–24,999 (59)	62%	24%
Less than 2500 (114)	61%	21%
Degree of Urbanization		
Town or Suburb (90)	63%	25%
Open Country (83)	61%	21%
Proximity to Facilities With Transients		
Near a Military Base (12)	69%	30%
Not Near a Military Base (161)	61%	22%
Near a Residential College (60)	65%	26%
Not Near a Residential College (113)	60%	21%*
Near a Resort (59)	65%	27%***
Not Near a Resort (114)	60%	20%
Near a Temporary Work Site (78)	63%	22%
Not Near a Temporary Work Site (95)	61%	23%
Number of Types of Facilities with Transients Near Area[a]		
None (53)	59%	19%**
One (61)	61%	23%
Two or more (59)	65%	25%
Region	***	***
Northeast (32)	70%	27%
North Central (47)	53%	19%
South (65)	59%	20%
West (29)	73%	29%

* p < .05
** p < .01
*** p < .001

[a] *Ranges from zero to four, based on the proximity of a college, military base, resort and/or temporary work site.*
[b] *Significance tested using chi square.*

Table 10. The Average Prevalence of Current Use of Marijuana and Alcohol by Type of Rural Environment

KIND OF RURAL AREA (Number of areas = 173)	AVERAGE PREVALENCE OF CURRENT USE OF MARIJUANA	AVERAGE PREVALENCE OF CURRENT USE OF ALCOHOL
Population Density		
2500-24,999 (59)	12%**	59%***
Less than 2500 (114)	8%	47%
Degree of Urbanization		
Town or Suburbs (90)	11%*	57%***
Open Country (83)	7%	45%
Proximity to Facilities with Transients		
Near a Military Base (12)	10%	64%*
Not Near a Military Base (161)	9%	50%
Near a Residential College (60)	11%*	55%
Not Near a Residential College (113)	8%	49%
Near a Resort (59)	13%***	56%*
Not Near a Resort (114)	7%	48%
Near a Temporary Work Site (78)	9%	53%
Not Near a Temporary Work Site (95)	9%	49%
Number of Types of Facilities With Transients Near Area		
None (53)	7%**	44%*
One (61)	9%	52%
Two or More (59)	11%	57%
Region		
Northeast (32)	13%***	70%***
North Central (47)	7%	55%
South (65)	7%	34%
West (29)	12%	61%

* $p < .05$
** $p < .01$
*** $p < .001$

The consistent failure of proximity to military bases and temporary work sites to predict higher than average marijuana familiarity or use may result from a tendency of these newcomers who enter the rural area as temporary residents, often with their families, to become integrated into prevailing community patterns of work and recreation. In contrast, vacationers at a resort and residential college students are probably less involved in local community activities and may be more likely to engage openly in recreational substance use. Certainly this speculation bears investigation in future research.

Estimates of the levels of current alcohol use, provided in table 9 for comparison, indicate that, in most cases, the rural environments with higher marijuana use prevalence also have higher levels of current drinking. While it is not possible to determine from the 1979 survey whether or not alcohol became popular in these rural areas prior to marijuana, widespread alcohol use preceded widespread marijuana use in the country as a whole and probably in most rural areas as well. Thus, it is possible that patterns of recreational substance use that were established in these rural areas prior to the introduction of marijuana contributed to the emergence and perceived social acceptability of an additional form of substance use.

It is clear that marijuana use is more likely to occur in certain kinds of rural environments. Rural areas in the West and Northeast, those located within 10 miles of colleges and/or resorts, and those near several types of facilities that attract transients provide environments conducive to the emergence of marijuana use. In addition, more densely populated and/or urbanized rural areas are characterized by higher current use prevalence rates for both marijuana and alcohol than less populated and/or less urbanized areas. The accessibility of opportunities to learn about, and to use, illicit drugs appears to contribute both to the emergence and continuation of marijuana use. Furthermore, existing patterns of alcohol use may have contributed as well to the acceptance of illicit drug use in these areas.

Less clear is what can be expected about future diffusion of illicit drug use in rural areas. If current alcohol use prevalence can be used as a guide, there may be a perpetuation of the difference in the prevalence of marijuana use across diverse rural environments. On the other hand, the levels of rural marijuana use have not yet reached the high rates observed in nonrural areas, suggesting that the process of rapid diffusion of illicit drug use may continue, and that the prevlaence differences across rural environments may further diminish in the next several years.

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TECHNICAL NOTE

This Technical Note provides summary information on the methods and procedures used in the 1979 National Survey on drug Abuse (including coverage of the population, sample selection, interviewing experience, data weights) and the reconstruction of trend data for this report.

Coverage of the Population

The results of any survey are limited to the population from which the sample was drawn. In the current series of studies, the term "general population" has been used to refer to persons aged 12 and older living in households in the contiguous United States (excluding Hawaii and Alaska). Restriction to the household population obviously excludes certain portions of the total population: (a) persons living in military installations, dormitories and some other group quarters; (b) persons in institutions such as hospitals and jails; (c) homeless persons--those with no fixed address. Clearly, the excluded portions of the total population may differ considerably from one another and from the household population in many ways, perhaps including drug use patterns.

The Sample of Youth, Young Adults, and Older Adults

A national area probability sample designated sample locations, households, and specific individuals; at no point was selection left to the discretion of the interviewer.

There were several steps in the design of this stratified random sample. After dividing the contiguous United States into primary geographic areas (each area consisting of a county or group of counties with a minimum population of 50,000 in 1970), 103 primary areas were drawn using stratification procedures designed to insure representativeness on a number of variables. Eight additional primary areas were then selected in order to augment the number of rural areas to be included in the sample. From within these 111 primary areas, 500 smaller areas (each containing approximately 2,500 persons) were then randomly drawn. In each smaller area, one or more "segments" of 10 to 25 housing units were then randomly selected, and housing units to be included in the sample were listed by specific address. Except for the intentional oversampling of rural areas, the probability procedures used for the selection of locations and housing units were such that each housing unit in the contiguous United States had, overall, an equal chance of selection.

Advance letters were mailed to selected households, announcing the survey and urging cooperation. Interviewers then called at each household to list residents for purposes of random

selection. The individuals in each household were listed by age group, so that youth, young adults, and older adults could be sampled separately and with varying probabilities of selection. At most, one youth and one adult were selected per household. Because previous studies had established that younger persons had more experience with illicit drugs, youth and young adults were oversampled. Because younger persons and rural residents were oversampled, survey results have been weighted to reflect the actual age and rural/nonrural distribution of the population.

Interviewing Experience

Interviewers visited selected households to conduct confidential interviews with respondents. Interviews were completed with 86 percent of the youth, 84 percent of young adults, and 80 percent of the older adults originally selected for sample. In all, 2,165 youths, 2,044 young adults, and 3,015 older persons were interviewed. Because many people were frequently away from home, interviewers often had to make several visits in order to obtain a single interview; in no case was a "similar person" substituted for a randomly selected individual who could not be interviewed. The data collection period spanned August 1979 through January 1980, with most of the interviews being conducted during the fall of 1979.

Throughout this study, every possible precaution was taken to protect the privacy of the respondent, to insure the confidentiality of the data, and to maximize the validity of answers to sensitive questions. For example, interviewers never knew respondents' answers to such questions by circling numbers on answer sheets; each respondent then sealed his or her answer sheets in an envelope which was immediately mailed to the central office. No names were used on these answer sheets. Codes identifying households were kept in locked files at a separate location and were destroyed following verification of interviews.

Data Weights

Prior to tabulation, the data were weighted to compensate for the oversampling of persons in the younger age groups and in rural areas; each person's relative weight was based on the inverse of his or her chance of selection, as specified in the sampling plan. In addition, weights were used to compensate for differences in completion rates among various interviewing locations and different demographic subgroups. These weights insure that the tabulations reflect the demographic distribution of the population.

Fuller details of the methods used in the 1979 National Survey are provided in: Fishburne, P.M., Abelson, H.I., and Cisin, I.H.

National Survey on Drug Abuse: Main Findings 1979. Washington, D.C.: Superintendent of Documents, U.S. Government Printing Office, 1980.

Reconstruction of Trend Data

In this report, reconstructed data were used to examine the initiation of marijuana use in rural and nonrural areas. The initiation of marijuana use in three time periods--1965 through 1969, 1970 through 1974, and 1975 through 1979--was reconstructed from: (1) the respondent's age in 1979; (2) the age at which the respondent reported using marijuana for the first time; and (3) the type of area the respondent lived in when he or she first tried marijuana. By subtracting age at first use from current age, it is possible to estimate how many years ago the person first used marijuana. Those who first used 10 to 15 years ago, first used in the time period 1965-1969. Those who first used 5 to 9 years ago, first used between 1970 and 1974. Those who first used 4 years ago or less, first used between 1975 and 1979.

Respondents were classified as beginning marijuana use in a rural area if they reported that at the time they first used marijuana they lived in: (1) a "farm, ranch, or small town of less than 2,500 population"; or (2) a "rural type area, 2,500 to 25,000 population." Marijuana users who first used marijuana in: (1) a "town or city with population between 25,000 and 50,000", or (2) a "city with population over 50,000" were classified as starting marijuana use in a nonrural area.

Reconstructed estimates are necessarily imperfect replicas of past reality. The accuracy of the respondent's retrospective report may be in doubt, and a degree of error is thereby added. However, even though some persons may incorrectly recall their exact age at the time they first used a drug, it is unlikely that bias is thereby introduced, for there appears to be no reason why persons would consistently underestimate or overestimate their age at first use. A very small number of respondents (less than 1 percent) were necessarily excluded because they were unable to give their age at first marijuana use. An additional problem is that individuals may be unable to accurately identify the type of community, particularly if they were very young at the time. By grouping categories, this problem is minimized.

On the other hand, the household population surveyed in 1979 is not identical to the population which would have been surveyed if actual studies had been conducted during the 1960s. Obviously, older persons who have died since 1965 could not be interviewed in the 1979 study. Furthermore, in the 1960s the household population did not include some of the people who were

surveyed in 1979; for example, a number of respondents who are now in their thirties may have been living in college dormitories or military installations in the late 1960s. A special analysis indicated that factors such as these may introduce bias into reconstructed estimates--but the bias is probably not more than a few percentage points.

GLOSSARY OF ILLICIT DRUGS AND DRUG CLASSES

Alcohol. Alcoholic beverages included "beer, wine, and whiskey, gin, and other 'hard' liquors."

Analgesics. A subclass of the psychotherapeutic prescription drugs that includes 15 different pills in four subgroups: propoxyphene, other analgesics, methadone, agonist/antagonist.

Cigarettes. Cigarette use does not include use of other tobacco products.

Cocaine. Cocaine refers only to this single product derived from the coca bush.

Hallucinogens. This class includes "LSD, and other hallucinogens such as phencyclidine or PCP, mescaline, peyote, psilocybin, and DMT."

Heroin. The category heroin includes no other drugs.

Inhalants. Inhalants include a large number of legally available substances including "gasoline or lighter fluids, spray paints, other aerosol sprays (PAM or deodorants), shoe shine, glue, or tuolene, lacquer thinner, or other paint solvents, amyl nitrite ("poppers"), halothane, ether, or other anesthetics, nitrous oxide, whippets, locker room odorizer."

Marijuana. Marijuana as a drug class refers to the two cannabis derivatives--marijuana and hashish.

Prescription Psychotherapeutic Drugs. This drug class refers to the "recreational" or nonmedical use of stimulants, sedatives, tranquilizers and/or analgesics that are legally obtainable only under a doctor's prescription. The subclasses are defined elsewhere in this glossary.

Sedatives. A subclass of psychotherapeutic prescription drugs that includes 25 different pills in four subgroups: intermediate/long acting barbiturates, nonbarbiturate/nonbenzodiazepine sedatives, short acting barbiturates, and dalmane.

Stimulants. A subclass of psychotherapeutic prescription drugs that includes 21 different pills in four subgroups: amphetamines, nonamphetamine anorectics, ritalin, and cyclert.

Tranquilizers. A subclass of psychotherapeutic prescription drugs that includes 15 different pills in four subgroups: benzodiazepines, meprobamate, hydroxyzine, and benadryl.

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