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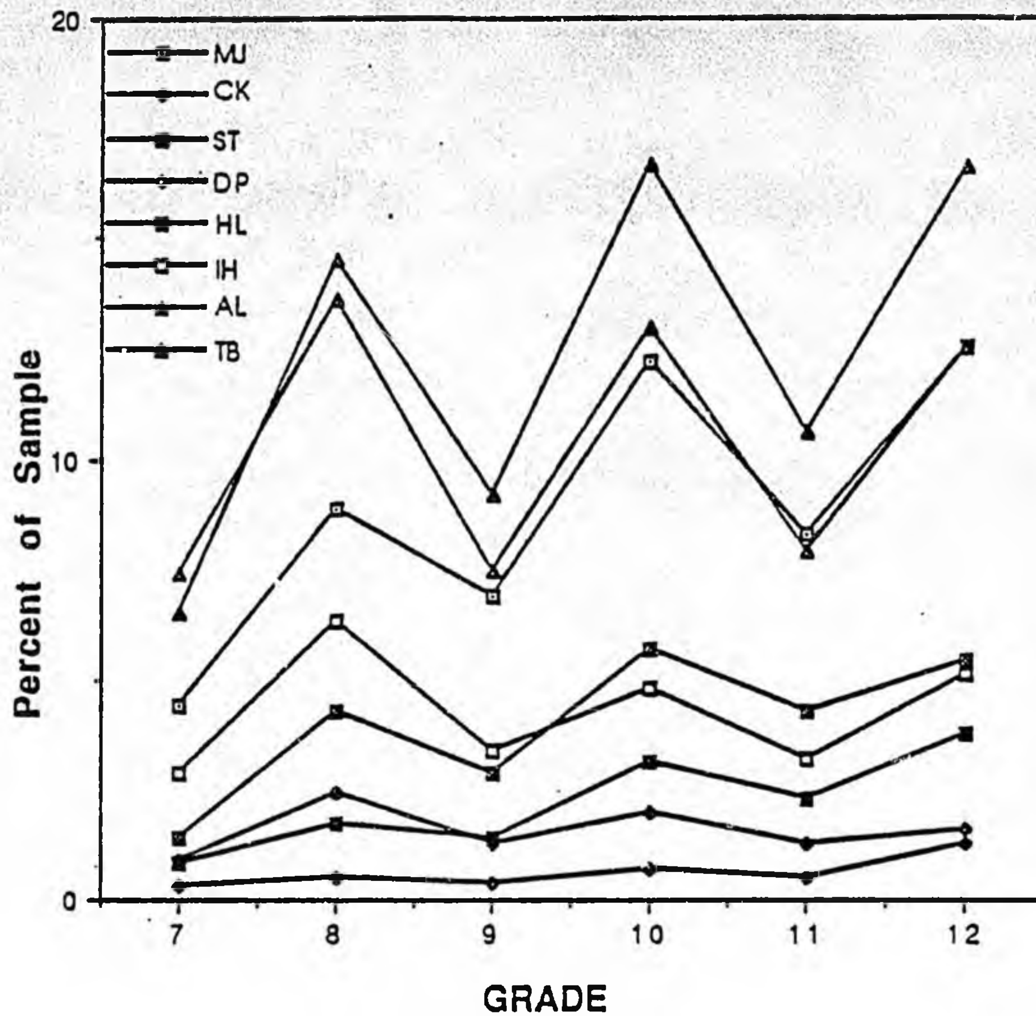

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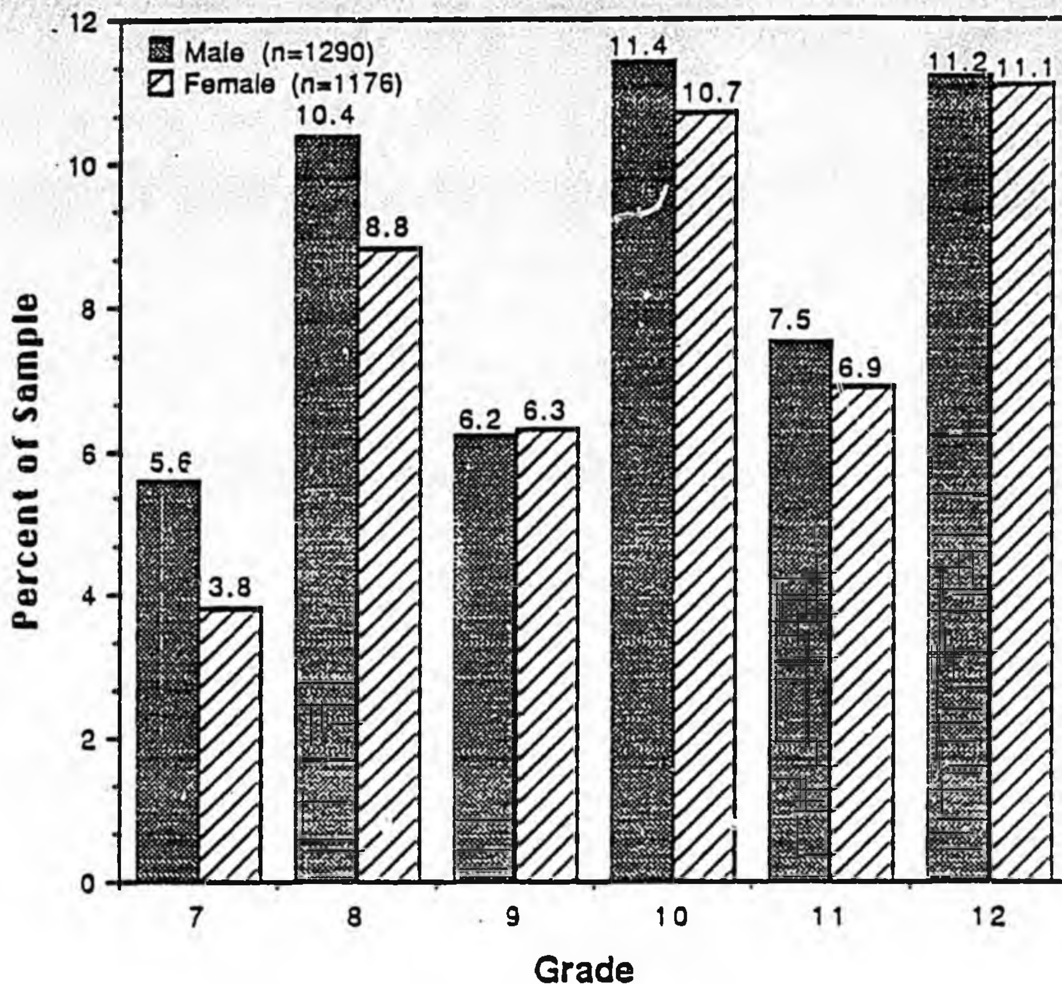
females. This finding suggests that drug-taking behavior is not only age-grade related, but that gender may be also be an important factor in understanding drug use among adolescents.

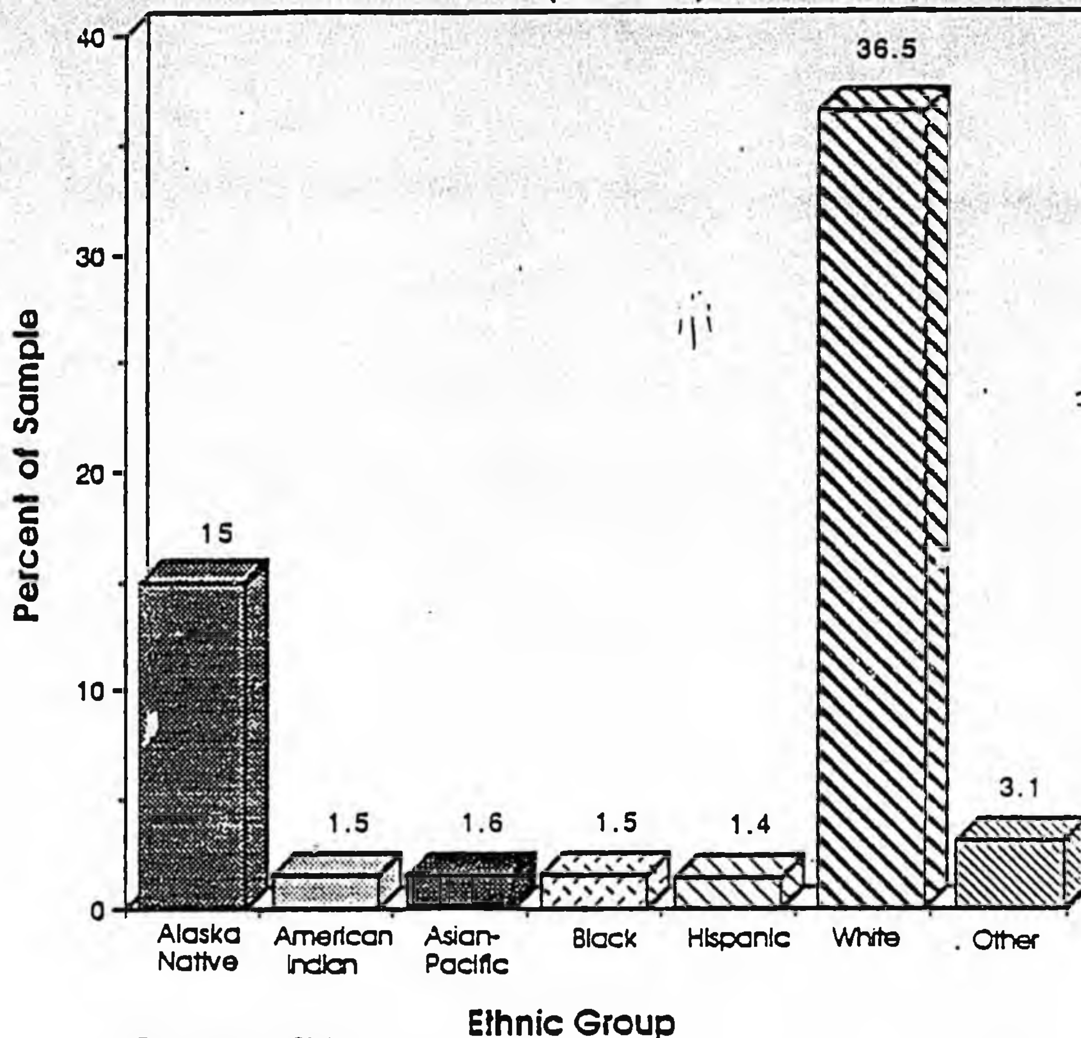
Figure 4-30
Lifetime Experience With a Drug by Grade and Gender
Total Sample
1987-1988
(n=4129)



<u>(5) Ethnicity and Lifetime Experience with a Drug: Total Sample</u>

The data in Figure 4-31 describes lifetime experience with a drug by ethnicity, derived from nine school districts. (Sitka, which did not ask ethnicity, is omitted from any analysis of ethnicity data.) As is readily observable, the largest proportion of students who tried a drug are White (36.5%), followed by Alaska Natives (15.0%). Drug use among the other groups is less than 2%, except for the 'Other' category.

Figure 4-31
Ethnicity and Lifetime Experience With a Drug
Total Sample
1988
(n=3565*)



*Excludes Sitka

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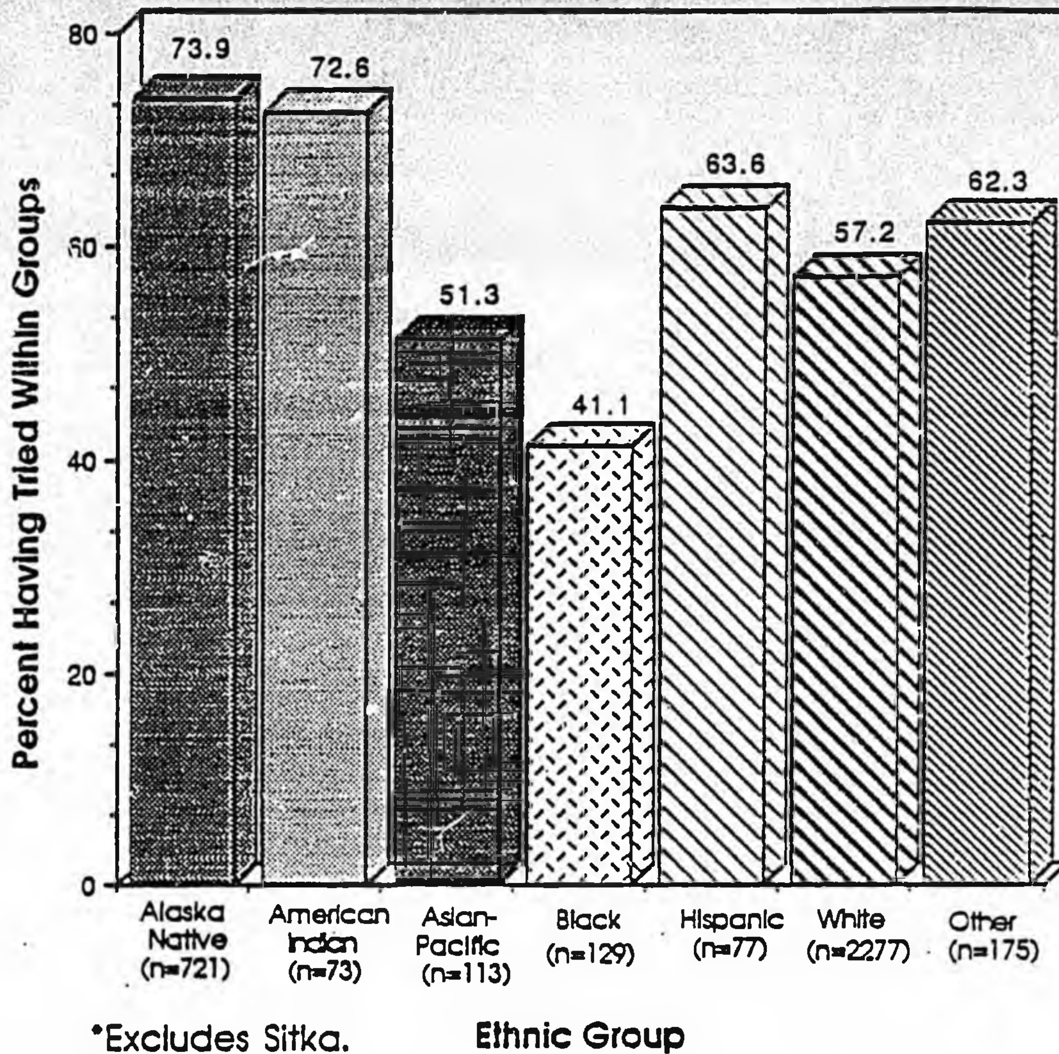
(6) <u>Lifetime Experience with a Drug within Ethnic Groups</u>

Figure 4-32 describes the number of students <u>within</u> each of the different ethnic groups who reported ever having tried a drug. Among those who identified themselves as either an Alaska Native or American Indian, close to 75 percent within each group (73.9% and 72.6%, respectively), have indicated that they tried one or more substances. Over two-thirds of the Hispanic students (63.6%), and those in the 'Other' (chiefly half Alaska Native and Half White) category (62.3%), have also tried a drug. Less than half the Black students (41.1%) have tried a drug, while close to two-thirds (57.2%) of the White students have indicated having tried a drug. Slightly over half of the Asian-Pacific students (51.3%) have indicated trying a drug.

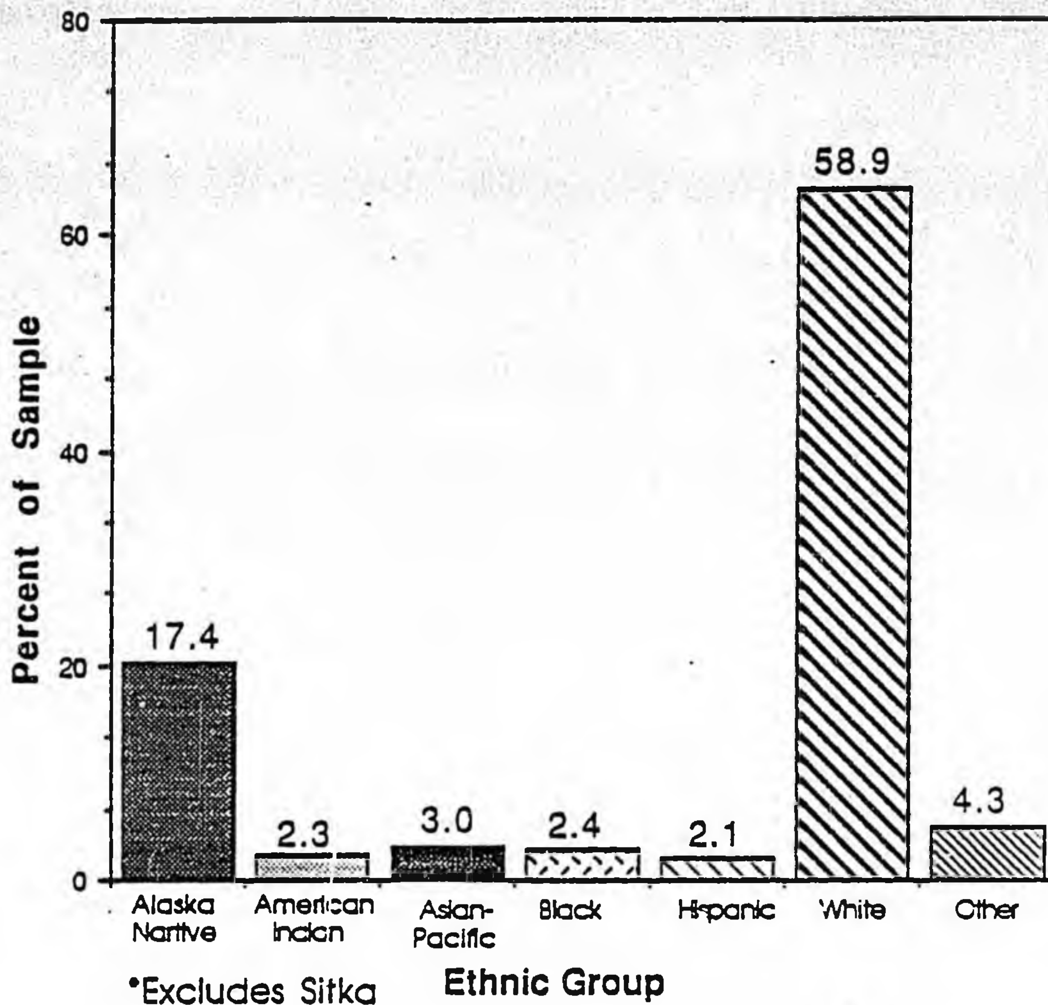
Figure 4-32
Drug Use Within Ethnic Groups*
1983 and 1988



*Excludes Sitka.

(7) Ethnicity and Lifetime Experience with Alcohol

The pattern of lifetime experience with alcohol, reported in Figure 4-34 follows that shown in Figure 4-33 for experiences with other drugs. . Whites show the highest prevalence (58.9%), while Alaska Natives are second (17.4%). Experience with alcohol among the other ethnic groups are relatively comparable.

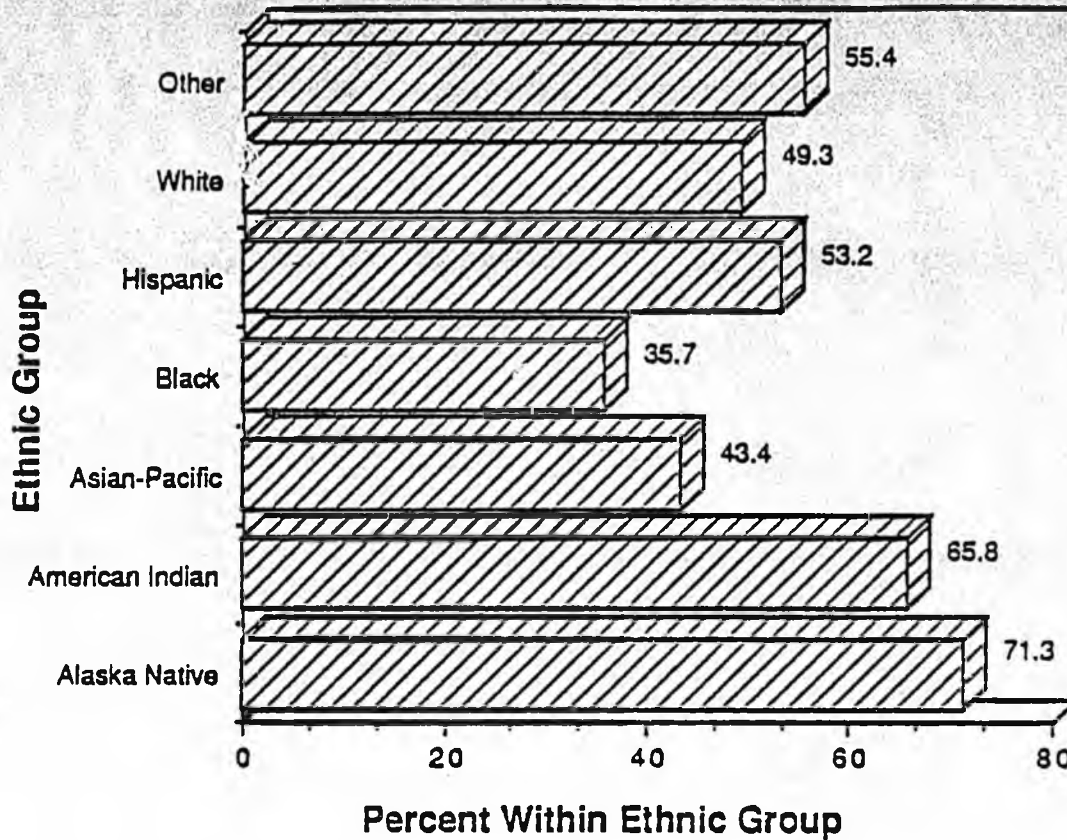


(8) Ethnicity and Lifetime Experiences With Chemical Substances

Two of the preceding reports (Figures 4-31 and 4-32) referred to use of one or more of chemical substances, excluding alcohol and tobacco. Figures 4-34 through 4-43 show lifetime experience with each of the different chemical substance, excluding heroin because of its low prevalence level, by ethnicity, i.e., an ever versus never comparison by students within each ethnic group.

(a) Marijuana

Figure 4-34 shows individual variations with respect to use or nonuse of marijuana within ethnic groups. Among those groups having ever tried marijuana, Alaska Natives reveal the highest prevalence (71.3%), followed by American Indian (65.8%), and Hispanic (53.2%) students. Students



classified as 'Other' show the next highest prevalence level (44.6%). Just over half the White students (50.7%) tried marijuana, and less than half of the Asian-Pacific students tried marijuana (43.4%). Black Students showed the lowest prevalence (35.7%).

B. Cocaine

As is observable in Figure 4-35, the prevalence levels for experience with cocaine (including crack) are generally low across ethnic groups. Among those who have ever tried cocaine, Hispanics showed the highest level (6.5%), followed by White students (5.1%).

C. Stimulants

Among those ethnic groups trying stimulants (Figure 4-36), American Indian (39.7%) and Hispanic (37.7%) showed the highest levels, followed by White students (26.7%). Black students showed the lowest prevalence level (10.9%).

Figure 4-35
Ethnicity and Cocaine: Lifetime Experience
1988

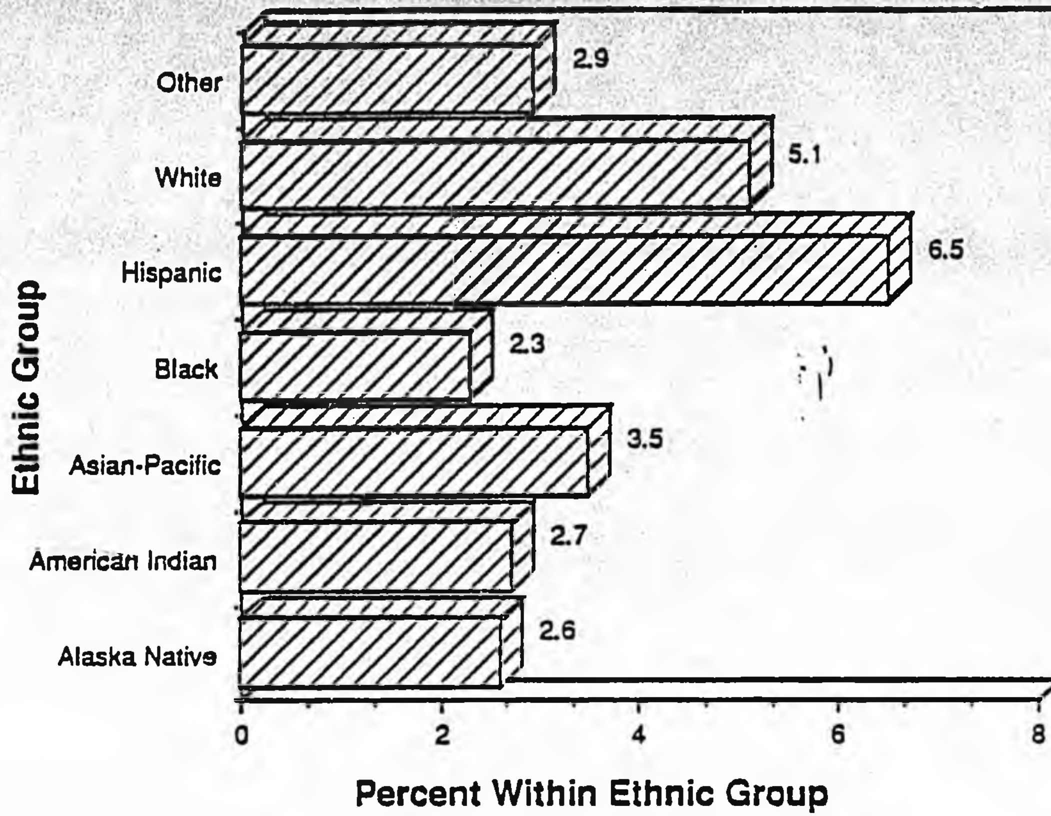
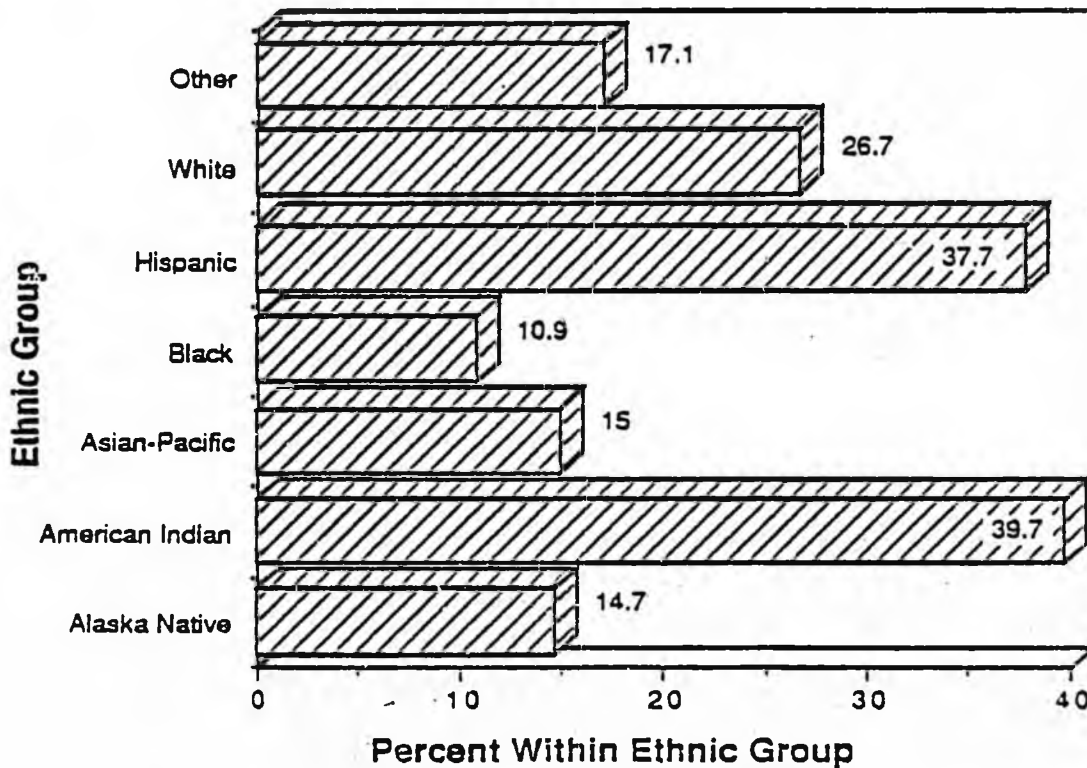


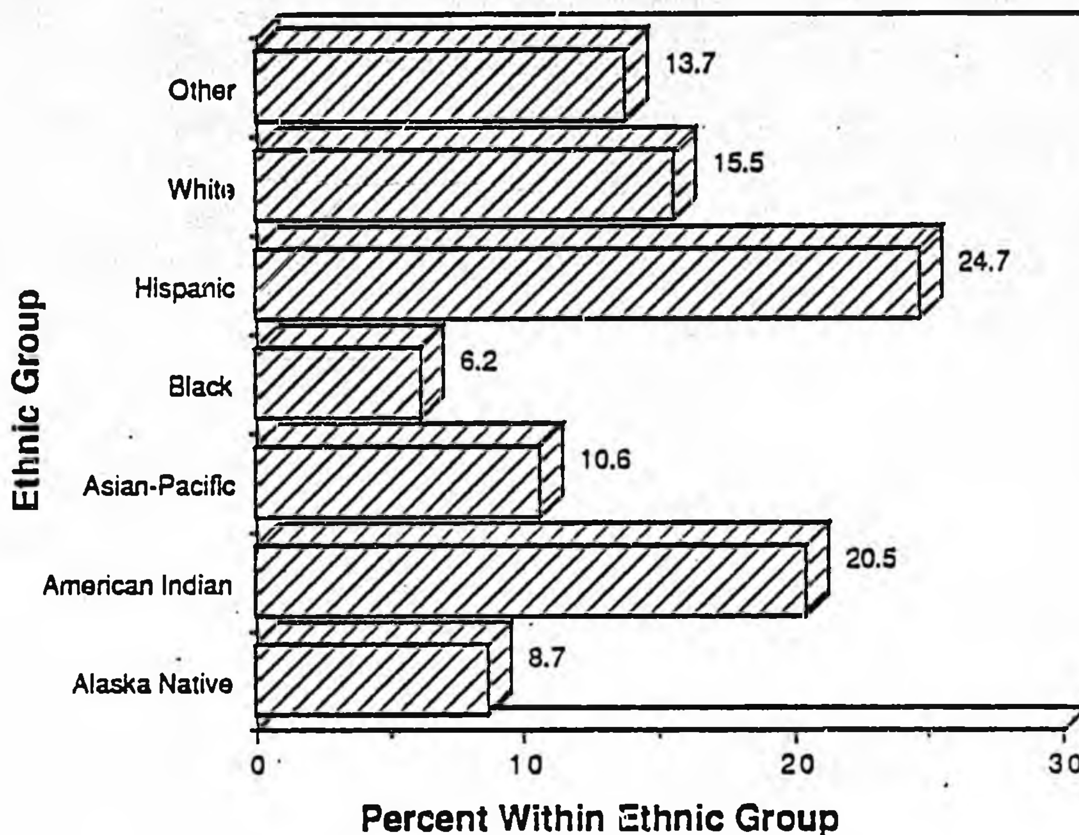
Figure 4-36
Ethnicity and Stimulants: Lifetime Experience
1988



D. Hallucinogens

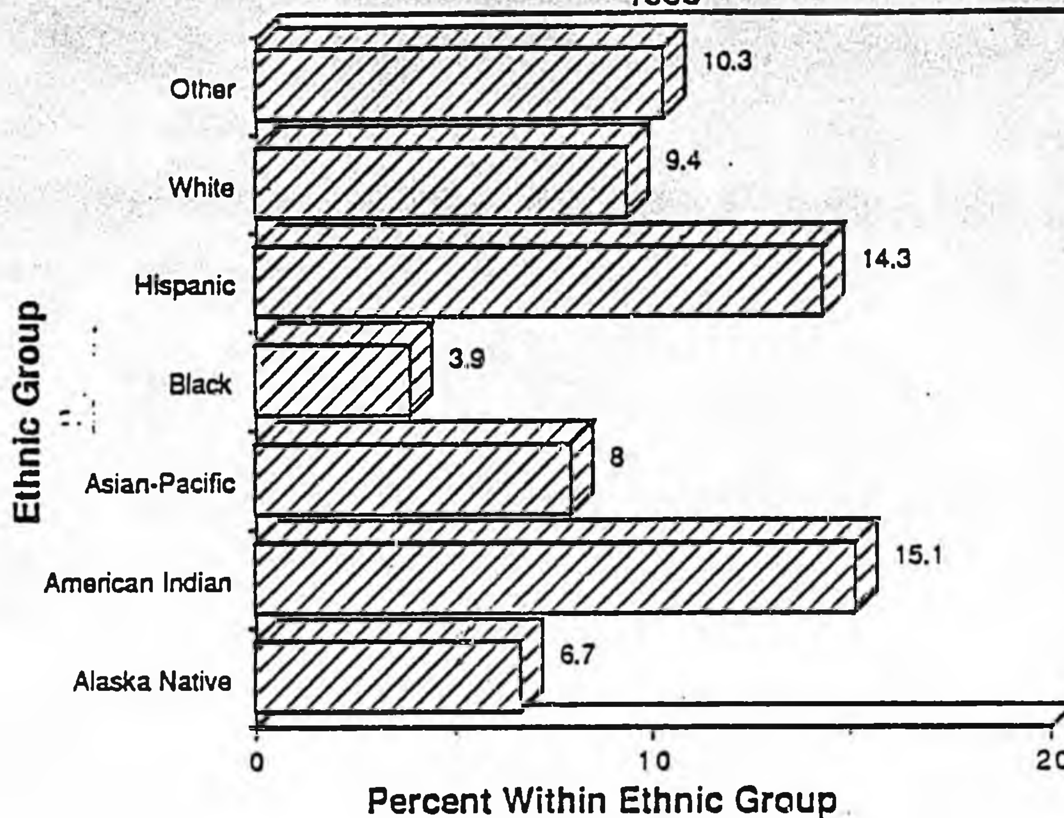
The highest level of experience with hallucinogens is shown among Hispanic students (24.7%), followed by American Indian (20.5%) and Whites (15.5%). Blacks showed the lowest level (6.2%).

Figure 4-37
Ethnicity and Hallucinogens: Lifetime Experience
1988



E. Depressants

Figure 4-38 shows that among students within the different ethnic groups reporting having tried depressants, Hispanics (24.7%) and American Indians (20.5%) showed the highest prevalence levels. Whites were next (15.5%), followed by students in the 'Other' category (13.7%). Blacks showed the lowest level of use (6.2%), followed by Alaska Natives (8.7%).



F. Tranquilizers

- Overall, lifetime prevalence for tranquilizers was relatively low, as indicated in Figure 4-39. Among those groups having tried it, Hispanics showed the highest level (16.9%), followed by Whites (11.3%). Alaska Natives showed the lowest use (5.1%), with Blacks (7.0%) having the next highest level.

G. Inhalants

With the exception of marijuana (Figure 4-34), lifetime prevalence for use of the other substances (Figures 4-35 to 4-39) is relatively low. In contrast to these findings, lifetime experience with inhalants is proportionately higher across all ethnic groups, as shown in Figure 4-40. Inhalant use is most prevalent within the Hispanic (35.1%), American Indian (32.9%), and White (27.3) groups. Alaska Natives (26.5%) and the group classified as 'Other' (24.6%) follow. Use among Blacks (13.2%) and Asian-Pacific (16.8%) students is also relatively high when compared to their experiences with other substances.

Figure 4-39
Ethnicity and Tranquilizers: Lifetime Experience
1988

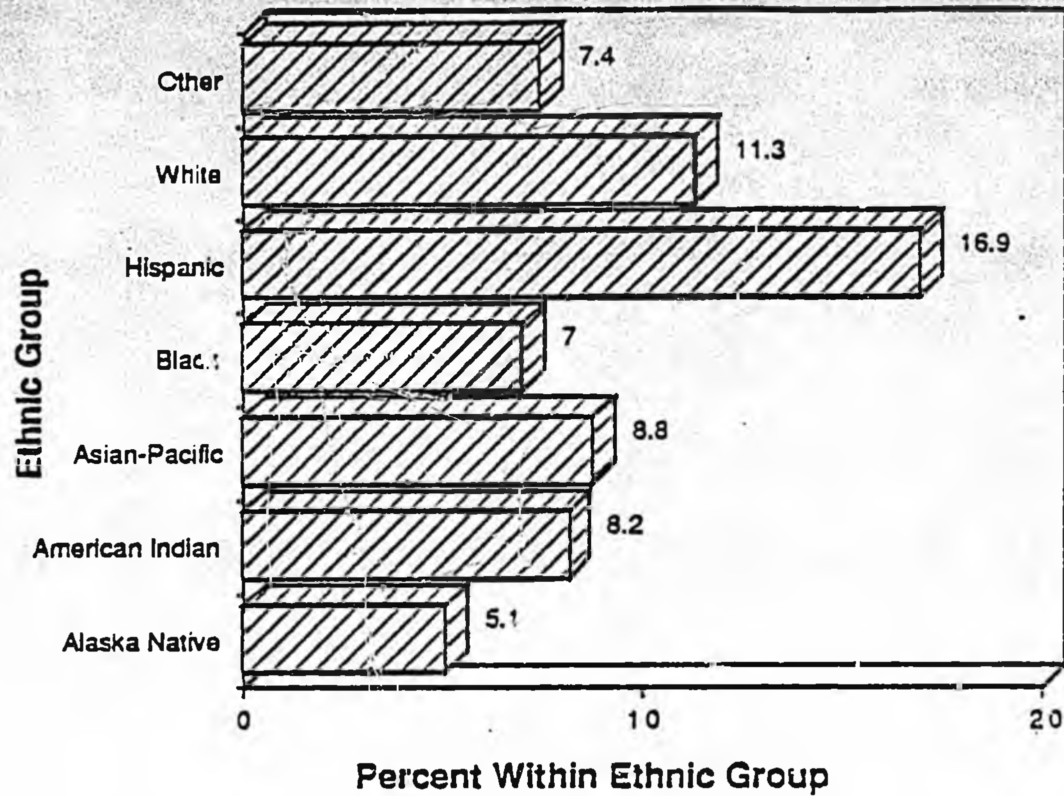
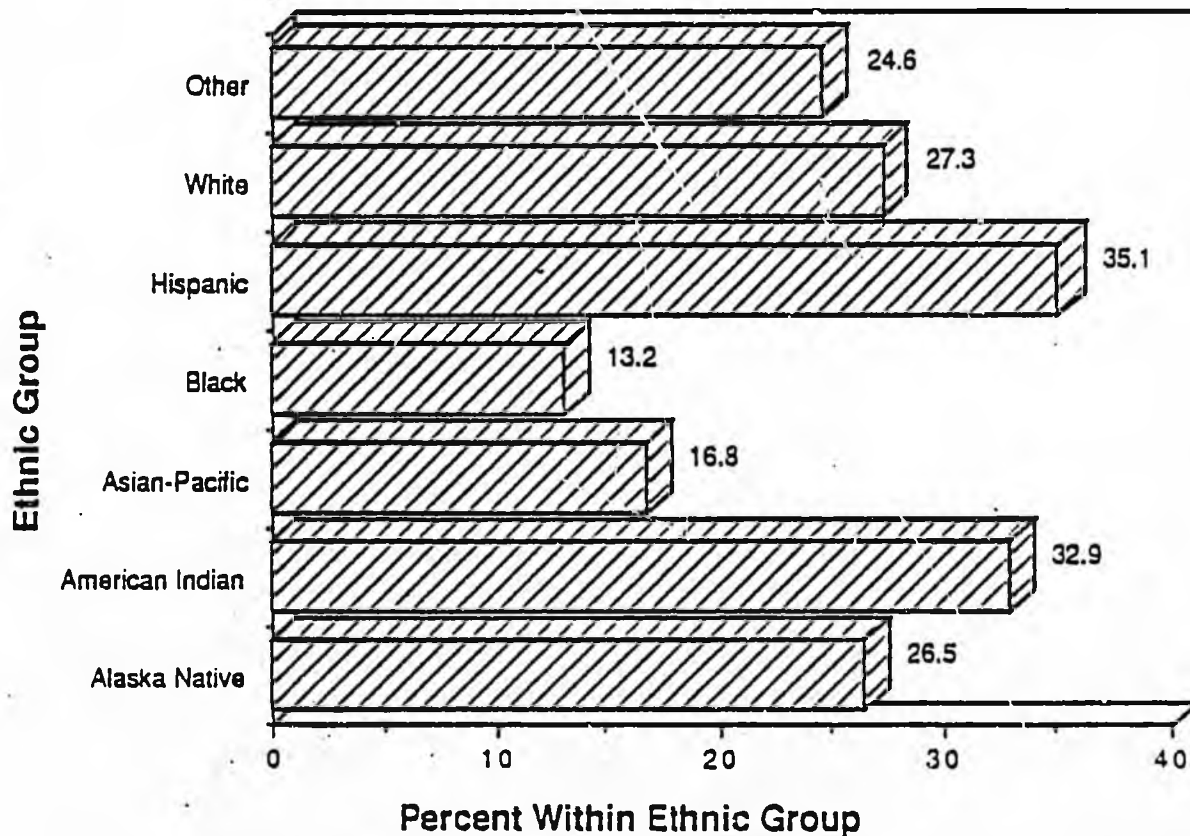


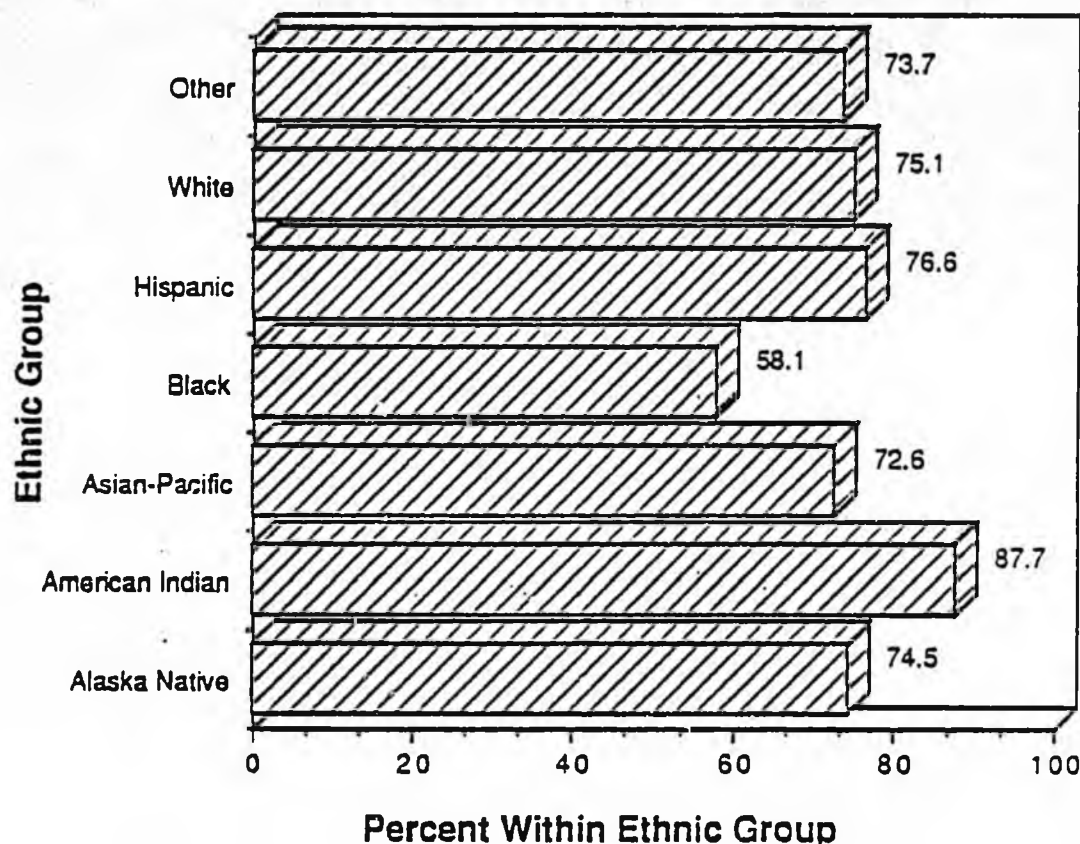
Figure 4-40
Ethnicity and Inhalants: Lifetime Experience
1988



H. Alcohol

Figure 4-41 describes lifetime experience with alcohol by ethnicity. The highest prevalence level is among American Indian youth (87.7%), followed closely by Hispanics (76.6%), Whites (75.1%) and Alaska natives (74.5%). Blacks showed the lowest level (58.1%).

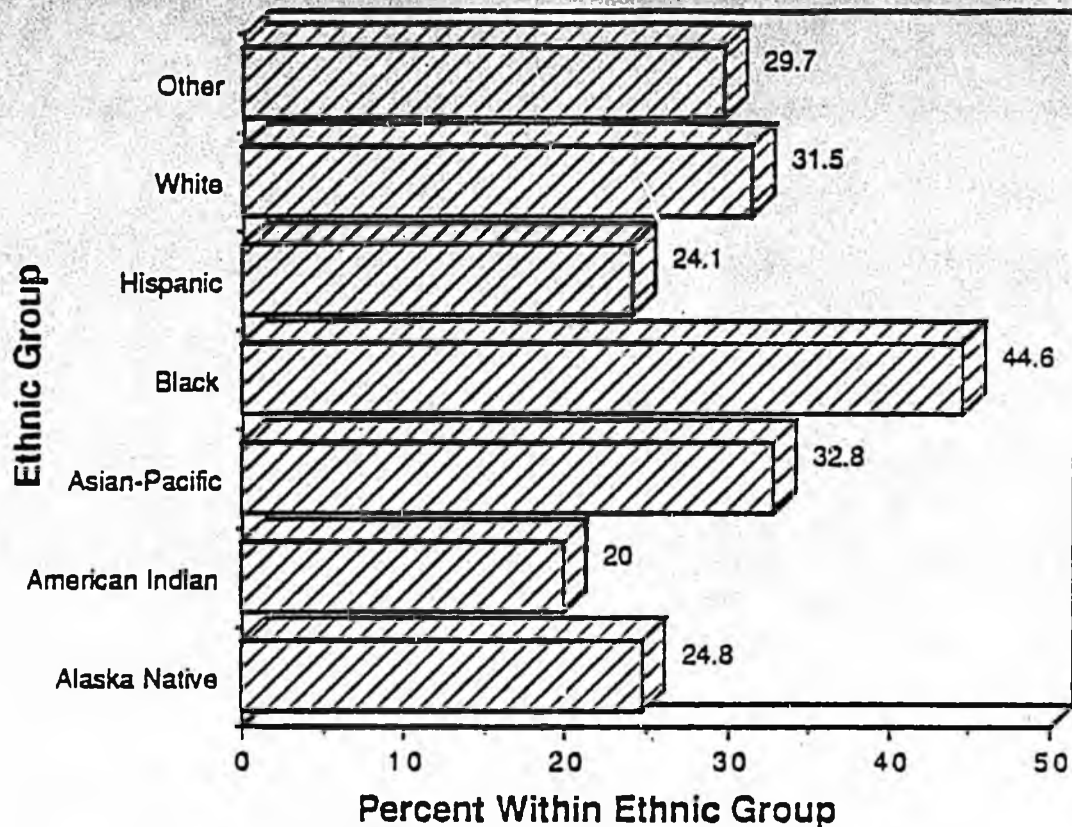
Figure 4-41
Ethnicity and Alcohol: Lifetime Experience
1988



I. Cigarettes

Figure 4-42 shoes the findings regarding ethnicity and lifetime experience with cigarettes. In contrast to other results, Black students show the highest prevalence for having smoked (44.6%), followed by Asian-Pacific youth (32.8%). Whites are next (31/5%), followed by students classified as 'Other' (29.7%), and by Alaska Natives (24.8%). American Indian youth report the lowest rate (20.0%), and Hispanics follow closely (24.1%). Overall, however, a large number of students within each of the ethnic groups have smoked cigarettes one or more times.

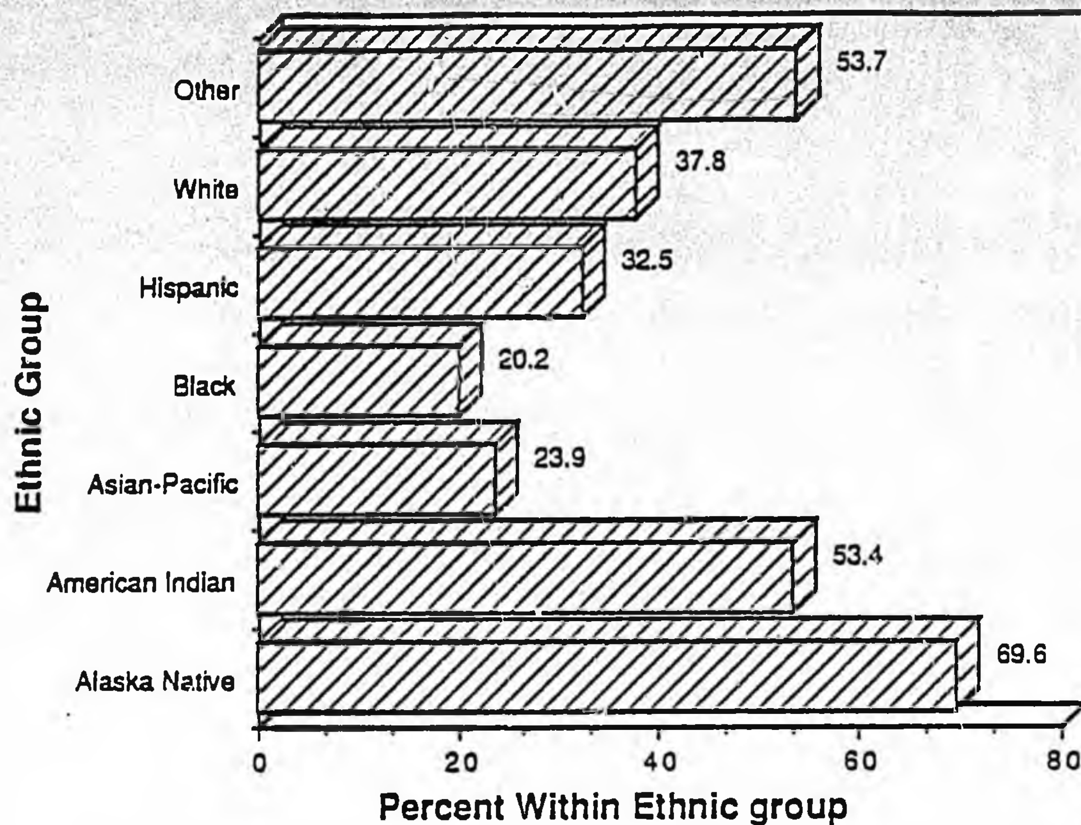
Figure 4-42
Ethnicity and Cigarette Smoking:
1988



J. Chewing/Smokeless Tobacco

Chewing or smokeless tobacco has been used by a large number of students within each of the ethnic groups. This finding is consistent with reports of an increase in smokeless tobacco among adolescents during the past five years (Jones & Moberg, 1988; McCarthy et al., 1986). A particularly high prevalence level has been noted among Among Native youth (Tanner, 1987), a finding which is supported by this study. Alaska Native youth showed the highest prevalence level (69.6%) for having tried either chewing or smokeless tobacco. Students in the 'Other' ethnic category (53.7%) and American Indian youth (53.4%) both showed the second highest levels for having tried/used smoking or chewing tobacco. White youth followed, with 32.5 percent having indicated they tried chewing or smokeless tobacco, Hispanic youth were next (32.5%), followed by Asian-Pacific (23.9%) youth. Black students, in contrast to their smoking behavior, showed the lowest prevalence level (20.2%) for having tried smokeless or chewing tobacco.

Figure 4-43
Ethnicity and Lifetime Experience with
Chewing or Smokeless Tobacco



In summary of the findings concerning drug-taking behavior within ethnic groups (Figures 4-34 to 4-43), Hispanic and American Indian youth, who constituted 2.0% (n=76) and 1.7% (n=66) of the sample, respectively, showed a disproportionately high level of prevalence for lifetime experience for all substances except marijuana and tobacco products. Other ethnic groups show variations in terms of prevalence of drug-taking behavior. Some of these variations may be accounted for by cultural differences within each of the ethnic groups, and by peer influence or encouragement from a group of close friends who mutually support drug use and who use drugs together (Oetting, Edwards, & Beauvais, in press). This notion will be discussed further in Chapter 6.

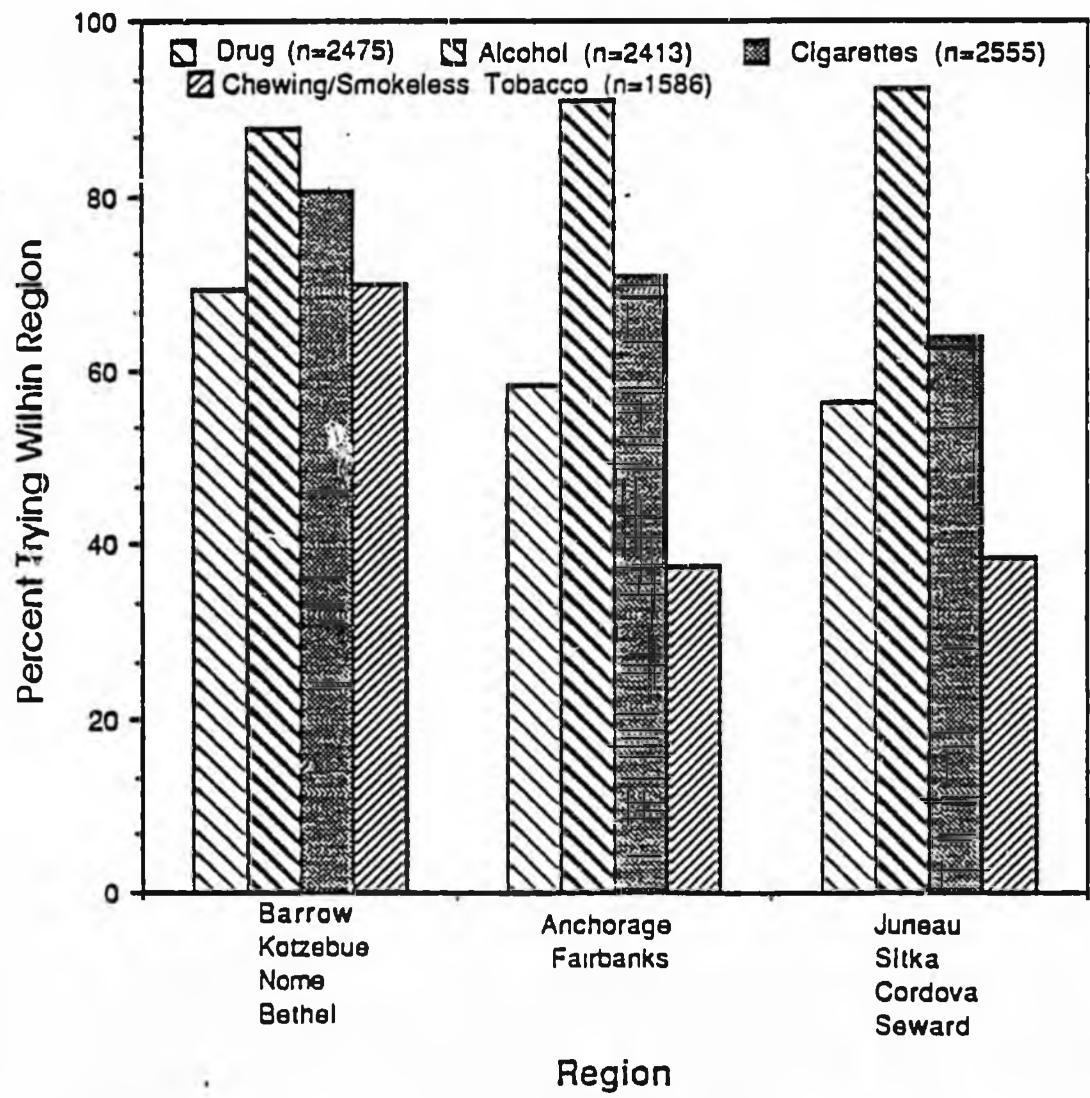
(9) Regional Comparisons

For comparison purposes, and in order to provide for the anonymity of each school district, the data has been aggregated to form three comparison groups. Anchorage and Fairbanks, primarily large urban centers, have been combined to represent one group. Barrow, Kotze-

bue, Nome, and Bethel constitute a second group, representing northern and western regions; Juneau, Sitka, Seward, and Cordova have been combined to form the third comparison group.

Figure. 4-44 shows a composite of drug, alcohol, cigarette, and chewing/ smokeless tobacco use within the three regions during the past year. The data in the figure represents the number of students within each region who reported ever having tried each of the substances. The most notable difference is for use of chewing/smokeless tobacco, with the Barrow-Kotzebue-Nome-Bethel region showing the highest prevalence. Cigarette smoking is also higher within this region, as is lifetime experience with one or more drugs. Alcohol use is generally consistent across regions.

Figure 4-44
Comparison of Drug Use, Alcohol Use, Smoking, and Use of Chewing/Smokeless Tobacco within Regions
1988



In summary, the result reported in section B reinforces the belief that drug-taking behavior represents a complex interaction involving age, grade and gender (cf., Segal, 1988). Additionally, ethnicity needs to be taken into consideration when a diverse population is present. Moreover, especially in Alaska where regional differences prevail, geographical location is another factor that needs to be taken into consideration. When applying these considerations to the Alaskan data, it appears that different patterns of drug-taking behavior is occurring in different regions and within different ethnic groups. Within this context, youngsters at different age-grade levels show a diverse pattern of drug use which also appears to be a function of gender.

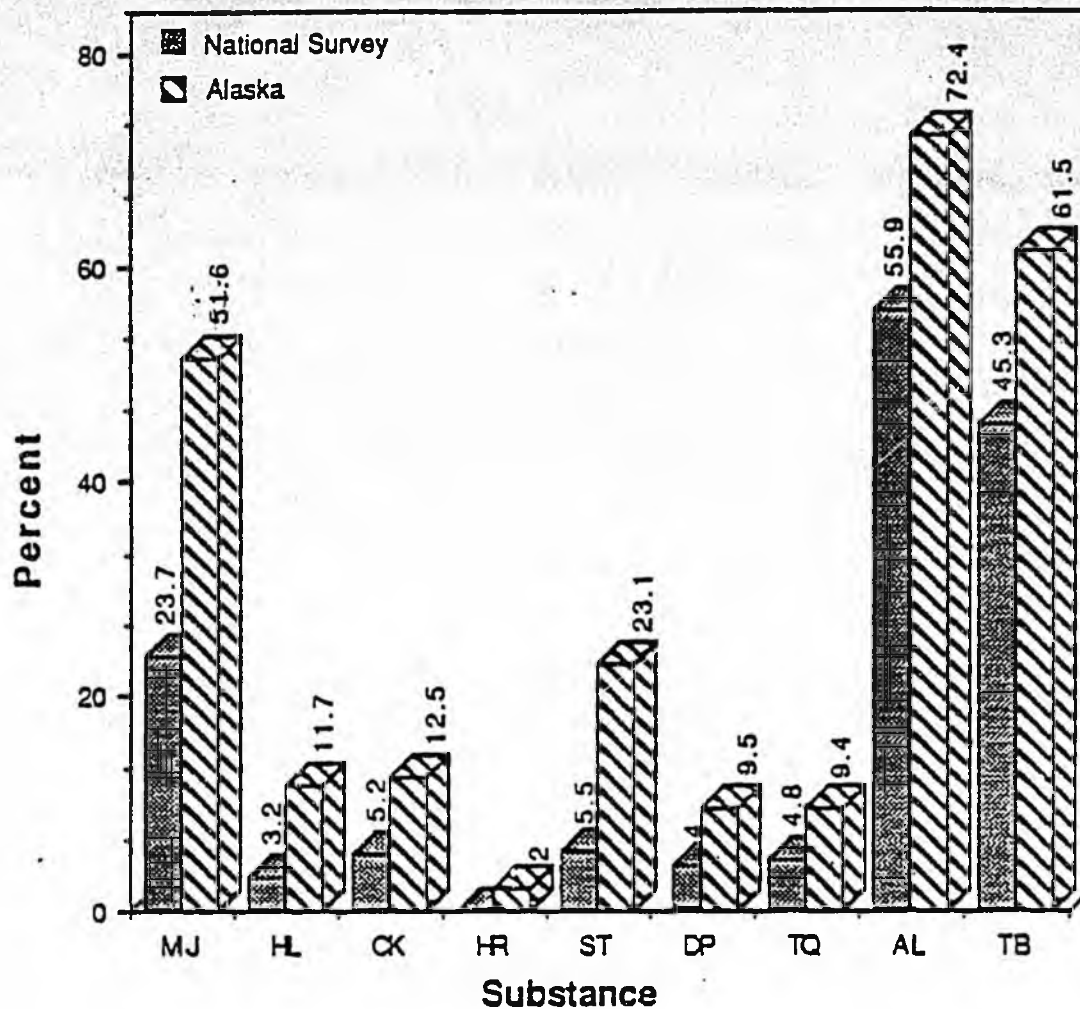
C. Comparisons with Other Surveys

(1) Comparison of Alaska 12-17 Year-Olds with the 1985 National Survey on Drug Abuse: Lifetime Prevalence

The 1985 National Survey on Drug Abuse (NIDA, 1986) identifies lifetime prevalence of drug use among 12-17 year-olds in the lower-48 states. A comparison of the Alaskan data for the same age group (Figure 4-45) shows that Alaskan 12-17 year-olds exceeded the national levels for every substance. Marijuana, for example, was greater than twice the national level, and stimulants were more than three times the national rate.

The question arises of why the Alaskan data is so much higher than the prevalence levels cited in the national survey. One possible answer involves differences in methodology. The Alaska survey utilized a procedure which called for anonymous responses to questionnaires. The national study involved direct interviews. It is possible that direct interviews, particularly when conducted in the interviewee's home, elicited more false negatives than responding anonymously to questionnaires in school, thereby resulting in lower prevalence rates. An alternative explanation is that substance use in Alaska is higher than in the lower-48 states.

Figure 4-45
Comparison of Alaska With the 1985 National Household Survey for 12-17 Year Olds Lifetime Experience



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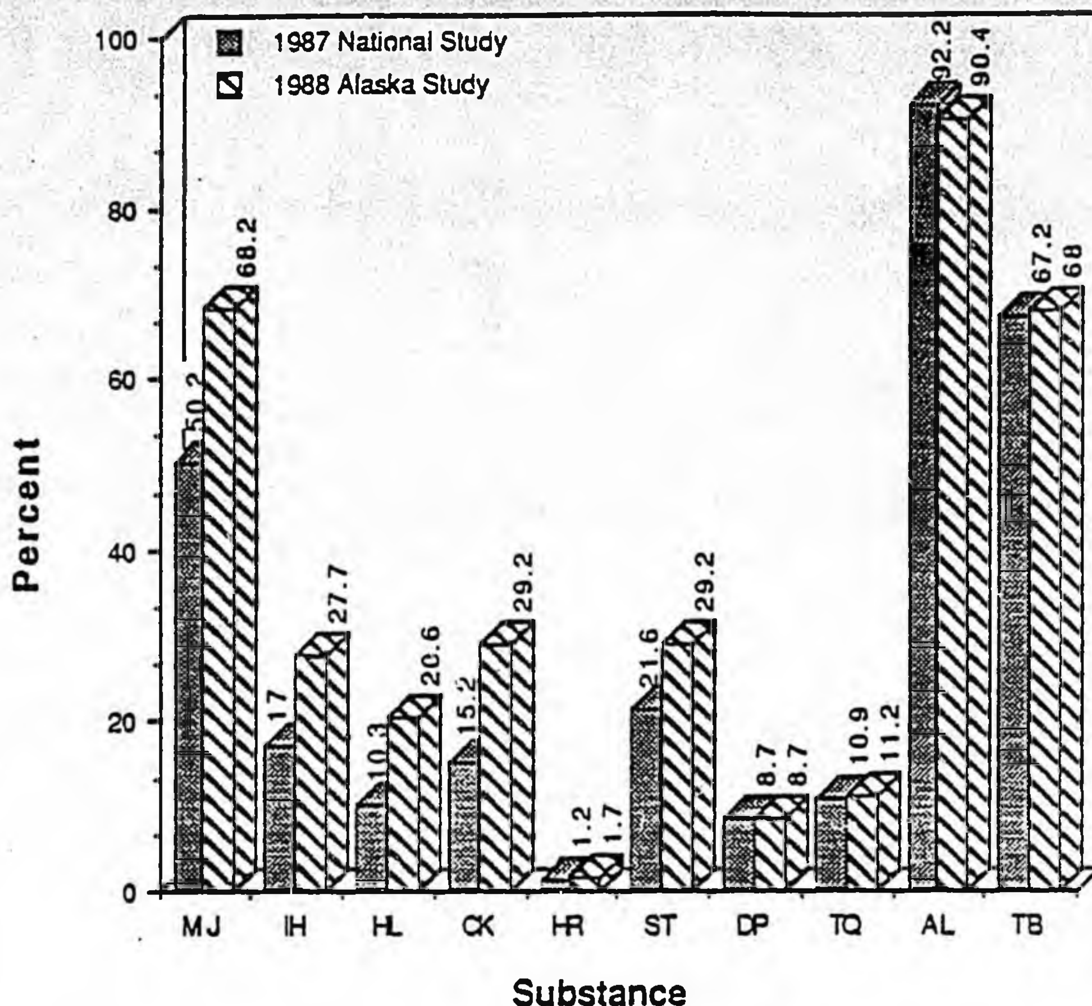
(2) <u>Comparison of Alaska Seniors with the 1987 National High School Senior Survey: Lifetime Prevalence.</u>

Table 4-46 provides a comparison of the findings for Alaska high school seniors with the findings from the 1987 National High School Senior Survey (Johnston, 1988). As may be observed, the Alaskan data is either generally comparable for some substances, or exceeds national prevalence levels. Alaskan prevalence rates for marijuana, inhalants, hallucinogens, cocaine, and stimulants tended to be higher than the national figures; experiences with heroin, depressants, tranquilizers, alcohol, and tobacco were fairly comparable.

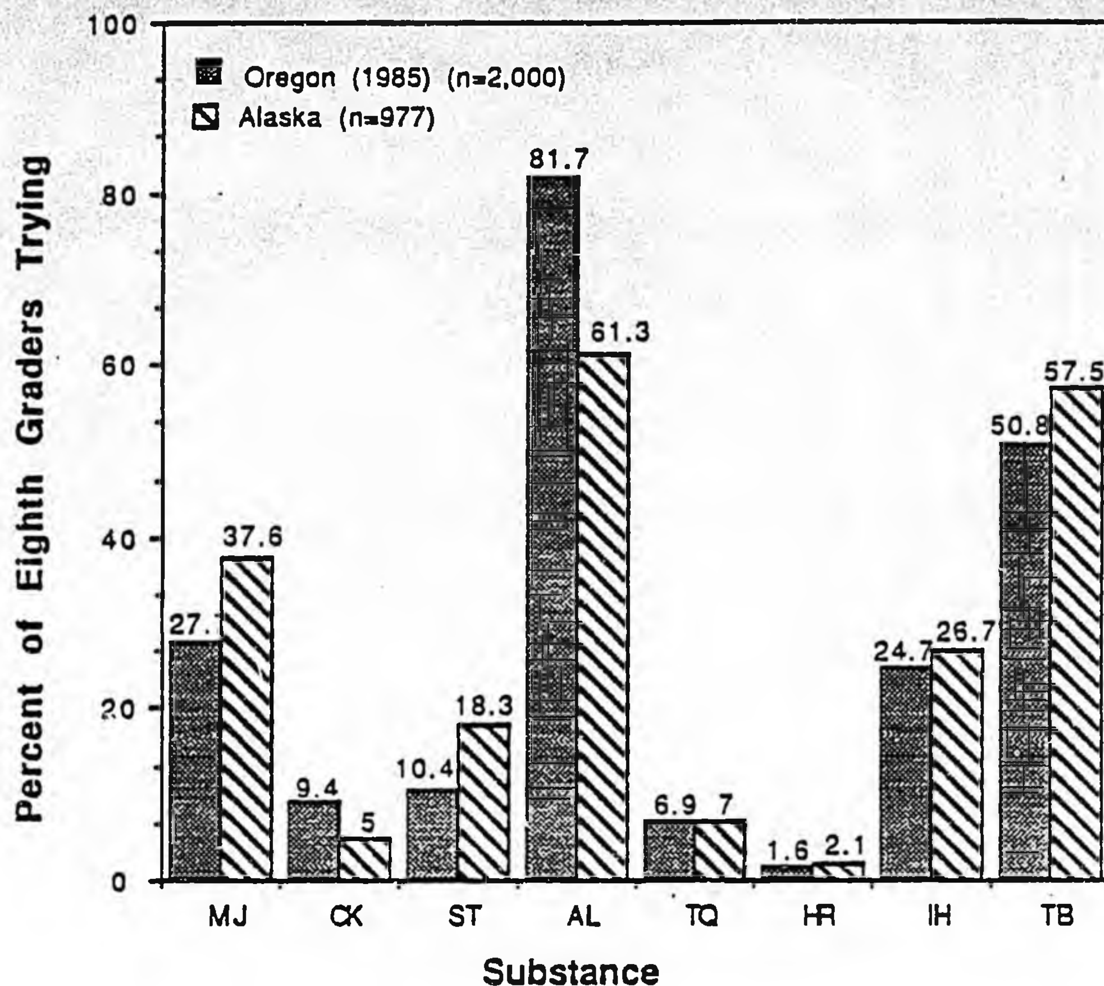
Figure 4-46
Comparison of Alaskan Seniors with the 1987 National High School Senior Study
Lifetime Prevalence



<u>(3) Comparison With the 1985 Oregon School Study: Grades 8 and 11</u>

(a) Eighth grade

Figure 4-47 provides a comparison of prevalence levels of drug use found among eighth graders in Oregon (Egan, 1985), with eighth graders in Alaska. Because the Oregon survey differed with respect to the kinds of substances it inquired about, only those substances which were similar were compared. The findings show that Alaska's eighth graders exceeded Oregon's prevalence level for lifetime experience for all substances except alcohol and tobacco. The higher Alaskan levels ranged from a from a high of 9.9 percent for marijuana to a low of 0.5 percent for heroin.

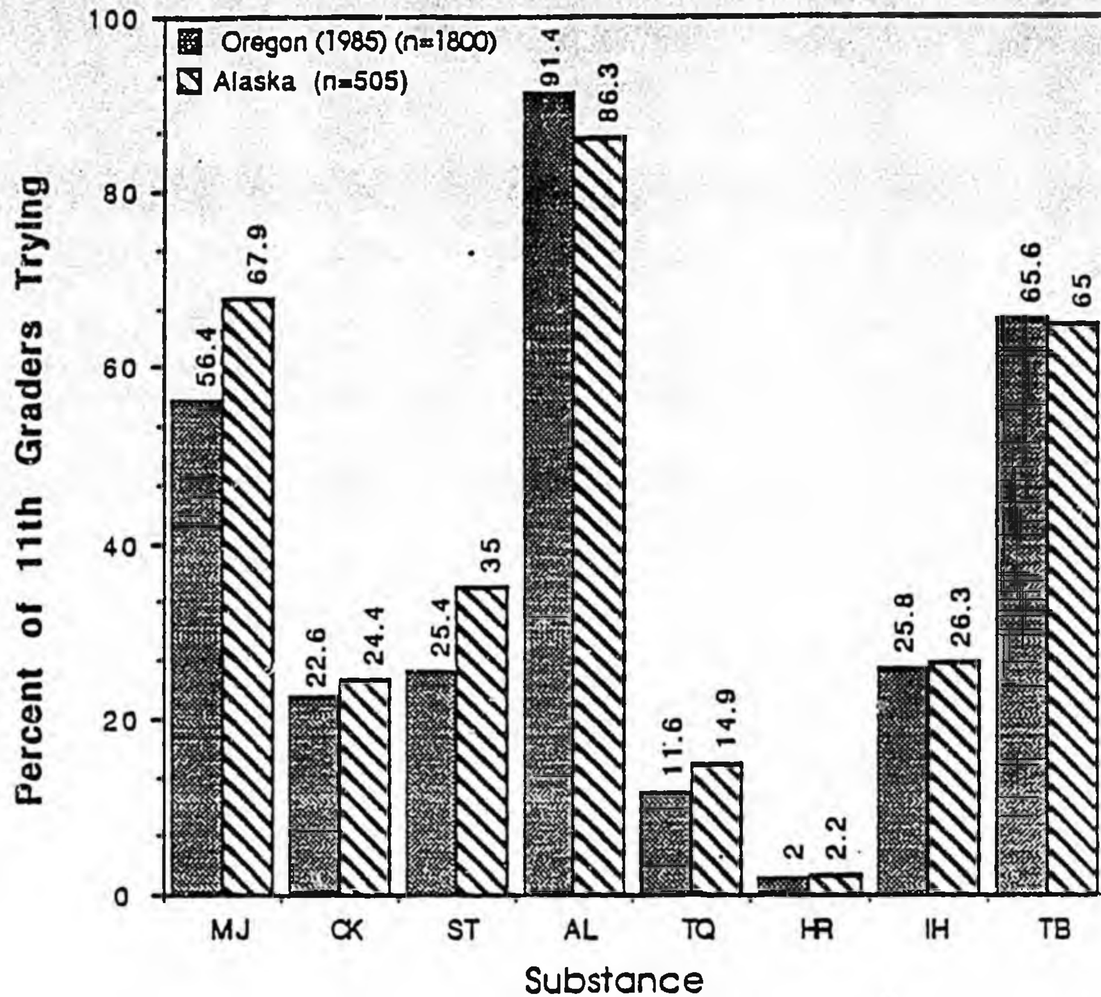


(b) Eleventh Graders

Figure 4-48 compares 11th graders. As with the 8th graders, Alaska's 11th graders, except for alcohol, and ever so slightly for tobacco (0.6%), also exceeded their Oregonian counterparts, with the differences ranging from from a low of 0.2 percent for heroin to a high of 3.3 percent for tranquilizers.

In summarizing the different comparisons, it appears that the level and pattern of drug-taking behavior in Alaska differs from what has been reported in two national surveys (Johnston, et al., 1988; NIDA, 1986). Alaskan youth, with no exceptions, showed prominently high prevalence levels for lifetime experience with all drugs than comparably aged youth (12-17 years) in the lower-48 states. Additionally, Alaskan high school seniors showed prevalence levels which either exceed or matched prevalence

Figure 4-48
Eleventh Grade Comparisons:
Alaska and Oregon
Lifetime Prevalence



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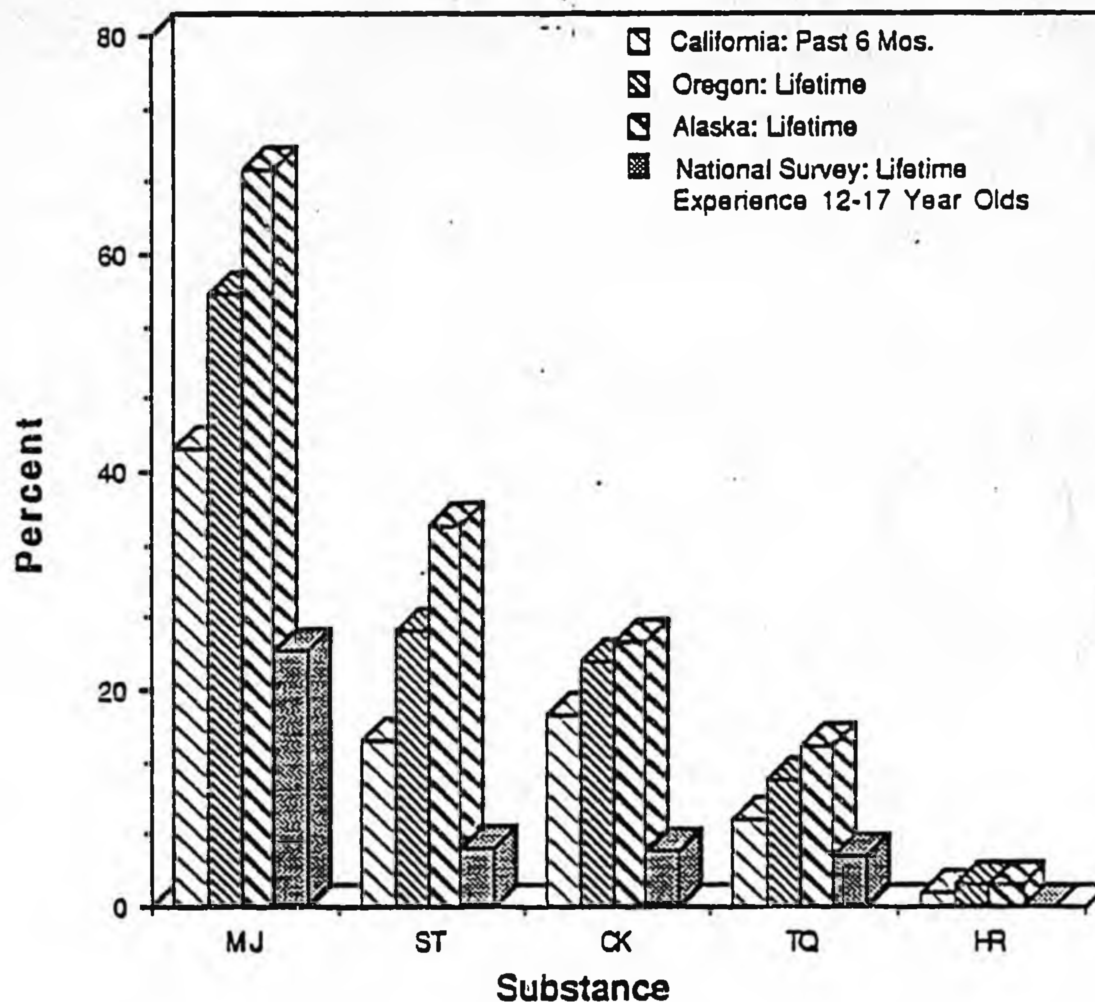
levels reported from the national study of high school seniors. Similar findings were found when comparing Alaska's 8th and 11th graders with results from a recent Oregon school survey.

The major question that arises, in light of these comparisons, is just how extreme are Alaska's prevalence levels? A comparison of Alaska, Oregon, and California data for 11th graders with the findings for 12 - 17 year-olds from the National Household Study, helps to answer this question. Although the comparisons represent different time periods with respect to use of drugs, and different age groups, it does provide a way of estimating how prevalence levels compare when derived from different samples in different regions of the country.

The data in Figure 4-49 compares the results from four different surveys for five substances common to all four studies. The California 11th graders (Skager, Frith, & Maddahian, 1988), represent lifetime experience with each of the five substances limited to the past 6 months. The data for the three other surveys represents lifetime experience.

Figure 4-49
Comparison of Prevalence of Drug Use Among Eleventh Graders From Three Different Surveys with 12-17 Year-Olds from the National Household Survey



What is revealed in Figure 4-49 is that California, Oregon, and Alaska all exceeded the National Survey findings by considerable amounts, even for heroin, which is consistently low for all four samples. Because the California data is based only on past 6 month use, it can be conjectured that

these figures would have been higher if lifetime experience had been reported, and that they may have approximated Alaska or Oregon's figures.

These findings suggest strongly that the national data may be under-estimating drug-taking behavior. In this context, although. Alaska does show very high prevalence levels, these levels, which vary for some specific substances, may not be too inconsistent with patterns of use found in other western states. The question nevertheless prevails as to why Alaska's prevalence levels remain high.

D. Correlates: Drug Experiences and Related Behaviors

(1) Reasons for Not Trying Drugs (Excluding Alcohol and Tobacco

Students who did not use drugs were were asked to rank each of 11 reasons for not using a drug on a five-point scale ranging from "Very true of me" to "Not true of me." An analysis of the results shows the order in which each of the items were ranked:

Rank	Item
1	Not important for me to try
2	Fear of damage to mind
3	It is illegal
3	May cause addiction
3	Moral reasons
6	Disappoint my parents
7	Fear of bad experience
8	Because of something learned in school
9	No opportunity to try drugs
10	Pressure from friends
11	Knowing friends who had a bad trip

The rankings, which form an interesting array, indicated that the primary reason for not having tried a drug was because it was "Not important for me to try." The second most important reason for not trying was because of "Fear of damage to mind." Three reasons were tied for third place: "It is illegal," "May cause addiction," and "Moral reasons." Of least importance was "Knowing friends who had a bad trip," and "Pressure from friends." It thus appears that the decision to refrain from drug use appears to be more of a personal one than one influenced by peers. Concern over the adverse affects of drugs, and the fact that it is illegal, seem to be

very influential in a decision to not try a drug.

(2) Consequences of Drug Use (Excluding Alcohol and Tobacco)

Students who reported ever having tried a drug were asked to indicate the frequency (ranging from never to 4 or more times) with which they may have experienced one of seven adverse affects. Listed below is the order of occurrence, ranging from least to most frequent occurrence, based on mean rank scores for each item.

The most frequent adverse consequence of drug use was that it interferred with academic achievement or with personal friendships. Least experenced was suspension from school or having caused an injury to oneself or others.

Rank	Mean	Item
1	1.14	Been suspended from school (n=165)
2	1.19	Resulted in an accident or injury to you or others (n=234)
3	1.22	Gotten you in trouble with the police (n=275)
4	1.29	Gotten you in trouble with your teachers or principal (n=333)
5	1.41	Had a bad trip (n=507)
6	1.51	Gotten into trouble with your friends (n=560)
7	1.67	Had it get in the way of school work (n=615)

(3) Consequences of Alcohol

A set of questions were also assessed the adverse consequences of drinking. Listed below is the order of occurrence, ranging from least to most frequent occurrence, based on mean rank scores for each item.

Rank	Mean	Item
1	1.09	Gotten you in trouble with your teachers or principal (n=159)
2	1.17	Resulted in an accident or injury to you or others (n=196)
3	1.20	Gotten you in trouble with the police (n=350)
4	1.27	Had it get in the way of school work (n=371)
5	1.34	Gotten into trouble with your friends (n=509)
6	1.41	Gotten you in a fight (n=658)
7	1.43	Have driven when drinking (n=579)

The two highest ranked consequences of drinking indicate that there are two problems with serious implications: drinking and driving and fighting while drinking. Drinking and driving, which places students at risk for injury, liability and arrest, has been found to have a very high prevalence level among adolescents (Evans, 1987; Millstein & Irwin, 1988; Simpson & Mayhew, 1987). The problem has been one of significant national concern to warrant special study (cf., Moskowitz, 1987; 1988).

The second most prevalent adverse consequence of drinking interrelates with the second ranked affect of drug use, interpersonal difficulity. The least adverse consequence for drinking is problems with teachers or a school's principal.

In reviewing the two sets of findings, it appears that the primary adverse effects of drugs other than alcohol is to interfere with school work, while alcohol's chief adverse affect is drinking and driving. Common to both is difficulty with friends. The nature of these findings suggest that drinking may occur largely outside of the school setting, thereby minimizing its impact within the school and possibly maximizing problems with friends. Use of other drugs may reflect the stronger toxic effect of illicit chemical substances, which are known to interfere with cognitive processes (Newcomb & Bentler, 1988a).

4. Drug Education and Drug-Taking Behavior

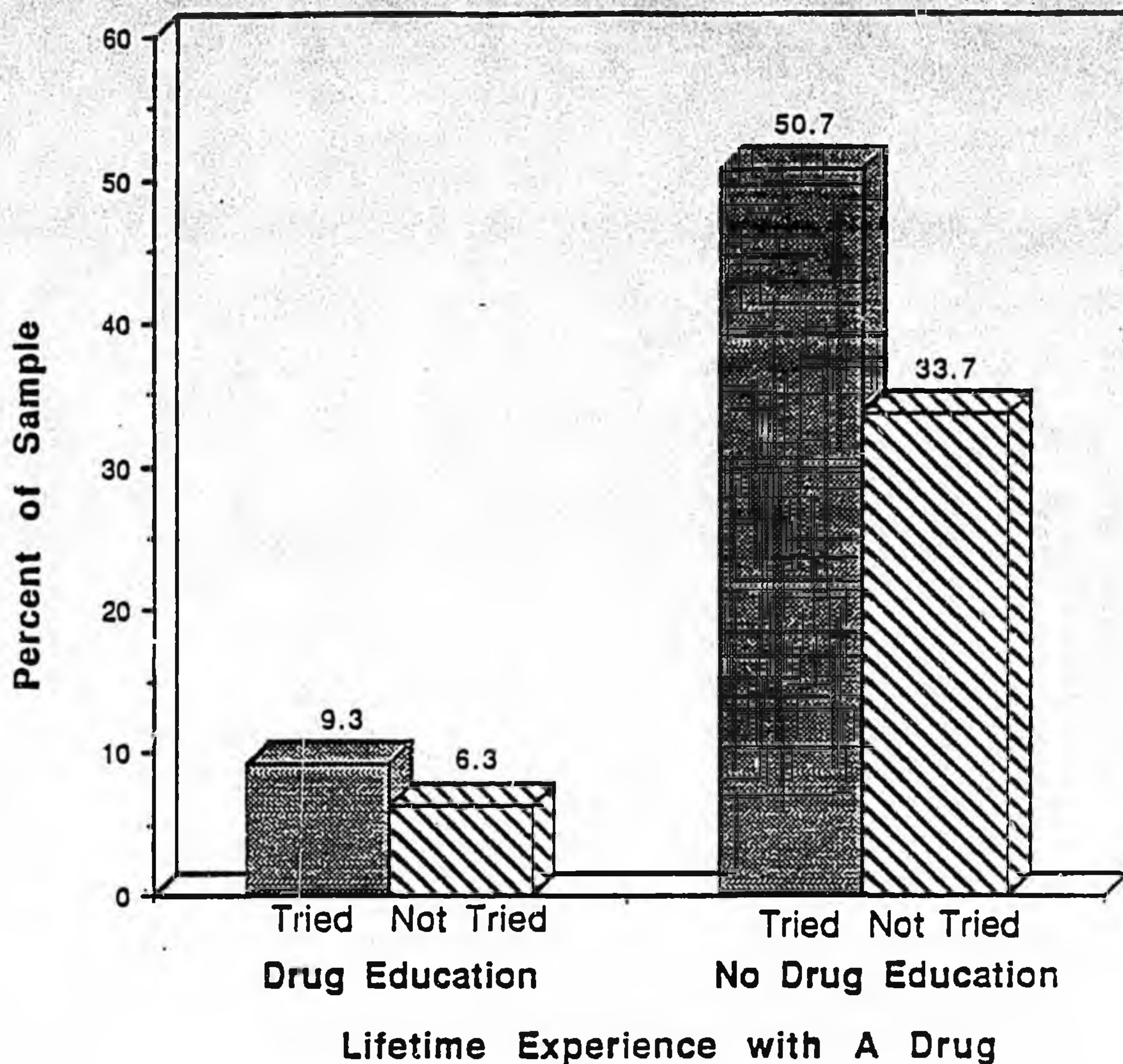
Most schools in Alaska have implemented drug education/prevention programs as either part of a specialized curriculum, or as part of a more general health education curriculum. Included in the survey were questions to assess students' participation in drug education/prevention programs/lessons. It is extremely important to note that these questions **were not included to evaluate the effects of education/prevention programs.** The questions were included in the questionnaire **to obtain some preliminary information** which could be used **to explore** some aspects of the relationship between prevention and drug-taking behavior. Only **very preliminary finding** are reported herein. Subsequent reports will attempt to convey more specific findings.

Based on students' responses to these questions, an attempt was made to assess the relationship between having participated in a drug education/prevention program and use or nonuse of drugs. Figure 4-30 shows how many students, among all students sampled, participated or did not participate in a drug education lesson, and use or nonuse of drugs. What this figure **does not convey** is whether those who tried or did not try a drug did so before or after having been exposed to drug education.

The data in Figure 4-50 shows that more students who did not have drug education tried a drug than those who had drug drug education. Also, more students who did not have drug education refrained from using drugs than those who had been exposed to drug education. What is important to note however, is that the ratio of users to nonusers within each group is relatively comparable. It thus appears that for about every one and one-half students who will try a drug, one will not, regardless of whether or not they had drug education.

The results of an attempt to explore the relationship between initiation into drug use and drug-taking behavior is shown in Figure 4-51. The information in this figure was developed by using a new variable that was derived from transformation of the data. This transformation involved equating a student's grade level with the student's age level, a process that may not represent the distribution of actual ages within class levels. Additionally, students may not have accurately reported their drug education/prevention experiences. The data described in Figure 4-51 should therefore be considered **tentative**, at best. It also needs to be noted that the data pertain only to those students who reported ever trying one of the substances listed in the Figure, and only to those students who received drug education.

Figure 4-51, **which should be considered as exploratory data**, shows the extent to which students who tried a drug did so before, during, or after having experienced some form of drug education/prevention . The data show that initiation into marijuana, inhalants, and stimulants was generally high before exposure to drug education, while initiation into cocaine,



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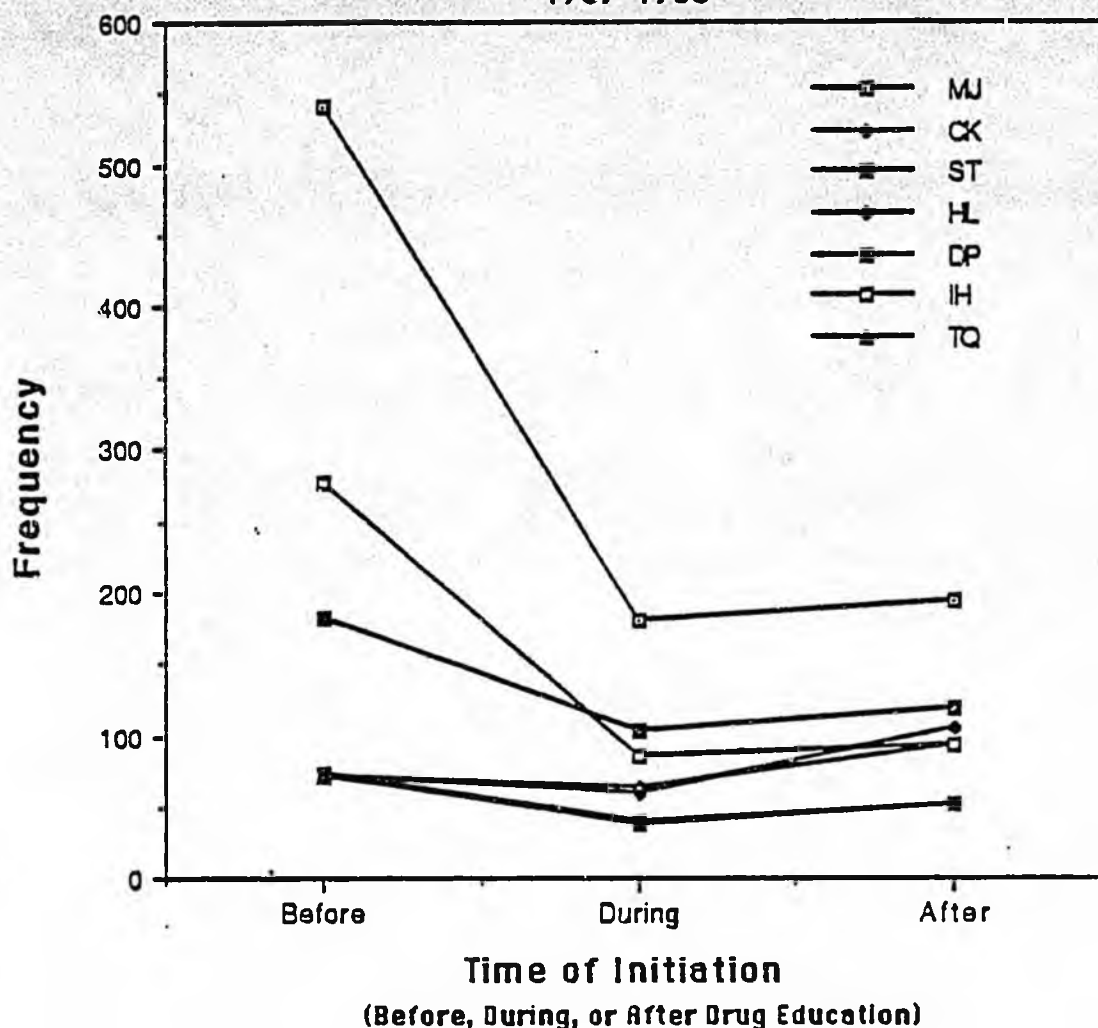
hallucinogens, tranquilizers and depressants, occurred less frequently. Initiation into marijuana, inhalants and stimulants declined sharply during the period students experienced drug education, while initiation into the other substances remained stable or declined. After drug education either no change occurred or slight increases were noted for some substances, particularly cocaine. What the data do not reveal, however, is the extent to which maturational factors, independent of drug education, may contribute to the changes observed. More study is need to determine the nature of the relationship between drug education and drug-taking behavior.



Summary

This chapter reported the findings from a survey of drug-taking behavior among students in grades 7 to 12 in ten different school districts. The study revealed generally high prevalence levels for lifetime experiences with different chemical substances, alcohol, tobacco, and chewing/smokeless tobacco. The general consistency of the findings suggest that the statistics reported have validity.

When these findings are compared to national data, Alaska's youth appear to show a disproportionately high level of drug-taking behavior. Comparisons with students in similar grade levels in California and Oregon, however, reveal that all three findings show higher prevalence levels than

those reported in national surveys, and that Alaska's lifetime prevalence, for some substances, are not extremely disparate from the findings reported from Oregon and California.

Chapter 5

Results: Part II
Comparing Findings: 1983 and 1988

The findings reported in the previous chapter were obtained from a second stateside survey of drug-taking behavior among students in grades 7-12. The first survey was conducted during 1981 and 1982, and involved eight school districts (Anchorage, Barrow, Bethel, Fairbanks, Juneau, Kotzebue, Nome, and Sitka). This chapter provides a comparison of the major findings from the two surveys. The 1981-1982 data is referred to as the 1983 study (Segal, 1983a). The current study is referred to as the 1988 study.

A. Comparisons of Prevalence and Patterns of Drug-Taking Behavior

(1) Opportunity to Try

Table 5-1 shows a comparison of opportunities to try chemical substances (marijuana, cocaine, stimulants, hallucinogens, depressants, heroin, inhalants, and tranquilizers). What is apparent is that opportunities to try the different substances, except for depressants, increased, some by small, others by large margins. Inhalants, for example, showed the largest increase (19.4%), followed by more modest increases for hallucinogens (5.2%) and marijuana (4.3%). Depressants, in contrast, showed a 1.1 percent decrease. The overall pattern suggests that chances to try drugs have generally increased from five years ago. The results of a statistical test to determine if the differences between the proportions for each substance were statisticall significant, which indicated that some of the differences were greater than chance expectancy. The increases in opportunities to try to try marijuana, hallucinogens, inhalants and tranquilizers, were all statistically significant.

(2) Opportunity to Try and Trying Drugs

While students have apparently reported an increase in opportunities to try most all drugs, the number of students who actually tried a drug (excluding alcohol and tobacco) when an opportunity arose had generally decreased since 1983, as noted in Table 5-2. The largest decreases observed were for depressants (-20.2%) and tranquilizers (-18.0%), which were both found to be statistically significant ($p = <.01$), that is, greater

Table 5-1

Comparison of 1983 and 1988 Findings:

Opportunity to Try Chemical Substances

Eight School Districts

Substance	1988 Percent[a]	1983 Percent[b]	Percent Change
Marijuana	70.4	66.1	+ 4.3[c]
Cocaine	30.5	29.0	+ 1.5
Stimulants	36.7	35.7	+ 1.0
Hallucinogens	23.3	18.1	+ 5.2[c]
Depressants	19.0	20.1	- 1.1
Heroin	7.5	7.2	+ 0.3
Inhalants	45.2	26.8	+ 18.4[c]
Tranquilizers	18.1	15.9	+ 2.2[c]

[a]N=3814 (Unweighted) [b]N=3609 (Unweighted) [c]$p < .01$.

Table 5-2
Opportunity to Try and Trying Drugs
Comparison: 1983-1988
Eight School Districts

Substance	1988[a] Percent	1983b Percent	Percent Change
Marijuana	75.9	74.8	+ 1.1
Cocaine	47.2	63.3	- 16.1[c]
Stimulants	66.0	76.2	- 10.2[c]
Hallucinogens	56.7	48.0	+ 8.7[c]
Depressants	51.4	71.6	- 20.2[c]
Heroin	26.5	29.9	- 3.4
Inhalants	57.3	61.5	- 4.2[c]
Tranquilizers	54.6	72.6	- 18.0[c]

[a]n=3814 [b]n=3609 [c]$p < .01$.

than chance expectancy. The declines for cocaine (-16.1%) and stimulants (-10.2%), were also found to be statistically significant ($p < .01$). The small increase noted for marijuana (+1.1%) was not statistically significant, but the increase in hallucinogens (+8.7%) was found to be greater than chance expectancy ($p < .01$).

(3) Lifetime Experience with a Drug

Table 5-3 shows the pattern of increases and decreases for lifetime experience with different drugs (excluding alcohol and tobacco). Consistent with the findings in Tables 5-1 and 5-2, increases are noted for marijuana (3.6%) and hallucinogens (4.5%). A relatively large increase for inhalants (9.4%) is also noted, which is consistent with its reported increase in availability reported in Table 5-1. All of the differences in lifetime

Table 5-3
Comparison of 1983 and 1988 Findings
Lifetime Experience with Chemical Substances
Eight School Districts

Substance	1988 Percent[a]	1983 Percent[b]	Percent Change
Marijuana	53.0	49.4	+ 3.6[c]
Cocaine	14.4	18.3	- 3.9[c]
Stimulants	24.2	27.2	- 3.0[d]
Hallucinogens	13.2	8.7	+ 4.5[c]
Depressants	9.8	14.3	- 4.5[c]
Heroin	2.0	2.2	+ 0.2
Inhalants	25.9	16.5	+ 9.4[c]
Tranquilizers	9.9	11.5	- 1.6[d]

[a]N=3814 (Unweighted) [b]N=3609 (Unweighted)

[c]$p < .01$.

[d]$p < .05$.

experience, except for heroin, were statistically significant. That is, the increases and decreases in lifetime experience that occurred, other than for heroin, were greater than chance expectancy.

Overall, the pattern of increases and decreases revealed in Tables 5-1 through 5-3 indicates that marijuana continued to show the highest prevalence level. The increase in inhalants and hallucinogens suggests a possible trend away from more expensive, traditionally "hard" drugs (e.g., cocaine) to less expensive, more available, and strongly euphoric-producing substances (e.g., inhalants and hallucinogens). Other substances, it should be noted, are prevalent, and their high prevalence should not be overlooked. Although inhalants have seemingly become more available to more students, and more students have tried them since 1983, fewer students among those who have had an opportunity to try inhalants have actually tried such substances. The overall changes in prevalence levels between 1983 and 1988, however, may be interpreted as reflecting alterations in patterns of use, and knowledge of these changes may be helpful in furthering an understanding of students' experience with different mood-altering substances.

(4) Lifeuse Comparisons

Figure 5-1 shows a comparison of the overall number of students who tried one or more substances (excluding alcohol and tobacco) in 1983 and 1988. As observed, the number of students who tried a drug in 1988 increased by five percent. Thus while there has been some decline in use of different substances, the increases that occurred for other substances were sufficiently large to contribute to an overall increase in lifetime experience with chemical substances. This increase, it should be noted, comes at a time when decreases in drug use have been reported across the nation (Bachman, et al., 1988).

(5) Number of Drugs Tried

Figure 5-2 shows a comparison of the number of drugs tried. More students tried one, two, or three drugs in 1988 than did students in 1983. In contrast, more students tended to try more than four substances in 1983 than in 1988. It may be that the current higher level of drug use, noted in

Figure 5-1
Comparison of 1983 and 1988
Lifetime Experience

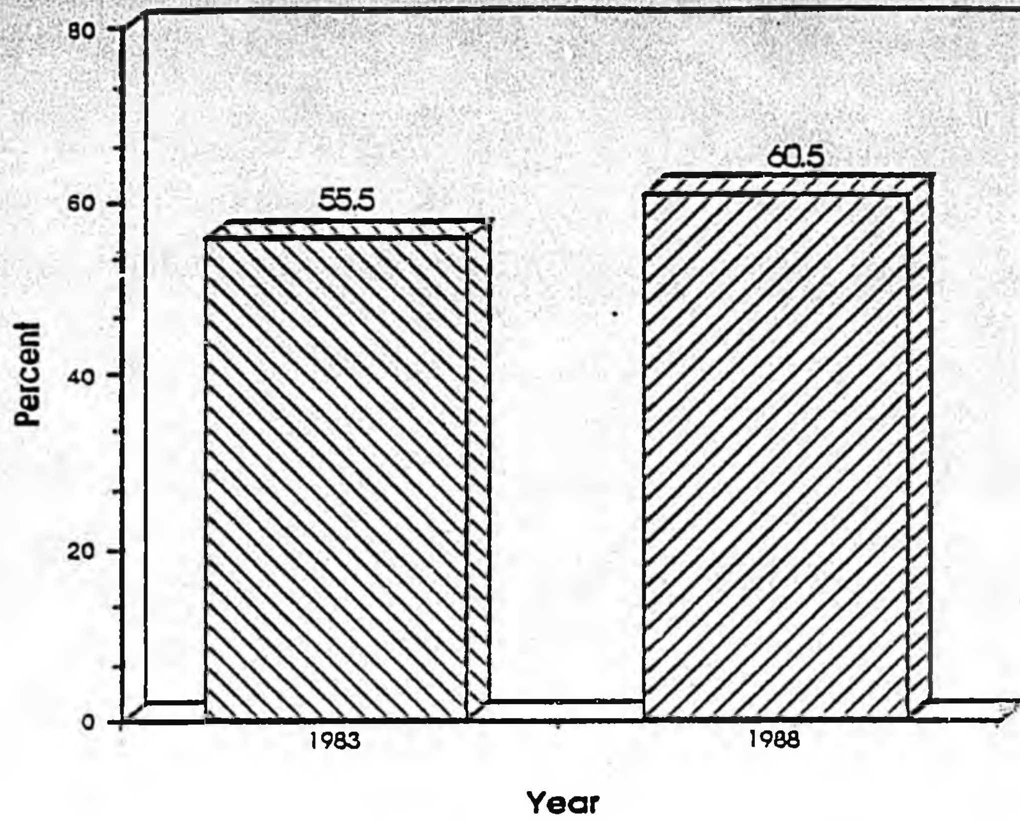


Figure 5-2
Number of Drugs Tried
1983 and 1988

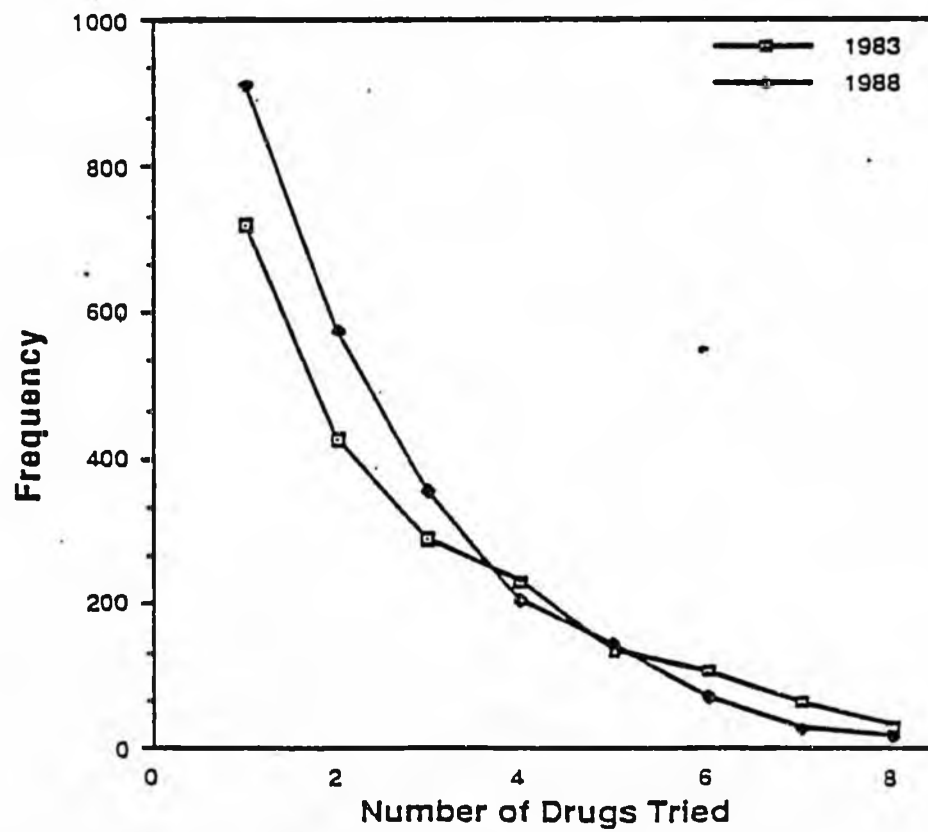
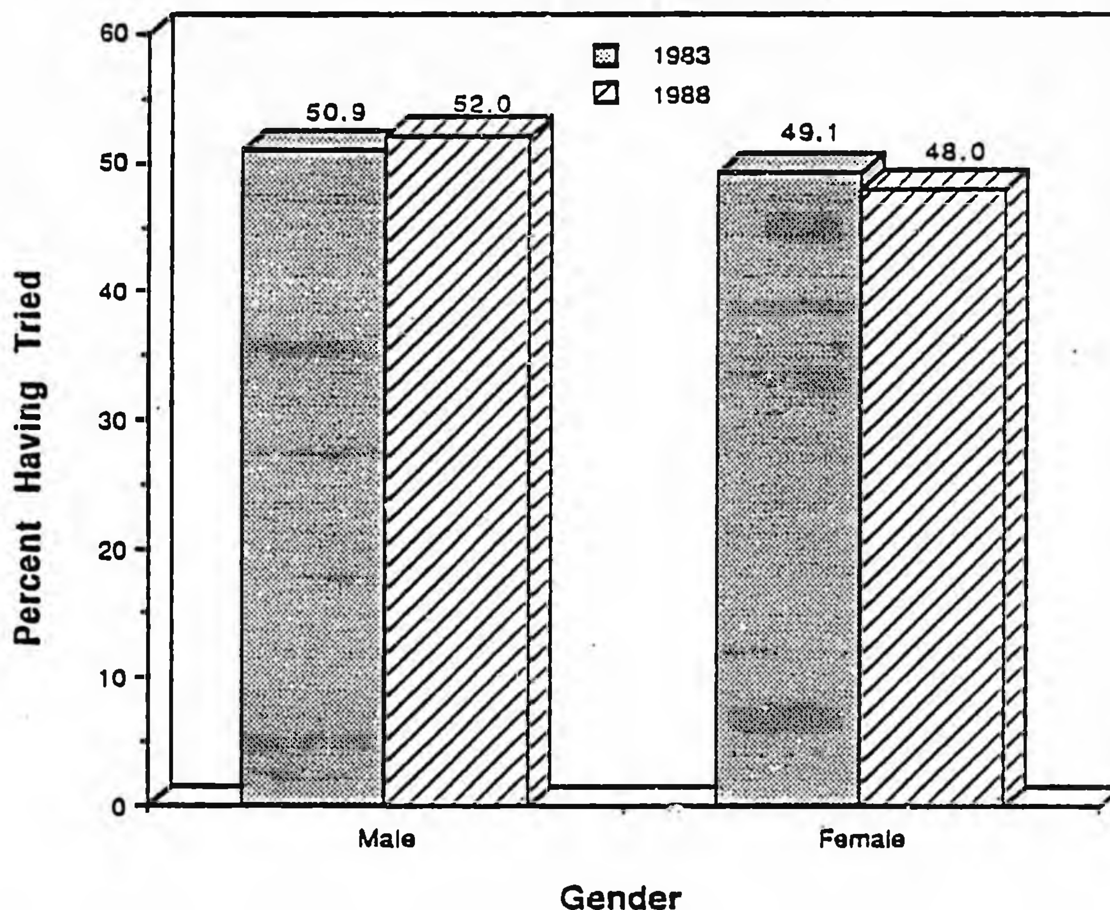


Figure 5-1, is a function of greater experimentation with drugs than that which occurred previously. This hypothesis could be tested if a comparison of the frequency of drug use were possible, but because the questions were worded differently in the two surveys, a comparison of the frequency (and recency) of drug use was precluded.

(6) Lifetime Experience by Gender

Figure 5-3 shows the proportion of male and female students who tried a drug based on all students who had ever tried a drug. The ratio of males to females remained fairly consistent.

Figure 5-3
Lifetime Experience by Gender
1983 and 1988



(7) Lifetime Experience by Grade

Figures 5-4 and 5-5 report on the relationship between lifetime experience with a drug and grade level. The data indicate the percent of students who have tried one or more drugs during or before their current grade level.

Figure 5-4
Lifetime Experience by Grade
1983 and 1988

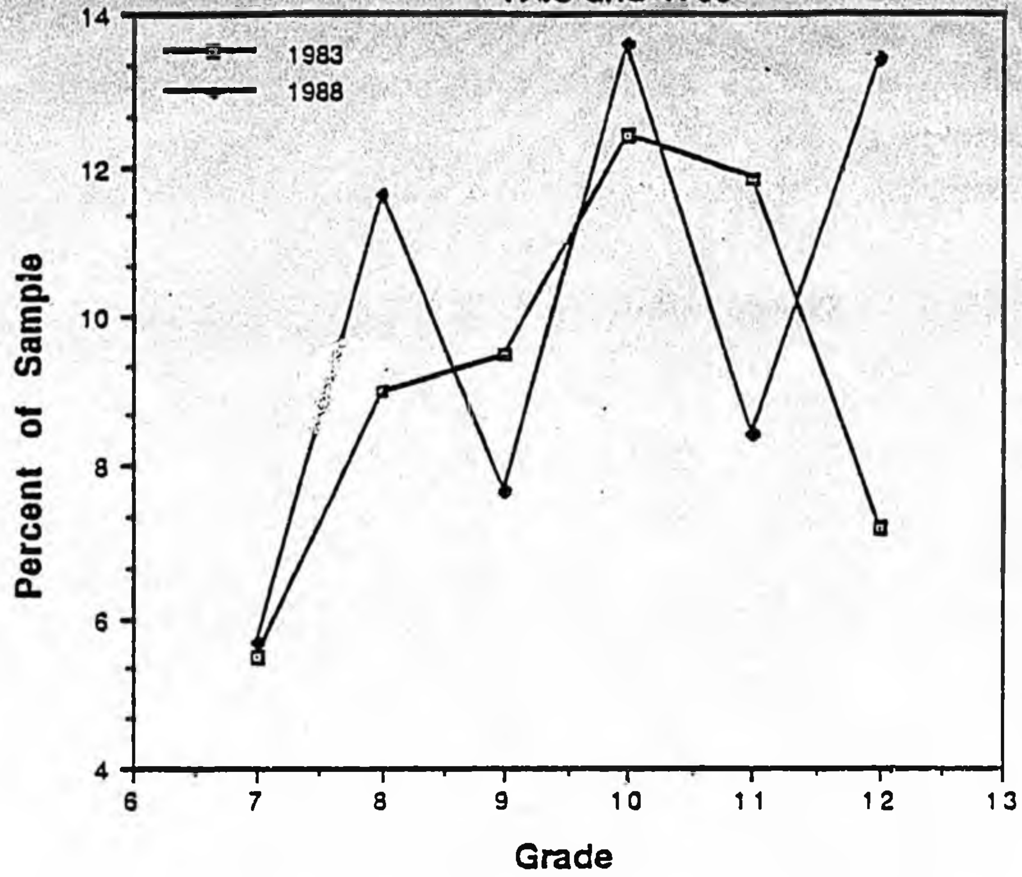
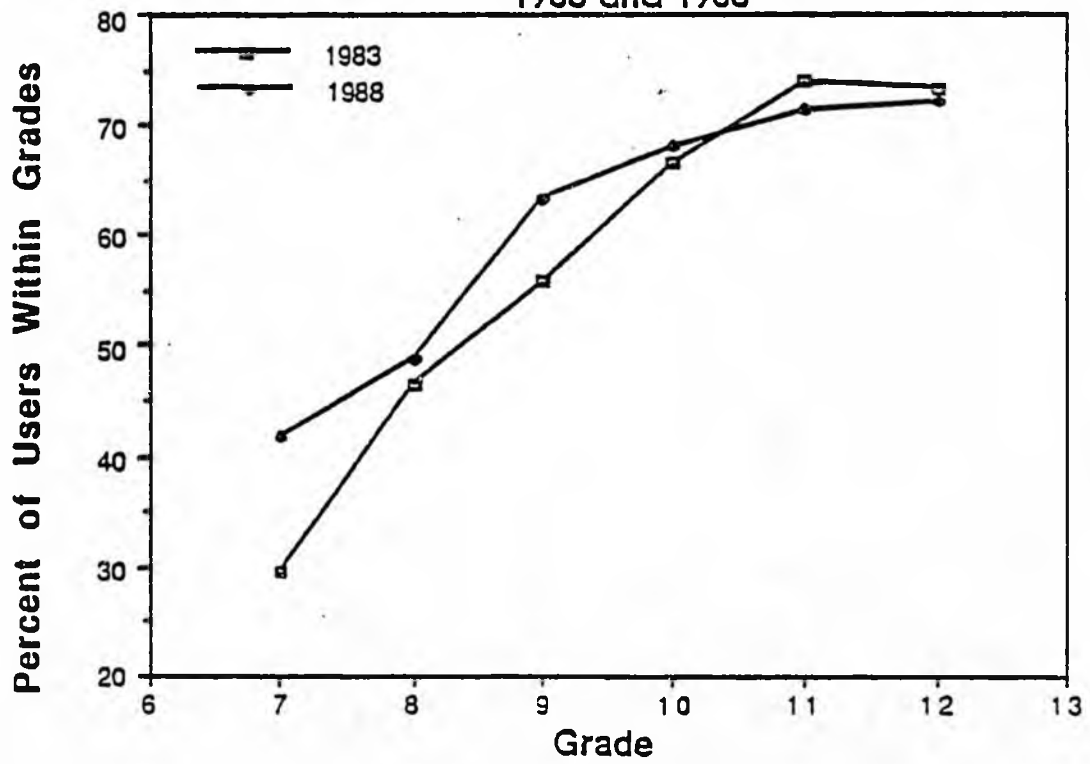


Figure 5-5
Lifetime Experience Within Grades
1983 and 1988



The data in Figure 5-4 represent the percent of students in each grade level from among the entire sample who reported ever having tried a drug. The data shows a very different pattern for 1988 than for 1983. While the data from 1983 indicated an increase from grades 7 to 9, the present findings show a comparable number of students having tried drugs by grade seven, a greater increase in the number of students who experience a drug by the 8th grade and, in contrast to 1983, a rather sharp decline in drug use among students in the 9th grade. Both samples show an increase in use for 10th grade students, but the 1988 sample shows a higher prevalence level. Use began to decline after the 10th grade in 1983, dropping sharply after the 11th grade. In the present sample, use declines very sharply in the 11th grade, but rises dramatically during the 12th grade.

When examining patterns of drug-taking behavior within grade levels, a different pattern emerges because of the nature of the analysis, which is based on a direct comparison of use and nonuse within each grade. Differences are also noted between 1983 and 1988 when a comparison is made among students within each grade level who tried drugs (Figure 5-5). While a corresponding increase in use and grade level is present for both samples, the increase for the 1988 sample is higher at the early grades (7- 9) than later grades (11 & 12). Thus more students have experienced a drug at earlier grade levels in 1988 than in 1983, while fewer have tried drugs in the 11th and 12th grades in 1988 than in 1983.

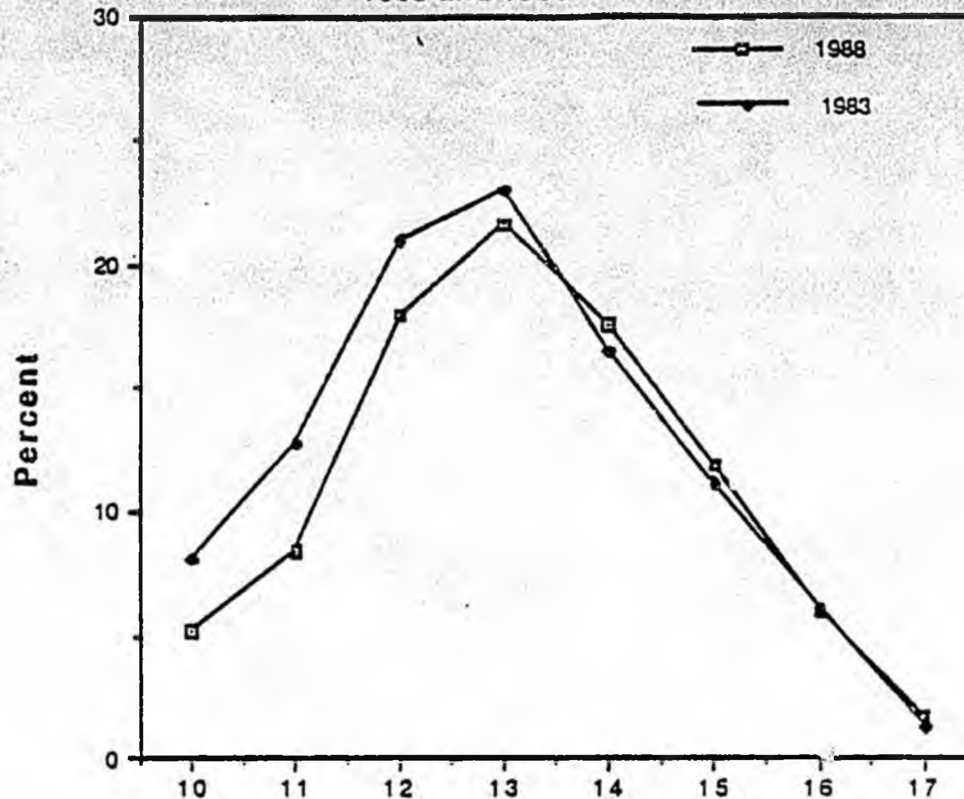
(8) Initiation into Drugs

The next series of figures compares ages of initiation into drug use for each of the different substances.

(a) Marijuana

Figure 5-6 compares initiation into marijuana. What is interesting to note is that both curves very generally approximate a normal distribution, with 13 years as the mode. In comparing the two distributions, fewer students were initiated into marijuana between 10 and 13 in 1988 than in 1983, but initiation declined for both groups after 13 years. Initiation was slightly higher at ages 14 and 15 for the present sample, while initiation levels were

Figure 5-6
Initiation Into Marijuana
1983 and 1988



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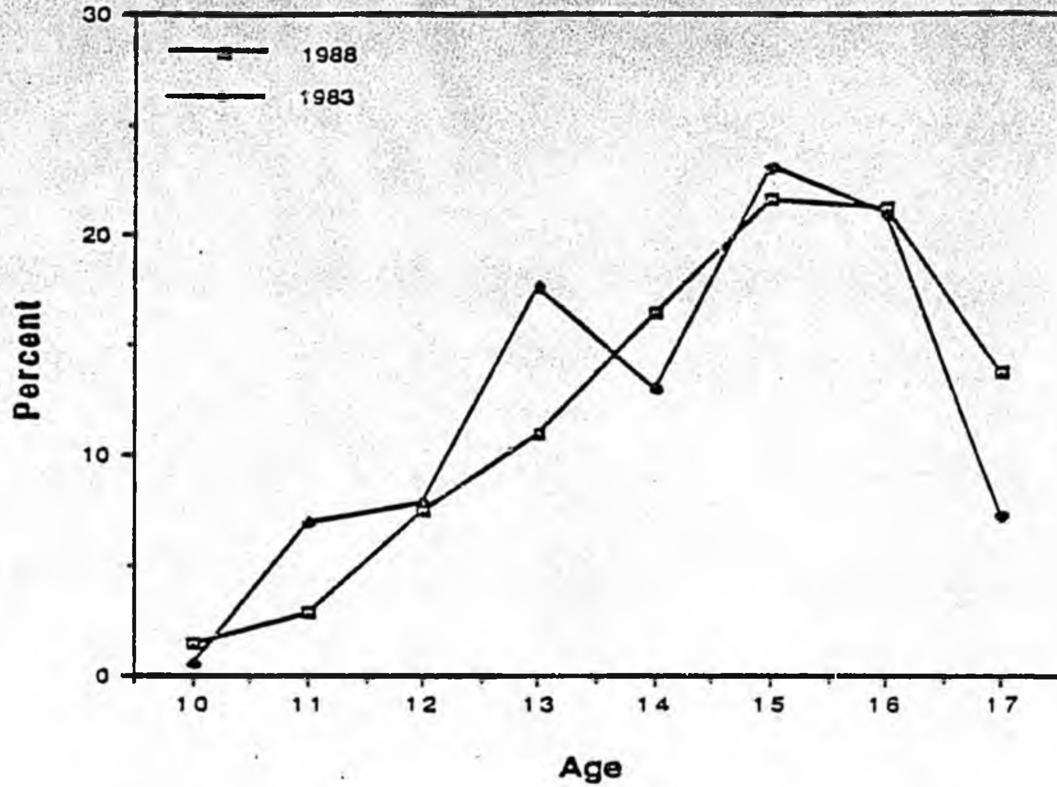
comparable thereafter.

(b) Cocaine

Initiation into cocaine shows a different pattern in 1988 than in 1983, as indicated in Table 5-7.

Overall, initiation into cocaine for the 1983 sample showed increases until age 13, with a drop at age 14, then an increase at age 15, followed by a decline. Initiation into cocaine for the 1988 sample shows a steady increase beginning at age 10, which peaks at age 15, followed by a very slight decline; only after age 16 does initiation decrease. Initiation rates were higher at ages 14 and 17 for the current sample than for the 1983 sample.

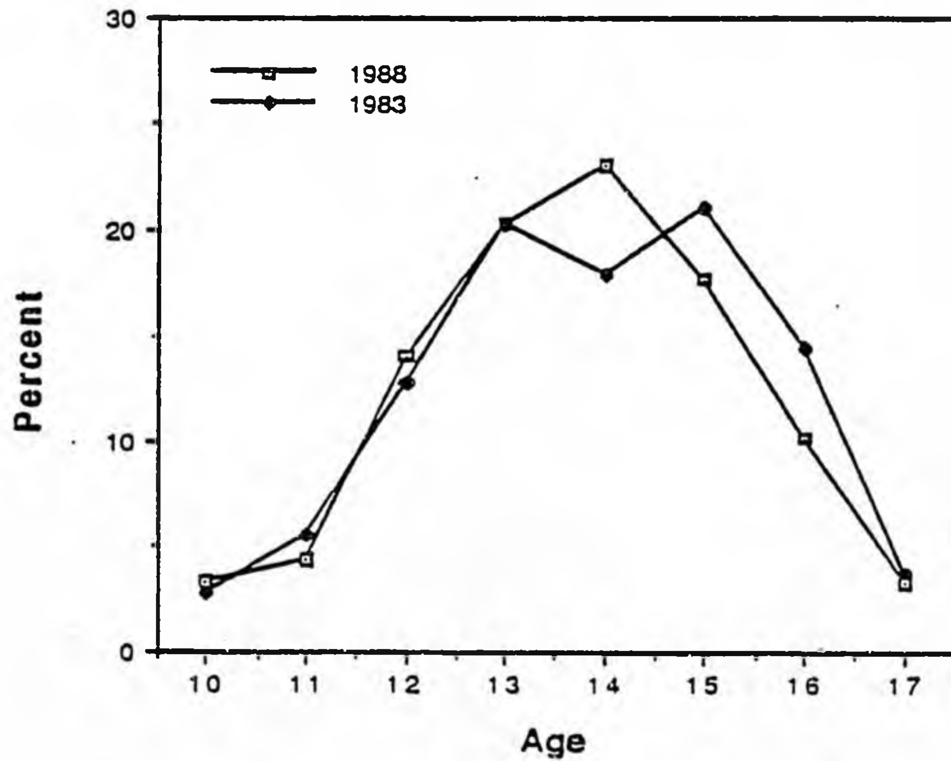
Figure 5-7
Initiation Into Cocaine
1983 and 1988



(c) Stimulants

Initiation into stimulant use shows a relatively similar pattern (Figure 5-8), but

Figure 5-8
Initiation into Stimulants
1983 and 1988

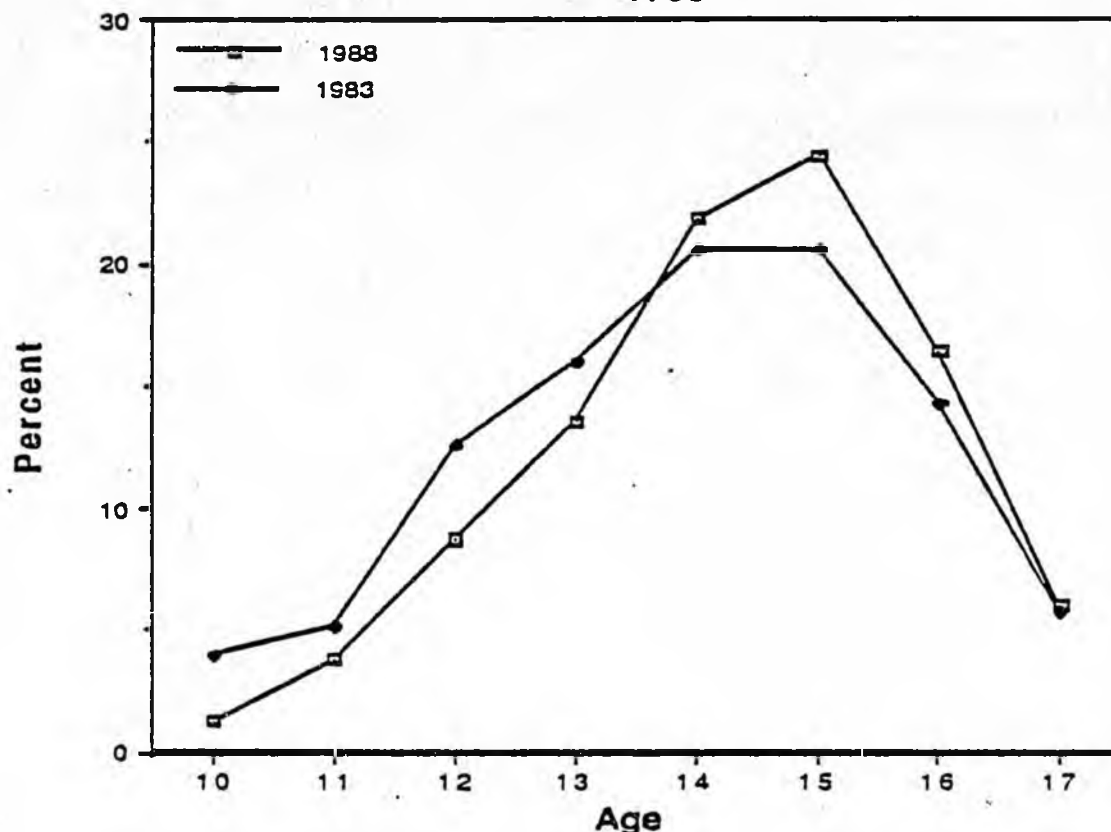


with fewer students in the 1988 sample initiating stimulant use after age 14 than in the 1983 sample.

(d) Hallucinogens

The two curves in Figure 5-9 indicate that fewer students have initiated hallucinogen use up to age 13 in the 1988 sample than in the 1983 group. But after age 13, more students in the current sample initiated use at ages 14, 15, and 16.

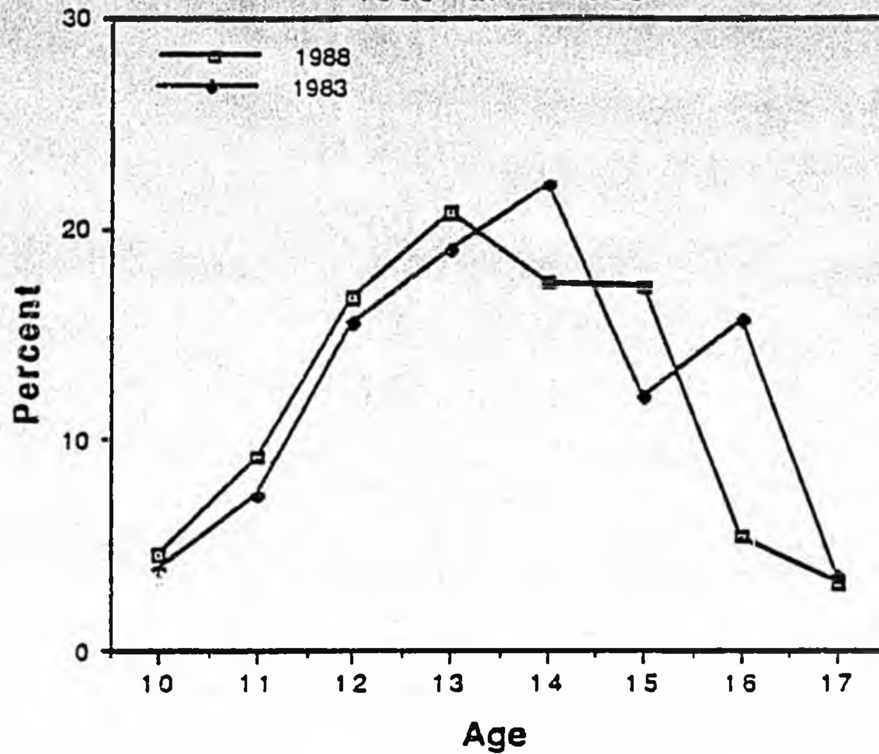
Figure 5-9
Initiation into Hallucinogens
1988



(e) Depressants

Initiation into depressants (figure 5-10) shows a varied pattern between the two samples. There was a steady increase in initiation from ages 10 to 13 for both samples, but more students had tried within this age range in 1988 than 1983. New starts of depressants begin to decline after age 13 for the 1988 sample, but not sharply until after age 15. In the 1983 sample initiation peaked at age 14, then declined sharply, but again showed a slight increase at age 16.

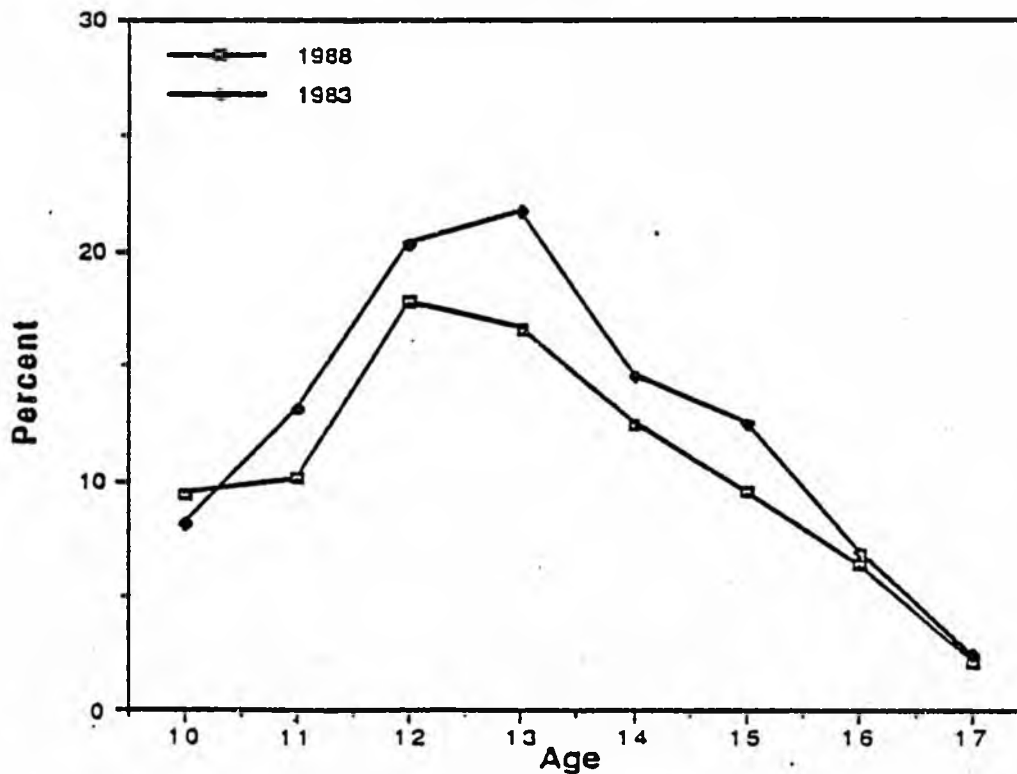
Figure 5-10
Initiation into Depresants
1983 and 1988



(f) Inhalants

Except for a slightly higher initiation level at age 10 for the 1988 sample, the overall pattern of initiation into inhalants, as shown in Figure 5-11, is fairly

Figure 5-11
Initiation into Inhalants
1983 and 1988



similar. Initiation into inhalants appears to be highest between 12 and 13, and decreases thereafter.

(g) Tranquilizers

As shown in Figure 5-12, initiation into tranquilizers occurred principally between the ages of 10 and 14, but the 1988 sample, in contrast to the 1983 group, shows an extension of initiation until age 15, after which there is a sharp decline.

Figure 5-12
Initiation Into Tranquilizers
1983 and 1988

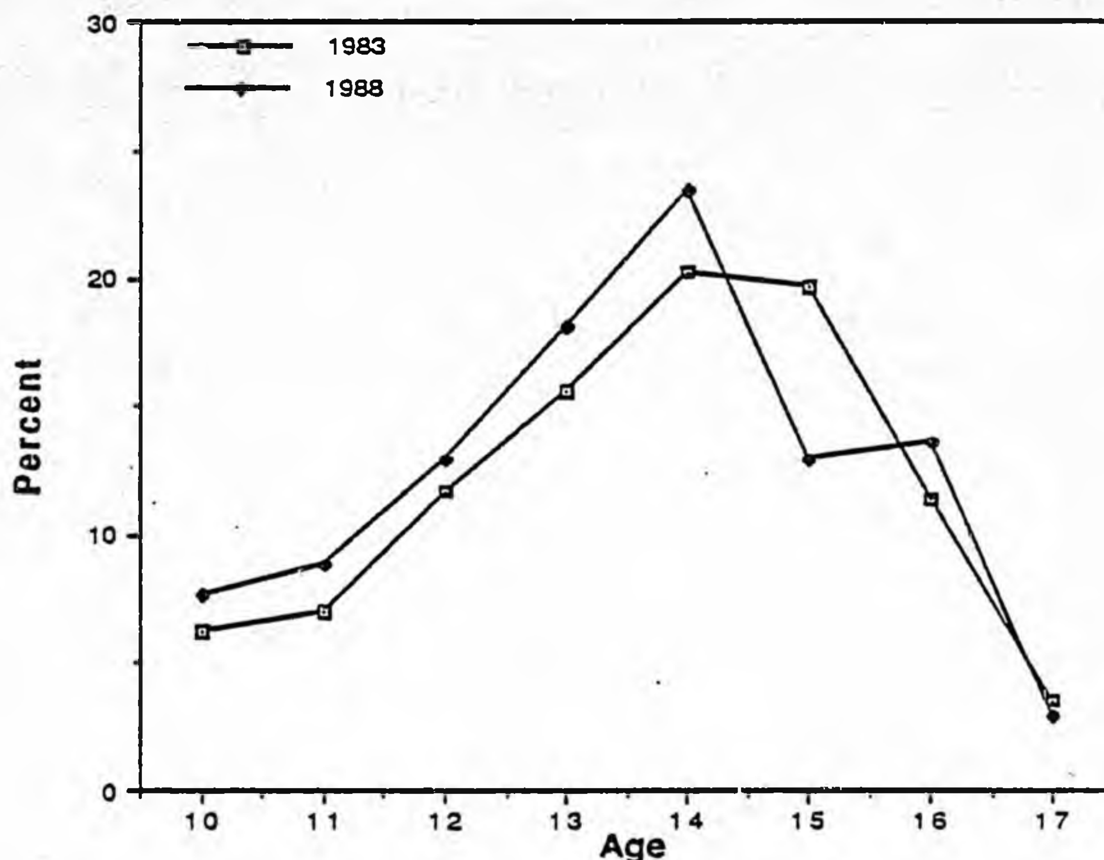
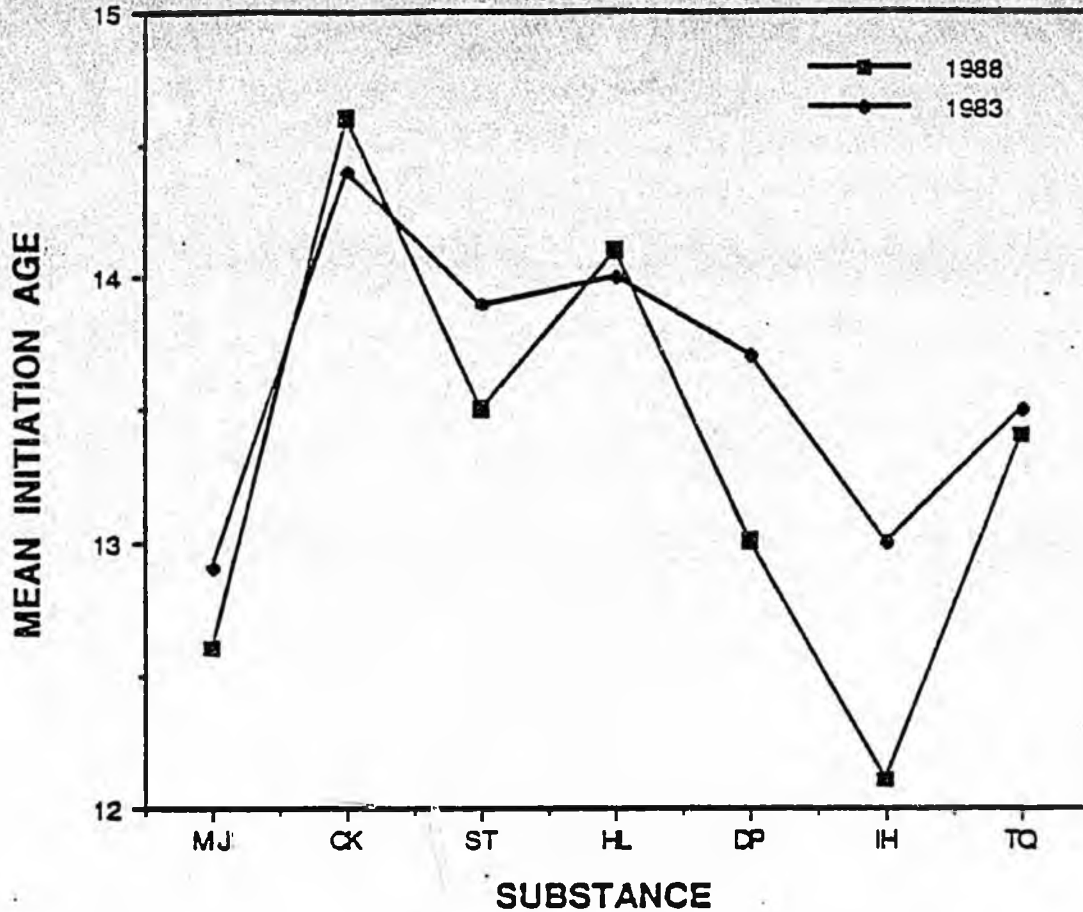


Figure 5-13 shows a comparison of the mean ages of initiation for each of the substances described above for 1983 and 1988. This figure permits a summary of the proceeding data. The plot of the means in Figure 5-13 helps to illustrate the changes in initiation that have occurred for each of the substances, based on the average age of initiation. A test of significance between the mean ages of initiation between 1983 and 1988 for each substance revealed that the differences in age of initiation for marijuana (1983 mean = 12.92; 1984 mean = 12.58), stimulants (1983 mean =

Figure 5-13
Mean Initiation Ages
1983 and 1988



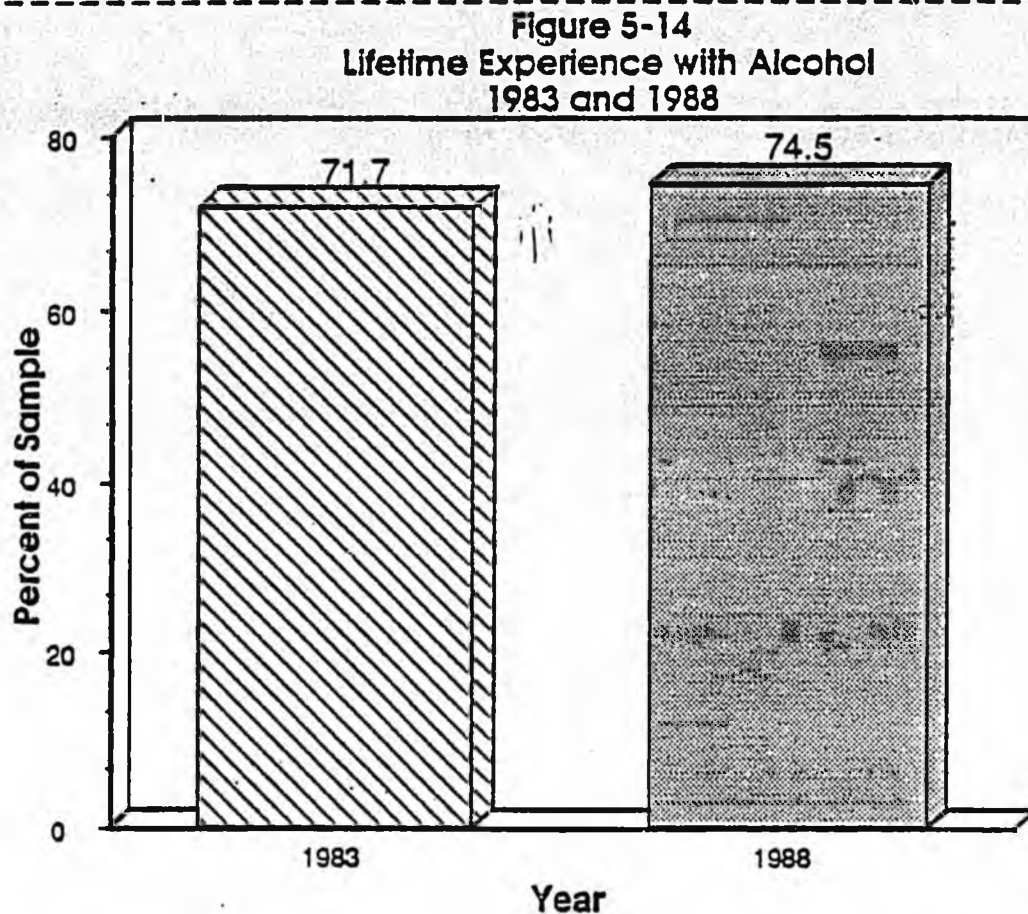
13.90; 1984 mean = 13.54), depressants (1983 mean = 13.69; 1984 mean = 13.02), and inhalants (1983 mean = 13.00; 1984 mean = 12.10), were statistically significant (p = <.01), that is greater than chance expectancy. There is thus a clear lowering of ages of initiation for these substances. Although the cocaine and hallucinogens showed an increase in age of initiation since 1983, the differences were not statistically significant.

Overall, the findings suggest that age of initiation covaries inversely with prevalence. Two of the three substances that showed an increase in prevalence, marijuana and inhalants also showed a corresponding decrease in age of initiation. It may be that a self- regulation process has established itself among students who have tried drugs in the 1988 sample. That is, those substances that are readily available are tried much earlier, such as marijuana and inhalants, while other substances, which may be less available and which are considered to be 'harder' drugs, are experienced later. This assumption, however, is in need of further study.

(9) Alcohol

Figure 5-14 presents a comparison of prevalence levels for lifetime experience with alcohol for 1983 and 1988. There was a slight increase (2.8%) observed for the 1988 sample.

Figure 5-14
Lifetime Experience with Alcohol
1983 and 1988



(10) Smoking

Figure 5-15 shows that there has been a 17 percent increase in lifetime experience with cigarettes.

(11) Age of Initiation of Cigarette Use

Figure 5-16, which compares age of initiation of smoking cigarettes for the two samples, reveals that some changes have occurred. In 1988, fewer students were smoking at age 10 and 11 than in the 1983 sample, but more were beginning at age 12. After age 12 both samples showed a steady decline, but more students tended to start smoking at higher age levels in the 1988 sample than in the 1983 group.

Figure 5-15
Lifetime Experience With Cigarettes
1983 and1988

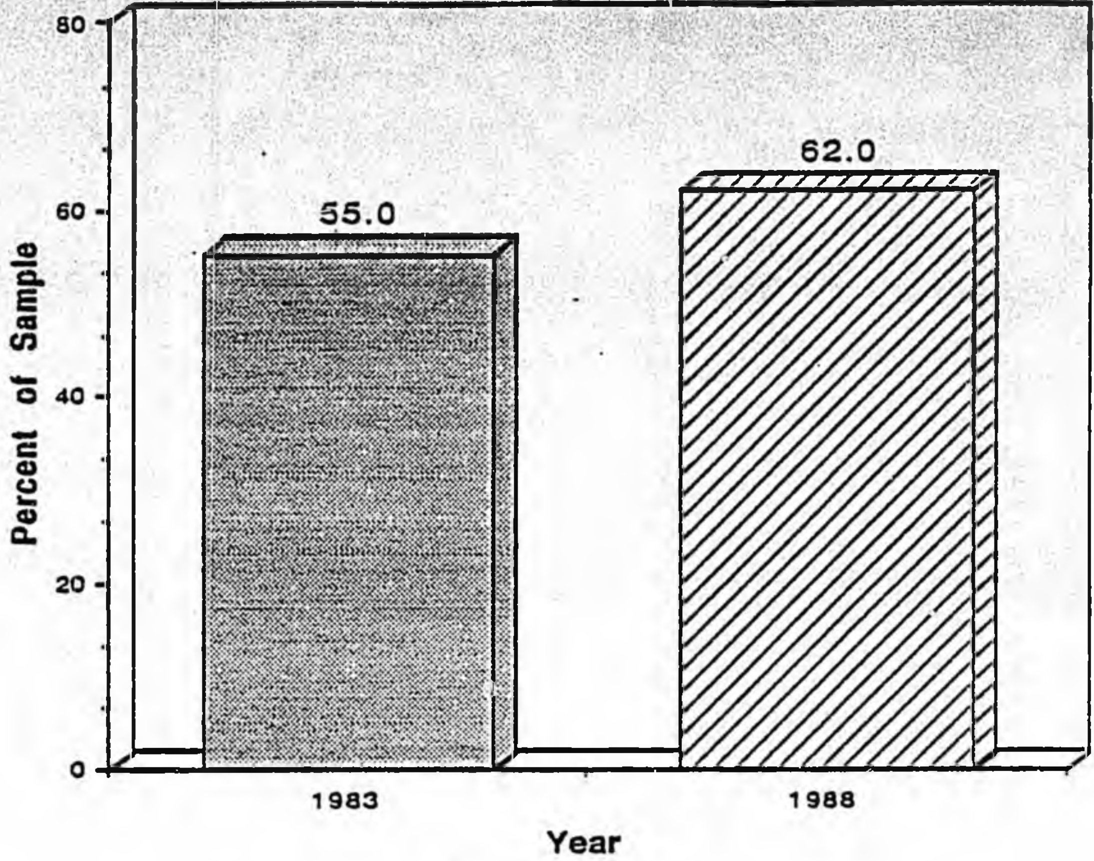
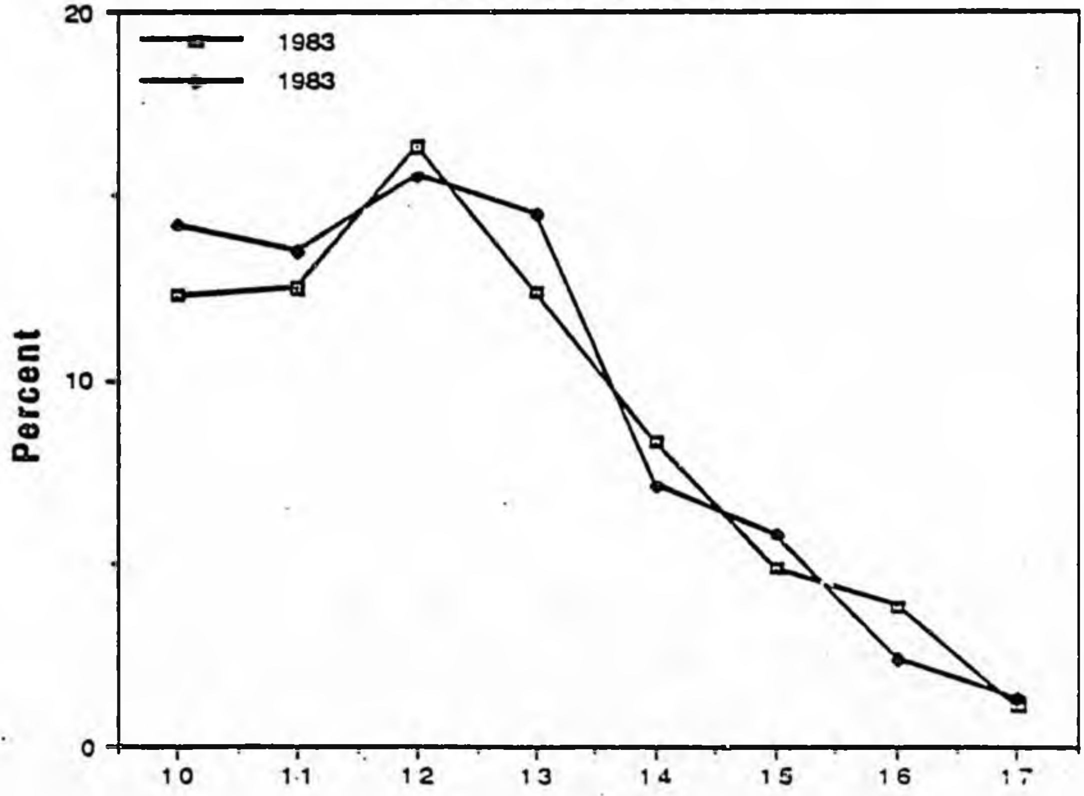


Figure 5-16
Initiation into Cigarettes
1983 and 1988



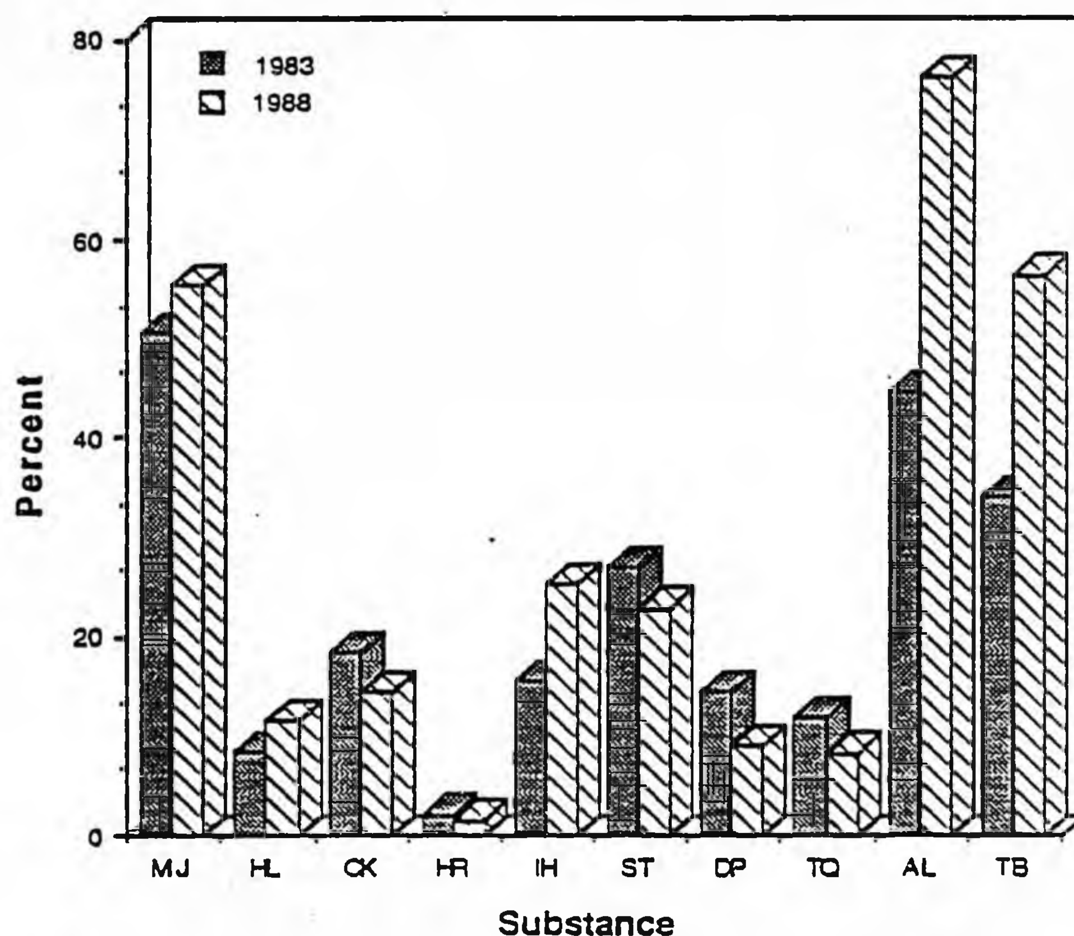
B. Demographics: Regional Comparisons

The 1983 survey provided regional comparisons of drug-taking behavior. The regional groupings were based on sampling procedures followed in the 1983 study. The following three figures compare the 1988 findings with the 1983 results using the three regional groupings formed for the 1983 study.

(1) Anchorage-Barrow-Kotzebue-Nome-Sitka

A comparison of the 1983 and 1988 findings (Figure 5-17) shows considerable changes. Alcohol and tobacco, for example, have increased, while experience with cocaine, stimulants, depressants and tranquilizers have decreased. Increases, however, are noted for marijuana, hallucinogens, and inhalants.

Figure 5-17
Comparison of Lifetime Experience
Anchorage-Barrow-Kotzebue-Nome-Sitka
1983 and 1988

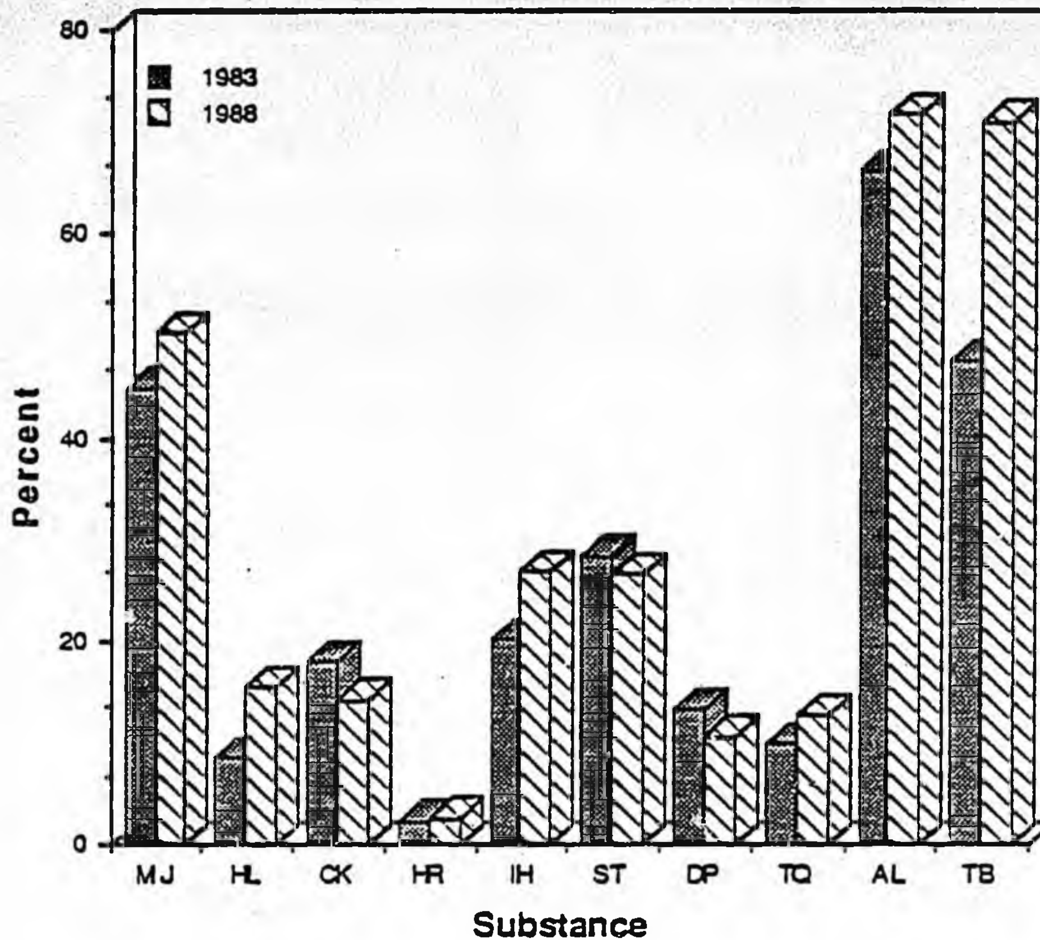


(2) Bethel-Juneau-Fairbanks

The comparisons shown in Figure 5-18 also show variations since 1983. The

largest increase is for smoking, with accompanying increases for lifetime experience with marijuana, hallucinogens, inhalants, tranquilizers, and alcohol. Decreases were observed for cocaine and depressants.

Figure 5-18
Comparison of Lifetime Experience
Bethel-Juneau-Fairbanks
1983 and 1988



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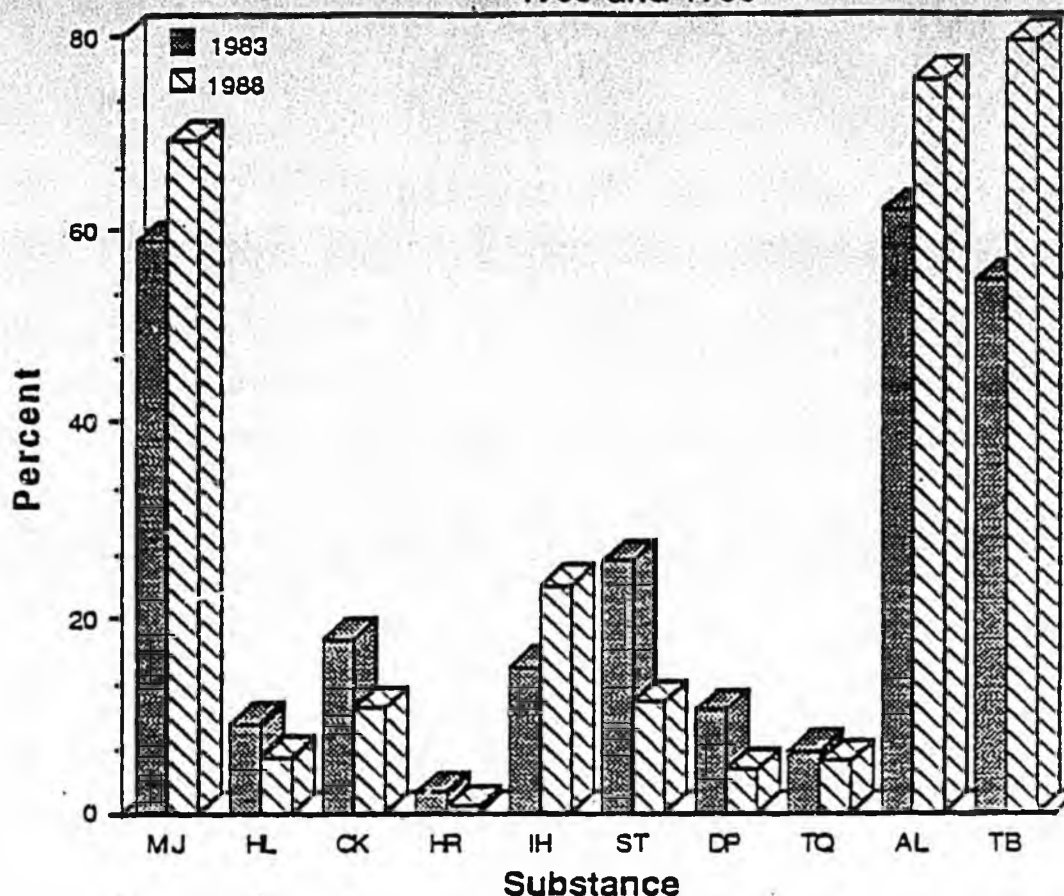
(3) Barrow-Kotzebue-Nome

A pattern of change different from the proceeding ones emerged in this region (Figure 5-19). While increases occurred for lifetime experience with marijuana, inhalants, alcohol, and tobacco, as noted in the other regions, decreases occurred for hallucinogens, cocaine, stimulants, depressants, and tranquilizers.

Based on these regional comparisons, it appears that there are certain patterns of drug-taking behavior both common and unique to the different regions of the state. For example, the different regions show a common trend with respect to increases in experiences with marijuana,

Figure 5-19
Comparison of lifetime Experience
Barrow-Kotzebue-Nome
1983 and 1988



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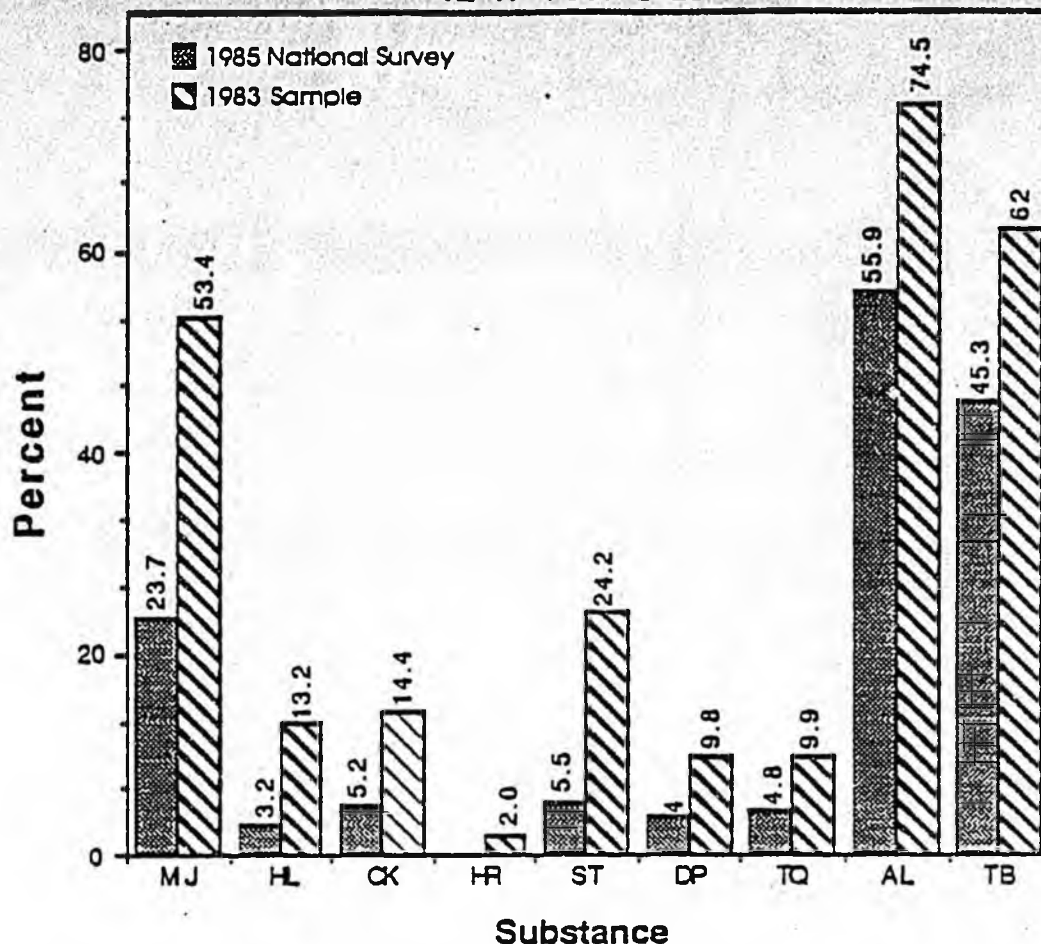
inhalants, alcohol, and cigarettes, and a decrease for use of cocaine. Lifetime experience with the remaining substances, however, differs across regions in that some show increases while others decreased. It thus appears that there is a general pattern of drug-taking behavior common to all regions, and specific variations within regions with respect to what substances students are experiencing.

C. Comparison with National Survey: 12 - 17 Year-Olds

The 1983 report contained a comparison of the Alaska findings with the findings from the 1982 National Household Survey for 12 - 17 year-olds. A similar comparison has been made for the current eight community sample with the 1985 national Survey for 12 - 17 year-olds.

The findings in Figure 5-20 are comparable to those reported in Figure 4-45, where the results from the total study are compared with those from

Figure 5-20
Comparison with National Household Survey
Lifetime Experiene
12-17 Year-Olds



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the national study. Alaskan youth exceed their counterparts from the lower-48 states in every category, and by considerable margins in many instances. A discussion of what may contribute to these differences has been undertaken in the preceding chapter.

Summary

While the overall level of drug-taking behavior remains fairly high within the state, there have nevertheless been changes in the pattern and prevalence of drug-taking behavior since 1983. Most prominent is the decline in experiences of all substances except for marijuana, hallucinogens, and inhalants. Changes have also occurred with respect to age of initiation for the different substances. Marijuana, stimulants, depressants, inhalants, and tranquilizers have all shown a lowering of age

of initiation, while the ages of initiation for cocaine and hallucinogens have increased. The patterns of changes within the regions suggest that while there is a general consistency across regions with respect to use of some substances, there are also some patterns that are idiosyncratic within different locations.

Chapter 6

Discussion, Conclusions, Implications, and Recommendations

Communities throughout the United States have been concerned with the problem of drug and alcohol use among youth for over 25 years. The particular interest in addressing this problems is based on the belief that drug use can have catastrophic consequences for youngsters who are both physically and emotionally immature, for their families, and for their community. Based on this belief, there has been a persistent struggle to understand the values and attitudes expressed by youth toward drugs, and to achieve perspectives on adolescent drug use patterns and trends. Developing an understanding of the nature of the problem "is an essential prerequisite for rational public debate and policy making" (Johnston, et al., 1987, p. 4), both of which are crucial ingredients for planning countermeasures.

Alaska's geographical separation from the lower-48 states has not sheltered it from similar problems. Nor has it diminished Alaska's need to obtain reliable estimates of prevalence data. In the absence of such information misconceptions can develop about the nature and scope of the problem, and early detection and localization of emerging problems become more difficult (Johnston, et al., 1987).

The purpose of this research was to monitor drug-taking behavior among adolescents, specifically estimating prevalence and identifying trends. The following discussion attempts to integrate the various results obtained from the preceding series of analyses into brief summary statements of the major findings that are linked to the study's research aims. When appropriate, the implications of the findings are expounded.

<u>(1) To obtain information on the prevalence of specific chemical substances, including alcohol and tobacco.</u>

Overall, the lifetime prevalence for experience with one or more chemical substances in Alaska is high. More adolescents within grades 7 to 12 (59.9%) have tried one or more substances than those not trying (40.1%). Prevalence rates were also high for lifetime experience with alcohol, cigarettes, and smokeless/chewing tobacco. The present

findings indicate that prevalence levels, overall, were generally higher in 1988 than reported from the earlier study (Segal, 1983), but individual variations occurred with respect to use of different drugs.

(2) To obtain demographic information about adolescents in grades 7-12 relative to use or nonuse of chemical substances.

The pattern of more males than females trying drugs persisted, but what may be considered an important change in the relationship between grade level and drug use has been observed. The 1988 data showed a sharp decline in drug use among 9th and 11th graders, and higher prevalence levels in grades 8, 10, and 12, than found in the 1983 study. These changes cannot be attributable to differences in the number of students in the different grade levels of the current sample because the differences between weighted and unweighted prevalence levels within grades do not differ sharply (see Figure 4-12). Moreover, both the weighted and unweighted samples show a decline in prevalence for both the 9th and 11th grades. Related to this finding was an apparent change in initiation ages for different chemical substances; some, such as marijuana and inhalants, have shown earlier initiation ages, while other substances, such as cocaine and hallucinogens, have shown increases in age of initiation.

What these findings suggest is that students seem to be varying their pattern of drug use, trying some substances earlier and delaying use of others until they are older. Mention was made earlier (see Chapter 5) that a self-regulation process may have occurred, in which students first try substances that are readily available and which are not perceived as "hard drugs," and then wait to try other substances such as cocaine and hallucinogens. Early research into the initiation of drugs by youth (Kandel, 1975) suggested a normative, orderly development sequence with drugs that is represented by four stages of adolescent involvement with drugs: (1) drinking beer and wine, (2) drinking distilled alcoholic beverages, possibly accompanied by smoking, (3) using marijuana, and (4) using other drugs. Based on the findings from the 1983 research, Segal (1986) reported that the sequence or patterns of first experience with different drugs changes over time. The present findings support this statement. It is appar-

ent that different peak years exist for trying different drugs, and that this pattern changes over time.

Within the current sample, a higher percentage of students initiated smoking cigarettes at an earlier age (10 and 11) than for either marijuana or alcohol. (See figure 4-26) By age 12, however, initiation into smoking cigarettes peaks and than declines steadily, while initiation into marijuana and alcohol show an almost identical initiation pattern, peaking at age 13, and then showing a steady decline. What may have transpired since Kandel's (1975) report of what had occurred during the early 1970s regarding adolescent drug use, is that the four stages may have evolved into two: (1) smoking cigarettes, trying/using alcohol and marijuana, and (2) trying/using other drugs. Interestingly, research by Jones and Moberg (1988), who studied correlates of smokeless tobacco use among adolescent males, concluded that "smokeless tobacco use may be a new 'gateway' substance of abuse when age of first use is taken into account" (p. 62). Given the extensive use of smokeless tobacco within the present sample, and its early initiation (see Figure 4-25), along with cigarettes, both of which exceeded the number of students trying alcohol for the first time at ages 10 and 11, any understanding of longitudinal patterns of adolescent drug use needs to focus on the relationship between smoking and use of chewing or smokeless tobacco, and the function they serve as a pathway to experiences with alcohol and other substances.

It is possible to suggest, based on the current study, that marijuana and alcohol may be used interchangeably or simultaneously. This suggestion implies that marijuana has been accepted by a significantly large number of youth and is not perceived as particularly deviant or illicit, and that they may be interpreting or perceiving its use in much the same way that the previous generation used alcohol. One of the implications of this conclusion thus involves the determination of what factors contribute to use of drugs other than marijuana, and to identifying what factors are related to initiation of tobacco products, drinking, and marijuana use. Effective reduction of use of these substances should contribute to reducing initiation into use of other illicit substances.

An examination of the relationship between ethnicity and drug-taking behavior among the total sample indicated that more Whites reported trying a drug or alcohol than any other ethnic group. Alaska Natives showed the second highest prevalence, while prevalence levels among the remaining groups were not essentially different.

A study of the proportion of youth within each of the different ethnic groups (Table 4-32) revealed that Alaska Native students showed the highest prevalence rate for ever having tried one or more drugs (73.9%), followed by American Indians (72.6%). Hispanic students ranked third (63.6), followed closely by students grouped in the 'Other' category (62.3%). Whites ranked fifth (57.2%), followed by Asian-Pacific students (51.3%), and Blacks (41.1%). While the overall findings indicated that a great many students placed emphasis on achieving an altered state of consciousness provided by drugs, the findings reported for use within ethnic groups indicate that drug involvement within minority student groups is very high, particularly for Alaska Natives, American Indians, Hispanics, and students of mixed backgrounds, who are largely represented in the 'Other' category, a phenomena that is consistent with findings from other researchers (Gilbert, in press; Oetting & Beauvais. 1981, 1988; Segal, 1988).

When an evaluation was made of the relationship between ethnicity and lifetime experience with each of the different substances, including alcohol and tobacco products, the pattern which emerged showed that Hispanic and American Indian youth achieved prevalence levels which were disproportionately high with respect to their representation in the sample. Alaska Natives also showed high prevalence rates for use of chewing/smokeless tobacco and for having tried marijuana.

The above findings have important implications. One is that there is a clear need to begin to understand the broad array of social and cultural interactions with regard to drug use within different cultural groups. While the behavioral and social norms regarding the use of a given drug may closely resemble each other in different ethnic groups, each cultural group may nevertheless ascribe different meanings, values and attitudes to drug use (Westermeyer, 1987). 'In societies (such as Alaska, with its ethnic

diversity), where ideal and behavioral norms differ with regard to the use of a particular drug, there is likely to be a widespread use of that drug, with all its associated problems' (Westermeyer, 1987, p. 21). Ethnographic studies can help to begin to provide critical information on how cultural attitudes, values, and behaviors interact with regard to drug-taking behavior within different ethnic groups.

A second important implication is that concentrated efforts needs to be directed at developing education and prevention programs that account for ethnic diversity and are responsive to the needs of a multi-cultural society. Prevention programs are usually concerned with changing attitudes about substance use (Simons, Conger, & Whitbeck, 1988). Such change, however, is largely successful among those youngsters who are most susceptible to such influences but do not impact youth who are most at risk for drug involvement (Oetting, Edwards, & Beauvais, in press). If prevention efforts can be formulated to address the cultural factors within an ethnic group that place youngsters at high risk for drug involvement, then these effort may be influential. For example, Oetting et al. (in press), indicate that

> Drug involvement (among American Indian youth) is . . . primarily a function of peer clusters; dyads and small groups of close friends who mutually encourage drug use and who use drugs together. Underlying problems, such as poor family conditions and school adjustment difficulties, tend to increase the chances than an Indian child will make friends with other youth who also have problems, and the resulting peer clusters have a higher chance of getting involved with drugs. (p. 29)

Prevention efforts thus have to be focused on changing those factors in the environment that contribute to and reinforce drug-taking behavior, rather than investing only on attempting to change attitudes about using drugs.

The problem that Oetting et al. (in press) describe pertains to all ethnic or cultural groups. The task is to identify and counter act the specific forces

or influences within each ethnic group that are related to or influence drug-taking behavior. Such programs may need to start early in a child's development to be effective.

(3) To obtain data pertaining to patterns of drug-taking behavior, including alcoholic beverages and tobacco products.

A number of important findings relevant to patterns of drug-taking behavior have emerged from this follow-up study. These are outlined below.

(a) Overall Pattern of Use

There are both encouraging and discouraging findings from the present survey. The encouraging results are that despite the fact that the opportunity to try all illicit substances except depressants was reported to have increased, the number of students actually trying a different substance when they had a chance to try it has decreased for all but marijuana and hallucinogens. Additionally, the lifetime prevalence has also decreased for all substances except marijuana, inhalants, and hallucinogens.

The discouraging results are that Alaska's lifetime prevalence for adolescents contrasts with national findings that reported a "downward trend in the use of any illicit drugs" (original emphasis) (Johnston et al., 1987, p. 15). Despite Alaska's decline in the use of some illicit drugs, Alaska's prevalence levels, except for lifetime experience with alcohol and depressants among high school seniors, exceeded those reported in national surveys. Moreover, Alaska's lifetime prevalence levels generally exceed or matched results from California or Oregon for comparably matched students. All three states, however, were higher than the results reported from the National Household Sample for 12-17 year-olds. (see Figure 4-49). The fact that all three states were higher leads to the conclusion that the national study seems to have underestimated prevalence levels, but there is no ready explanation for why this occurred.

With respect to regional differences, there are both common and unique prevalence levels within and across regions, but increases were

noted for alcohol, marijuana, inhalants and hallucinogens across all districts.

(b) Marijuana

The prevalence rate for marijuana increased by (3.6%) in 1988, and was significantly different from the 1983 prevalencve level. Marijuana is the illicit substance tried by most students, and the one used most frequently. It appears that marijuana use can no longer be considered a lifestage phenomenon, that is, an event that may be experienced by some youth at a time during adolescence because it is the 'thing to do.' The frequency with which marijuana was used within the current sample suggests that it is not an experimental event for many students, but that it seems to have become well incorporated into the life-style of many adolescents. Life-style is defined herein as a general term that implies that a drug (or drugs) has become important to the individual. Newcomb and Bentler (1988b) have also noted that drug-taking behavior within their study group has evolved into the life-style of teenagers. This pattern of use is in very sharp contrast with reports of a nationwide decline of marijuana among youth (Bachman et al., 1988).

The extensive use of marijuana by a large number of adolescents in the state is a cause for concern because of the increasing research indicating that marijuana may have adverse effects on physical health, particularly for developing adolescents.

One of the issues involved in the use of marijuana is whether or not its effects are subject to tolerance and physical dependence. The answer to this is an issue that remains open to interpretation. Some researchers strongly contend that tolerance develops, and that the onset is quite rapid (Nahas, 1979). Others indicate that 'tolerance and withdrawal symptoms with marijuana do not develop' (Cohen, 1981). Blum (1984) states, 'Carefully conducted studies with known doses of marijuana or THC leave little question that tolerance develops with prolonged use' (p. 495). He goes on to note that:

> The novice has a moderate degree of tolerance. With increasing

> exposure, tolerance appears to decrease, so that the occasional user has a low degree of tolerance and can smoke less to get the desired results. With increasingly heavy use, it rises again so a high degree of tolerance is developed and the user can smoke ten or more joints daily and get only mildly high. Withdrawal of the drug, especially in the chronic user, may evoke a psychic response in that the individual feels the need for the drug and will seek it or some substitute. The anxiety, restlessness, insomnia, and other nonspecific symptoms of withdrawal are similar to those experienced by compulsive cigarette smokers. (p. 495)

The issue of whether one can develop tolerance to marijuana has not been completely resolved and studies continue. What is currently believed is that under conditions of heavy, sustained use, tolerance is manifested, but there is uncertainty about whether tolerance develops under conditions of low use.

There is also controversy over whether marijuana causes physical damage to the body, especially with long-term or chronic use. The research evidence suggests that some claims are substantiated, while others are in need of more research. There is general agreement, however, that marijuana intoxication interferes with overall mental functioning, driving, psychomotor functioning, and learning. "The effect on learning is pertinent, since much marijuana use occurs during school hours. The psychomotor deficits can last up to 4 to 10 hours after smoking, well beyond the duration of the 'high'" (Cohen, 1985, p. 62).

Another substantiated effect is on the respiratory system. Marijuana tars contain 50 percent more carcinogens than high-tar tobacco cigarettes, with 70 percent more benzopyrne in marijuana than in tobacco smoke (WHO, 1981). Using marijuana thus increases the risk of bronchial problems, such as sore throats, coughing, and susceptibility to bronchitis and pneumonia. The marijuana smoker is also subject to the risk of lung cancer and other disorders to which cigarette smokers are exposed, but the risk is higher because the smoke inhaled is unfiltered and has five to ten times the cancer-causing agents found in cigarettes. This risk is moderated,

however, because marijuana smokers, in contrast to cigarette smokers, do not tend to chain smoke marijuana. Marijuana and tobacco users, however, run a risk of lung cancer that is higher for use of either substance alone.

Other adverse physical effects that have been attributed to the use of marijuana are specific damage to the endocrine, immune, and reproductive systems; organic brain damage; and chromosome abnormalities. Research also suggests that marijuana may adversely impact the reproductive system of both males and females (Blum, 1984; Nahas, 1979). Frequent use of marijuana has been linked to a decrease in levels of serum testosterone, but it appears that the testosterone level may return to normal after smoking stops. There have been no reports, however, of abnormal offspring associated with marijuana use by the father (Blum, 1984). In females the use of marijuana is believed to affect the menstrual cycle, interfering with ovulation and lowering the period of fertility (Blum, 1984). In addition, since THC passes through the placental barrier, the possibility of damage to the developing fetus is always at risk. Marijuana use during pregnancy should be avoided. Moreover, if marijuana does adversely affect hormones related to sexual development as some believe (Nahas, 1979), its use may be especially harmful during adolescence, a period of rapid physical and sexual development.

Research investigating whether marijuana causes chromosome abnormalities, endocrine disorders, and organic brain damage is being conducted, but results thus far have been inconclusive. There has also been a question of whether marijuana adversely impacts the immunity system, but research results have been contradictory (Cohen, 1985) and the question has not been resolved.

It should be noted that any unsubstantiated claim that marijuana (or other drugs) causes physical damage (e.g., chromosome damage, impairment of the immunological system) may be counterproductive because such claims make marijuana users (and users of other drugs) skeptical about any negative statements about drugs, even if such reports

are accurate and supported by preliminary research findings.

One effect that has been reported to be associated with chronic marijuana use is the 'amotivational syndrome.' The phrase was used by McGlothlin and West (1968) and Smith (1968) to describe a condition associated with regular marijuana use by youth in which the individual adopts an attitude and behavior that are asocial, nondirectional, and a 'cop-out' on established values. The amotivational syndrome is characterized by apathy, a loss of effectiveness, a diminished capacity to carry out complex, long-term plans, an inability to endure frustration and to concentrate for long periods, and an inability to follow routines or to master new material successfully.

There has been considerable controversy over whether the amotivational syndrome exists, and the debate continues. Cohen (1981) best summarized the issues concerning the amotivational syndrome as follows:

> What must be remembered is that large amounts of cannabis have a depressant effect upon the central nervous system, and equivalent amounts of alcohol or sedatives also would produce a decreased desire to work, poor performance, and a blunted emotional response. One difference is that THC is retained in the brain . . . for long periods because of its aqueous insolubility.
>
> Some young people do become sedated from considerable cannabis consumption. Others may become amotivated from discouragement about their situation, and marijuana ingestion simply reinforces their dropout from active participation in life. (pp. 37-38)

In light of the potential health risks associated with marijuana use for adolescents, the problem becomes one of developing an appropriate strategy to reduce and to prevent its use.

The question arises as to what factors may contribute to this high level of marijuana use in Alaska? Research (summarized in Bachman et al., 1988)

has found that marijuana use is high when cigarette smoking, alcohol, and other illicit drugs are present. This is certainly the case in Alaska, but is this circumstance sufficient to account for the high prevalence level? Clearly not! Thus other factors have to be considered, one of which may be that Alaskan youth, despite the information provided about the adverse consequences of using marijuana, provide social support for using marijuana. Peer group support is a very powerful reinforcer for drug-taking behavior, and its importance cannot be overstated. A subsequent section of this discussion will focus on peer group support, and will discuss other factors contributing toward use or nonuse of mood-altering substances.

(c) Cocaine

A pleasant finding was that cocaine use had declined, and that use of crack, a strong variant of cocaine, was low, but cocaine's overall prevalence level was high when compared to the findings from other research. The difference in prevalence levels between 1983 and 1988 were statistically significant. Initiation into cocaine, however, tended to be later than for other substances, but among those who tried it, a small number tended to use it with some degree of regularity.

(d) Stimulants

A decrease in stimulant use was observed, a finding complementing that reported for the nation. The chief substances in this drug category are most probably amphetamines, a strong, euphoria-producing substance. The differences between 1983 and 1988 were statisticallly sugnificant.

(e) Hallucinogens

A statistically significant increase in hallucinogens was noted in 1988, with LSD most probably being the main hallucinogenic substance being tried. Anecdotal reports have indicated that it is currently available in the state and is regaining popularity after a period of some decline. Psychoactive mushrooms may also be available.

(f) Heroin

The prevalence level for heroin has been consistently low since 1983, and is generally consistent with reportes from other research.

(g) Depressants

Depressants, largely in the form of barbiturates, has experienced a decline since 1983, a trend that is consistent with reports from other surveys. The difference between the 1983 and 1988 prelevance levels was statistically significant.

(h) Tranquilizers

Use of substances such as Valium or Librium, classified as tranquilizers, and used without a prescription, declined in 1988, and the current prevalence was found to be statistically different from the 1983 level, a trend which is consistent with findings from other research.

(i) Inhalants

Of all the illicit chemical substances, inhalants have shown the largest increase, which was significantly different from the 1983 level. This increase is consistent with a small increase reported across the nation by Johnston et al. (1987). Inhalants have tended to be the substance of choice among very young users, largely because they are cheap, readily available, and induce an intense altered state of consciousness, perhaps emulating the perceived experience of the substances the naive user cannot readily obtain. Additionally, older adolescents may resort to using inhalants when other substances are unavailable. Beauvais and Oetting (1987) noted that inhalant use, at every age, "marks a very high level of drug involvement for that group and suggests potentially serious adjustment difficulties. Some of these difficulties include disruptive family relationships, poor school and job adjustment, serious emotional problems, and higher levels of deviance than other drug users" (p. 781). The statistics regarding inhalants should be of particular concern because most, if not all inhalant substances, are highly toxic and can cause irreversible brain damage or death.

(j) Alcohol

Consistent with the findings from different studies of drinking among youth across the nation, experience with alcohol in Alaska is ubiquitous among adolescents. It would also seem that drinking during adolescent years no longer represents a lifestage phenomenon, but has become an

adolescent life-style phenomenon. To a large extent the drinking among adolescents could be considered to model the drinking behavior of the adult population. Given that our society is persistently bombarded by advertising that espouses drinking, there is increasing concern that this advertising, while perhaps not specifically targeted at adolescents, may nevertheless be influencing adolescents to drink (Orlandi, Lieberman, & Royce, In press). Indeed, Atkin, Neuendorf, and McDermott (1983) have stated that "mass media advertising for alcohol plays a significant role in shaping young people's attitudes and behaviors regarding excessive or hazardous drinking" (p. 324). In contrast to Atkin et al.'s conclusion, Smart (1988), based on a review of the effects of advertising on alcohol consumption, indicates that the affects of advertising on drinking behavior are very small compared to other variables, such as availability and pricing. It seems clear that more needs to be known about the relationship between alcohol consumption, particularly among youth, and advertising, pricing, and availability. Additionally, further research is needed to understand the nature of the relationship between adult drinking patterns in the community and adolescent drinking patterns.

(k) Tobacco

The prevalence of cigarette smoking and use of smokeless or chewing tobacco is alarmingly high in Alaska. Given the current attention to the harmful effects of smoking, it would be expected that adolescents would avoid tobacco products. To some extent, the unusually high use of smokeless or chewing tobacco might reflect an awareness among adolescents of the health risks of smoking and their turning to chewing or smokeless tobacco as a more desirable alternative. The harmful effects of chewing or smokeless tobacco, however, have been well substantiated (Health Consequences, 1986). The use of tobacco products, as with alcohol, is also tied to commercial messages about smoking, with a particular emphasis on smokeless tobacco (McCarthy et al., 1986). It is therefore critical that further efforts be made to understand the role and function of smoking and use of chewing/smokeless tobacco among Alaska's youth, and to formulate strategies to reduce adolescent's use of tobacco products.

(4) To obtain information about some of the consequences of drug use.

One of the reasons for the intense concern over teenage drug use is the belief that it can have catastrophic consequences for the user, their families, and the community. Recent research, however, (Newcomb and Bentier 1988a, 1988b) suggested that 'it' is difficult to prove, in a causal sense, that teenage drug use created specific problems for young adults (Newcomb & Bentler, 1988a, p. 64). Short-term consequences of acute substance use were noted, however, but varied with types of drugs used and dosage levels. The current research did not explore the ramifications of drug-taking behavior in a substantive manner. Rather, only basic information was obtained on the consequences of drug use to derive some preliminary understanding of the effects of drug-taking behavior. A special cause for concern observed in the current finding was the observation that student's reported drinking and driving. Evans (1987), following a comprehensive review of young drivers involved in automobile crashes, concluded that irresponsible driving has become a social norm among youth which is tied to the way alcohol is portrayed to young drivers, particularly males. It is apparent that effective action needs to be taken to reduce drinking and driving among youthful drinkers, but must of the commonly proposed countermeasures, such as increasing the driver licensing age, and increasing the drinking age, have not been totally effective (Evans, 1987). Recent research (cf., Lewis, 1988) has suggested that a single. program directed at all youth may be less effective than developing programs that are carefully targeted according to age, subcultural group, and other characteristics of the recipients. Further research needs to be focused on understanding the impact on youth of the way in which driving is portrayed in comedy movies and television shows aimed specifically at young people. For example, how do young drivers respond to scene after scene in which they witness unbelted heroes or heroine have a major accident, jump out of the vehicle, unharmed and undaunted, to continue the chase by other means (Evans, 1987). Answers to this question may help to develop methods to establish safer social norms, devoid of alcohol, for adolescent drivers.

One of the major questions resulting from this study is: Why do

adolescents use drugs and alcohol? Although the present research did not focus on this question, an attempt to provide some answer is possible, derived from findings in the research literature. Segal (1985-86), based on findings from the 1983 study of Alaskan teenagers, reported three basic motives for drug use among adolescents which were consistent with other findings (Anglin, Thompson, & Fisher, 1986, Segal, 1983a; Segal, Huba, & Singer, 1980). The motives were identified as follows.

(1) Tension reduction or coping, which involves seeking the euphoric effects of drugs or alcohol to alter consciousness in order to reduce or cope with stress, tension, or unpleasant or unwanted emotions.

(2) Drug effect, which involves using drugs or alcohol to obtain an altered state of consciousness primarily to experience the drug's effect(s).

(3) Peer-related, which involves using drugs chiefly in a social context, largely at the urging of friends, to enhance good times with friends (i.e., as a social lubricant).

Each of the above motives has implications for patterns of drug use. For example, students who use drugs primarily to reduce tension are at risk to progress from experimentation with drugs to abuse of drugs, and to use a variety of drugs to satisfy their needs. Students who mostly experiment with drugs may limit their behavior to trying one or more substances a few times, but some of these students may be at risk to seek different and more intense experiences, which may potentially lead to drug-related problems. Other students who try drugs as a function of peer pressure, and who initiate their drug use largely for social-recreational purposes, also share a potential for broadening their drug-taking behaviors and placing themselves at risk for drug-related problems.

It should be noted that while each of these reasons for trying drugs may in and of itself serve as a primary motive to initiate drug-taking behavior, it is more likely that they interact, with each exerting a stronger influence at different times during an adolescent's development, and also varying in conjunction with the social context in which adolescents find themselves. It

is thus likely that an interactive process is at work, reflecting a combination of several factors, each contributing a stronger effect at different times during an adolescent's personal and social development.

Johnston and O'Malley (1986) have reported very similar findings. They concluded that increased levels of drug use among adolescents was a "both self-reflection of the more psychologically 'needy,' as well as the result of heavier users learning from their experience about the ends that can be achieved with a given drug" (p. 64). Johnston and O'Malley, as Segal (1985-86) before them, also noted that "One conclusion seems clear . . . many of the more frequent users . . . are using . . . substances for psychological coping - that is, to deal with negative affect, boredom, . . . and to gain more energy" (p. 64). Binion et al. (1988), also reported that the most commonly-endorsed rationale for use of drugs involved the appeal of altered and pleasant sensations produced by the drugs, social facilitation, and the relief of negative affective states.

The above findings are helpful in forming an understanding of some of the psychological factors involved in drug-taking behavior. These factors, which have shown themselves to be highly replicable across independent samples, can be used to characterize subgroups of adolescent substance users based on their pattern of reasons for use. One could then proceed to develop different intervention and prevention strategies to address these different groups. For example, students identified as primarily social-recreational users (peer-related) might have a totally different characterization from those who are chiefly using drugs for self-medication (coping) or other self-enhancement motives, and both groups may differ from teenagers who try a drug just for experimentation (drug-effect) and then refrain from any further user. In those cases where the coping motive prevails, intervention and prevention efforts need to be directed at changing attitudes that link the reduction of stress with altering one's state of consciousness. In the case where drug-taking behavior is largely tied to peer pressure, efforts to help adolescents overcome the negative influences of peers seems worthwhile. This effort should be maximized at the time adolescents are at a high risk for initiation into drug-taking behavior than at a time which is

more distant to initiation into drugs.

When motives for drug use center around the drug experience itself, efforts may need to be directed to introducing alternative behaviors that would facilitate the achievement of 'natural highs.' This objective, however, has to be connected to a program that directs adolescent value systems away from attitudes held by many in our society who have come to accept drug-taking behavior as part of a life-style emphasizing the social and recreational use of drugs as a means of obtaining new and different experiences.

Helping adolescents to overcome the influences that peers exert with respect to drug-taking behavior is another important task that needs to be advanced to help combat drug use among adolescents. Efforts have to be directed at understanding how or why some adolescents are more susceptible to social pressures than others, and to learn how to use this information to effectively intervene in the process of initiation into drug-taking behavior.

Related to the problem of adolescent drug use is the question of identifying what factors distinguishes nonusers from users (Anglin, Thompson, & Fisher, 1986, Segal, 1988), and what specific characteristics differentiate those adolescents who only experiment with drugs from those who become frequent users. Part of the answers involves the extent to which each of the motives described above exerts its influence singly, or in combination, with the others.

An important predisposition to the formation of these motives, however, is the environmental background that contributes to adolescents' attitudes and behaviors toward drugs and their use. It is almost without question that family use, and the child's involvement in the process of use by family members of alcohol and other drugs, is one of the most important influences related to the beliefs and values adolescents form about alcohol and other drugs. The contemporary emphasis on children of alcoholics within our country attests to the importance of understanding the relationship between heavy drinking by parents and the extremely

detrimental impact it has on children within the family. Along with drinking, an extremely strong relationship between teenage drug use and drug use by family members has also been demonstrated (Anglin, Thompson, & Fisher, 1986; Fisher, et al., 1987; Gfroerer, 1987; Kumpfer, 1987).

It also needs to be noted that there are other important predisposing factors that contribute to adolescent drug-taking behavior that are intimately tied to the family. These consist of stressful life events encountered by youth early in life that interfere with successful adjustment during adolescence and adulthood. These events have been found to contribute to the need by some teenagers to use drugs to self-medicate a reduction in their level of stress. Youth at high risk for substance abuse have been found to have been either physically abused, sexually assaulted, or psychologically maltreated (Black, Bucky, & Wilder-Padilla, 1986; Dembo, et al, 1988; Farber, 1987; Kroll et al., 1985; Sandberg, 1986). Such youngsters, regardless of whether they are male or female, tend to show evidence of depression, suicide, psychotic thinking, and aggressive behavior at some point in their life, and alcohol and drug use may reach an extreme in their attempt to cope with their disorganized state.

The above discussion does not pertain to all adolescents who have experienced alcohol or other mood-altering substances, but it may help explain why some initiate drug-taking behavior earlier than others, use more illicit drugs or drink alcohol more frequently, and encounter greater difficulty resulting from their drug-taking behavior.

It also needs to be noted that not only parents, but peers can also have a strong influence on adolescent drug-taking behavior, the degree of influence for each varying at different ages and stages of development. Kandel (1986) has pointed out that peer influences predominate on current life-style influences, while parental influences are especially strong with respect to basic values and future life goals and aspirations.

A recent report by Oetting and Beauvais (1987) may help to provide a perspective on peer influence on drug-taking behavior that is particularly relevant to Alaska. Their concept of 'peer cluster theory' contends that

"peer clusters shape and determine the attitudes, values, and beliefs about drugs . . . and, to a great extent, determine the actual drug-taking behaviors - what drugs are used and when, where, and how they are used" (p. 206). A peer group is defined as a group with which a youth is associated. A peer cluster is a very small subset of peers that closely share attitudes, values, and beliefs. Given the geographical isolation of Alaskan communities, especially those accessible only by air, peer cluster theory becomes an interesting concept that can help to explain why Alaska's prevalence levels are so high.

In the context of the theory, peer clusters are likely to use the same drugs, use them for the same reasons and use them together. Given the geographical isolation within Alaska, it seems that young people with similar attitudes toward drugs would seek each other's company and would thus tend to reinforce each other's drug-taking behavior. Oetting and Beauvais (1987) have found a significantly strong relationship between a youth's drug use and his or her association with peers who encourage drug use.

Another important aspect involved in attempting to develop an understanding of adolescent drug-taking behavior is the issue of whether such behavior is deviant. There is one point of view that has generally viewed any form of drug-taking behavior by youth as bad or deviant (Donovan & Jessor, 1985; Jessor & Jessor, 1977; Kandel, 1975b; Kandel et al., 1978; Kaplan et al., 1982; Osgood, 1985; Smith & Fogg, 1978, 1980). A contrasting view has been advanced by other researchers who interpret experimental or limited social or recreational use of drugs as not necessarily deviant. Rather, such behavior is perceived as more of a function of behavioral styles that interrelates with interpersonal and sociocultural factors. In this context those who are more likely to try drugs show higher levels of rebelliousness, autonomy strivings, liberalism, and a willingness to try new experiences, when compared to their nonusing counterparts (Segal, 1988).

The characteristic of rebelliousness does not include defiance or alienation as part of its definition. Rather, rebelliousness represents a

breaking away from conformity and an indifference to social consciousness or to presenting oneself in a favorable light. There is a flouting of or contempt for rules and regulations, which may, in large part, seek its expression in drug-taking behavior.

Autonomy strivings represent an attempt to break away from constraints or restrictions, such as parental and societal controls. There is an enjoyment of being unattached, free, and without any obligations. This need for autonomy and rebelliousness are highly interrelated; if autonomy strivings are experienced as being frustrated, then rebelliousness may intensify and encompass defiance and an overt contempt for conformity.

Liberalism represents an openness to new ideas and knowledge, together with policies that allow freedom for individuals to act or express themselves as they choose. Use of drugs is interpreted as a right of personal choice rather than as deviant behavior.

The desire for new experiences characterizes those who might experiment with drugs, or use them with some degree of regularity, as part of a tendency to seek out new and different exciting or stimulating experiences; the psychoactive properties of drugs readily provide such stimulation (Segal, 1988; Thompson, et al., 1985).

It should be noted that the characteristics described are very general, and apply to those involved in nonproblem, limited recreational or experimental drug-taking behavior. These personality characteristics, when grouped together, are attributes that tend to reflect a general life-style that seems to prevail among many of those who try or use drugs. Involved in this life-style is a tendency to seek out new experiences and a willingness to try high-risk activities, including taking drugs. It does not appear that there is any implication that 'deviance' accounts for the strong relationship between what may be called 'sensation seeking' and drug-taking behavior (c.f., Bates et al., 1986; Margot, 1986; Segal, 1988; Zuckerman, 1983). Rather, it appears that initiation into drug-taking behavior, particularly for youth, may be best understood as a means of fulfilling a need to undergo new experiences, even if it involves

unconventional behavior. Such behavior, it should to be noted, is far removed from the traditional problems of narcotic dependence and other forms of drug-related problems. With pervasive use of drugs, however, the probability of associated 'deviance' increases greatly; that is, using drugs may begin to serve needs other than just seeking stimulation as part of one's life-style.

In terms of what all the above means for prevention of drug-taking behavior, it is apparent that any attack on adolescent drug use cannot focus on the drug alone. Any prevention effort must include dealing with problems resulting from family disruptions, personal problems, and peer influences, as well as reducing the availability of drugs. Effective prevention may be achieved only by dealing with the various factors that promote drug-taking behavior. Only a comprehensive educational program that takes into account most of the factors that affect the target population may prove to be effective. School-based prevention programs that focus on a single factor may be beneficial for some adolescents and destructive for others (Kirschenbaum, 1983). Contemporary prevention efforts need to begin to focus on health promotion and health protection as a primary way of preventing drug use. One of the ways in which prevention efforts can more successful is to help students sever the perceptual link between drug use and coping behavior and drug use and mood change, and to foster new behaviors that provide more desirable and more rewarding alternatives than using drugs. The major task that lies ahead is to formulate strategies or procedures that will help to break this perceptual link.

An important issue which is of considerable concern in Alaska is what is the relationship between Alaska's decriminalization of marijuana and its apparent high prevalence in the state? There is no easy answer to this question. Any attempt to assess the impact of decriminalization is fraught with difficulty. It is hard to determine the consequences of the legal change. For example, if marijuana use has increased, is this increase a function of greater recognition of the problem because of a greater emphasis on law enforcement, or a function of increased use because of less severe penalties? Depending on one's views, several contrasting

conclusions can be made about decriminalization: (1) decriminalization has had little or no effect on patterns and extent of marijuana use, (2) that marijuana use has significantly increased following decriminalization, or (3) that the social problem caused by marijuana abuse, at least as reflected in law enforcement costs, has decreased following legal change.

There is also the very real possibility that it is not the legal change per se that is most significant, but rather a whole set of other factors that may interact with decriminalization to contribute to the level of drug use in the state. Changes in patterns of law enforcement, drug availability, age of users, and self-perceived benefits or risks, all combine to form a complex interaction which may have no effect or very direct consequences on the prevalence of marijuana use.

Another concern of the research is the validity of the self-reports of the students. The validity of self-reports is always questioned, particularly when the self-reports concern a sensitive topic such as drug use. Although every effort has been made to obtain reliable and valid results (see Chapter 3), it is not known to what extent students who reported having tried a drug actually experienced the substance, that is, whether they used the real drug as opposed to a look-a-like or a substitute substance. The important fact, however, is that the students apparently believed that they took the substance, and reported its use. The extent to which students who used a drug and did not report its use (false negative) is not known. Nor is it possible to determine the number of students who did not use a drug but who indicated that they did use it (false positives).

The data, however, are remarkably consistent across districts, and generally consistent with the 1983 findings, suggesting that reliable and valid results have been obtained. With the proliferation of survey research over the past 15 years, concern over the accuracy of self-reports by adolescents has shown that such reports tend to be valid (Campanelli, Dielman, & Shope, 1987).

In conclusion, it is important to note that the recent history of attempts to deal with the problem of drug abuse through strong legislation aimed at

punishing the user and penalizing distributors has not worked in the United States. Such efforts have resulted in a preoccupation with punishment, which has not resulted in an overall reduction of drug use. It has been shown that punitive approaches place an unfair and sometimes overwhelming burden on the justice system, leading to an unrealistic expectation that law enforcement agencies will eliminate the problem. Energy needs to be invested instead towards focusing on youth and on the circumstances that contribute to their use of drugs.

What is needed is an integrated approach that brings together representatives from the legal, social, and health professions, educators, legislators, and governmental authorities to pool their resources, experience, and knowledge to develop a rationale and comprehensive public policy aimed at reducing the problem of drug and alcohol abuse in the state. Accomplishing this objective, however, requires that an investment of funds be made to support the implementation of public policy procedures directed at reducing alcohol and drug abuse.

While the Department of Health and Social Service's Office of Alcoholism and Drug Abuse provided financial support, the recommendations and conclusions of this paper represent the opinions of the author and not necessarily those of the department.

Glossary

This section is provided to acquaint the reader with precise definitions of the terms and concepts used in the report. Included in this glossary are definitions of substances and frequently used terms, as well as information on reading tables and graphs, as well as information on the statistical terms. Phrases are listed in alphabetical order.

Adult	Defined as persons 19 years and older.
Adolescent	Used in this report to define the sample population - students in grades 7 - 12 regardless of age.
Alcohol	Any beverage that contains ethyl alcohol (ethanol), the intoxicating sedative-hypnotic in fermented and distilled liquors. For purposes of this research, beer, wine, and distilled beverages have been classified under the single category of alcohol.
Amphetamines	A general name given to a class of drugs that act with a pronounced effect to stimulate the central nervous system. See Stimulants.
Barbiturates	A synthetic sedative-hypnotic substance that sedates the central nervous system. See Depressants.
Cocaine	A short-acting behavioral stimulant, refined from the coca plant, used in the form of a white crystalline powder, usually through snorting, taken to induce a rush which involves a feeling of intense euphoria and a sense of well-being.
Confidence Interval	The range of values within which a population value is estimated to lie.
Confidence Level	The estimated probability that a population value lies within a given confidence interval. The confidence level used in this research is $p = .05$, which means that 95 out of 100 times a given statistic lies between the lower and upper limits of the confidence interval.
Current Use	Used a drug during the past 30 days.
Depressants	Any drug that depresses the central nervous system resulting in sedation and a decrease in bodily activity. At mild doses they induce a state of euphoria similar to alcohol intoxication.
Drug	In a purely biological, scientific sense, any substance, natural or artificial, that by its chemical nature alters structure or functioning in the living organism. For purposes of this research, a drug is defines as any

chemical substance that alters mood, perception, or consciousness. Alcohol, cigarettes, and chewing/ smokeless tobacco are classified as drugs.

Ever Used	See Lifetime Prevalence
Frequency of use	The absolute number of times a drug is taken either in general or for a specific time period.
Hallucinogens	A major classification of natural and synthetic drugs whose primary effect is to distort the senses; they can induce visual, auditory, and other hallucinatory experiences, or a feeling of separation from reality. LSD, PCP, mescaline, peyote, and psilocybin are classified as hallucinogens.
Heroin	A semisynthetic opiate produced by a chemical modification of morphine, taken to induce a subjective experience characterized by an extremely pleasant, euphoric state, feelings of warmth, well-being, peacefullness and contentment.
Inhalants	A major classification of depressant drugs incorporating an aggregate of diverse chemicals - solvents, aerosols, and anesthetics - that are usually sniffed and whose effects are short-lived. Inhalants are taken to induce a intense euphoric state.
Lifetime Prevalence	Have ever experienced a drug one or more times during one's life.
Marijuana	A mixture of the crushed leaves, flowers, and small twigs obtained from the hemp plant. Usually smoked to induce a feeling of well-being, mild euphoria, relaxation, tranquility, and a heightened state of awareness.
Nonuse	Never having tried a drug.
Past Month	Use of a drug during the past 30 days prior to responding to the questionnaire.
Past Year	Use of a drug during the year prior to responding to the questionnaire.
Percent/ Percentage	A given part or amount in every hundred, e.g., 20% means 20 out of every 100 cases. Percents are reported to the nearest tenth for the data in this study.
Prevalence	The number of cases existing in a population at a given time.
Stimulant	A major classification of drugs that stimulate the central nervous system and excite functional activity in the body producing an elevation of mood (euphoria), a state of

wakefulness, increased mental activity, energy, alertness and tension, and suppressing appetite.

<u>Tranquilizers</u> — A general term for a varied and complex class of drugs that act to depress the central nervous system, relieving anxiety and tension. The tranquilizers of interest for this study are those generally prescribed as sedatives to reduce anxiety and tension. Some of these drugs, such euphoria or other pleasant effects, and are thus sometimes used nonmedically.

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APPENDICIES

Appendix 1

Student Survey

Anchorage
Barrow
Bethel
Cordova
Fairbanks
Juneau
Kotzebue

The Center for Alcohol and Addiction Studies

University of Alaska, Anchorage

Confidential Student Questionnaire

Dear Student:

The purpose of this study is to help us to understand better your feelings and experiences with respect to alcohol and other drugs. About 3,000 students across Alaska will take part in this study. Your answers will be kept absolutely confidential. There is no way to identify any student who responds. We do not ask your name - do not write it anywhere on the questionnaire. Your participation is voluntary. We need your help, and hope that you will contribute to the success of this study.

Thank you for your cooperation.

Directions

This is not a test and you are not timed on any section or group of questions. Please read carefully all the directions for each question. It is important that you follow the order of questions within each section. If you do not understand or cannot read a question raise your hand and someone will assist you.

When you have finished the questionnaire put it in the envelope that has been provided by the monitor. No one at the school will see or read your answers. The envelope will be sealed after the last questionnaire is completed. All the envelopes will be immediately taken to the University to be coded and entered into the computer. All questionnaires will be destroyed after the computer file has been set up.

Part 1. Background Information

1. I am

 ___Female
 ___Male

2. My ethnic background is? (Please check the correct one.)

 ___Alaska Native ___Hispanic
 ___American Indian ___White
 ___Asian or Pacific Islander ___Other: Which________________
 ___Black

3. How old were you as of your last birthday?________

4. What grade are you in? (Please check the correct one.)

 ___6th ___7th ___8th ___9th ___10th ___11th ___12th

5. Have you ever taken part in an alcohol or drug education/prevention program in one of your classes?

 ___No (Go to #7)
 ___Yes (continue)

6. At which grade did you take part? (Check all that apply)

 ___5th grade or below ___9th grade
 ___6th grade ___10th grade
 ___7th grade ___11th grade
 ___8th grade ___12th grade

7. What grades do you usually get? (Check the one that applies to you for each column.)

<u>During this school year</u>	<u>During the year before</u>
___Mostly A's	___Mostly A's
___Mostly A's and B's	___Mostly A's and B's
___Mostly B's	___Mostly B's
___Mostly B's and C's	___Mostly B's and C's
___Mostly C's	___Mostly C's
___Mostly C's and D's	___Mostly C's and D's
___Mostly D's and F's	___Mostly D's and F's

8. How many years have you lived in this community?________

Part 2. This set of questions asks about your experiences with recreational drugs used to get high or to feel good.

<u>Section 1. Marijuana</u>

Marijuana, which is sometimes called "grass," "pot," "weed," "smoke," "bud," "Mary Jane," or "joint," is a substance that is usually smoked.

9. Have you ever had a chance to try marijuana? ___No ___Yes

10. Have you ever tried marijuana?

 ___No (Go to Section 2)
 ___Yes (Continue)

11. How old were you when you first tried it?________

12. Have you <u>ever</u> been high or stoned on marijuana to the point where you were pretty sure that you had experienced its effect?

 ___I never got high ___Have gotten high more than once
 ___Have gotten high once ___I get high almost every time I use it

13. How many different times have you used marijuana?

	No times	1-2 times	3-5 times	6-9 times	10-19 times	20-39 times	40+ times
In your lifetime	__	__	__	__	__	__	__
During the last 12 months	__	__	__	__	__	__	__
During the last 30 days	__	__	__	__	__	__	__

Section 2. Cocaine.

Cocaine, which is called "coke," "toot," "blow," or "snow," or other names, is a white powdery substance that is usually sniffed or smoked.

14. Have you ever had a chance to try cocaine? ___No ___Yes

15. Have you ever tried cocaine?
   ___No (Go to Section 3)
   ___Yes (Continue)

16. How did you use it? (Check all the apply to you.)
   ___I have sniffed it
   ___I have smoked it
   ___I have injected it (shot it up)
   ___I have used it in freebase form

17. How old were you when you first tried it?______

18. Have you ever been high on cocaine to the point where you were pretty sure that you had experienced its effect?
   ___I never got high
   ___Have gotten high once
   ___Have gotten high more than once
   ___I get high almost every time I use it

19. How many different times have you used cocaine?

	No times	1-2 times	3-5 times	6-9 times	10-19 times	20-39 times	40+ times
In your lifetime	__	__	__	__	__	__	__
During the last 12 months	__	__	__	__	__	__	__
During the last 30 days	__	__	__	__	__	__	__

Section 3. Crack

Another type of cocaine is called "crack." This form of cocaine looks like a piece of rock or soap, and is smoked.

20. Have you ever had a chance to try crack? ___No ___Yes

21. Have you ever tried crack?
   ___No (Go to Section 4)
   ___Yes (Continue)

22. How old were you when you first tried it?______

23. Have you ever been high on crack to the point where you were pretty sure that you had experienced its effect?
   ___I never got high
   ___Have gotten high once
   ___Have gotten high more than one
   ___I got high almost every time I use it

24. How many different times have you used crack?

	No times	1-2 times	3-5 times	6-9 times	10-19 times	20-39 times	40+ times
In your lifetime	—	—	—	—	—	—	—
During the last 12 months	—	—	—	—	—	—	—
During the last 30 days	—	—	—	—	—	—	—

Section 4. Stimulants ("Uppers")

Stimulants or amphetamine drugs, known as "uppers," "speed," "crystal," "bennies," "dexies," "pep pills," "crosstabs," "crossroads," and "crisscross," among other names, are used to make one feel more alert, energetic, or to obtain a high. They are usually taken in pill form.

25. Have you ever had a chance to try stimulants? ___No ___Yes

26. Have you ever tried stimulants?
___No (Go to Section 5)
___Yes (Continue)

27. How old were you when you first tried any?________

28. Have you ever been high on a stimulant to the point where you were pretty sure that you had experienced its effect?
___I never got high ___Have gotten high more than once
___Have gotten high once ___I get high almost every time I use it

29. How many different times have you used stimulants?

	No times	1-2 times	3-5 times	6-9 times	10-19 times	20-39 times	40+ times
In your lifetime	—	—	—	—	—	—	—
During the last 12 months	—	—	—	—	—	—	—
During the last 30 days	—	—	—	—	—	—	—

Section 5. Hallucinogens

Hallucinogens, which are also called psychedelics, consist of such substances as LSD ("Acid"), Mescaline, and PCP, among other substances. Some of the slang names for hallucinogens are "mushrooms," "ecstasy," or "angel dust," "window pane," and "blotter acid." These substances are used to experience hallucinations, or to alter how things are seen, change one's mood, feelings, or level of awareness.

30. Have you ever had a chance to try hallucinogens? ___No ___Yes

31. Have you ever tried hallucinogens?
___No (Go to Section 6)
___Yes (Continue)

32. How old were you when you first tried any?________

33. Have you ever been high on an hallucinogen to the point where you were pretty sure that you had experienced its effect?
___I never got high ___Have gotten high more than once
___Have gotten high once ___I get high almost every time I use it

34. How many different times have you used hallucinogens?

	No times	1-2 times	3-5 times	6-9 times	10-19 times	20-39 times	40+ times
In your lifetime	—	—	—	—	—	—	—
During the last 12 months	—	—	—	—	—	—	—
During the last 30 days	—	—	—	—	—	—	—

Section 6. Depressants ("Downers")

Depressant or "downer" type drugs, known as barbiturates, one of which is called Quaalude, are chemical substances used to calm oneself down or to get a high, much like using alcohol. Such drugs are usually taken in pill form, and are called "barbs," "blues" or "blue devils," "yellow jackets," "purple hearts," "soapers," or "ludes."

35. Have you ever had a chance to try depressants? ___No ___Yes

36. Have you ever tried depressants?
 ___No (Go to Section 7)
 ___Yes (Continue)

37. How old were you when you first tried any?______

38. Have you ever been high on a depressant to the point where you were pretty sure that you had experienced its effect?
 ___I never got high
 ___Have gotten high once
 ___Have gotten high more than once
 ___I get high almost every time I use it

39. How many different times have you used depressants?

	No times	1-2 times	3-5 times	6-9 times	10-19 times	20-39 times	40+ times
In your lifetime	—	—	—	—	—	—	—
During the last 12 months	—	—	—	—	—	—	—
During the last 30 days	—	—	—	—	—	—	—

Section 7. Heroin

Heroin, which is sometimes called "H," "horse," "junk," "Mexican brown," or "smack," can be a white or brownish powdery substance that can be injected (shot up), sniffed, or smoked.

40. Have you ever had a chance to try heroin? ___No ___Yes

41. Have you ever tried heroin?
 ___No (Go to Section 8)
 ___Yes (Continue)

42. How old were you when you first tried it?______

43. Have you ever been high on heroin to the point where you were pretty sure that you had experienced its effect?
 ___I never got high
 ___Have gotten high once
 ___Have gotten high more than once
 ___I get high almost every time I use it

44. How many different times have you used heroin?

	No times	1-2 times	3-5 times	6-9 times	10-19 times	20-39 times	40+ times
In your lifetime	—	—	—	—	—	—	—
During the last 12 months	—	—	—	—	—	—	—
During the last 30 days	—	—	—	—	—	—	—

Section 8. Inhalants

Inhalants are chemical substances, such as gasoline, kerosene, aerosol sprays, paint, glue, and other chemicals, or drugs such as nitrous oxide or amyl nitrate, that are sniffed or inhaled to induce a high.

45. Have you ever had a chance to try inhalants? ___No ___Yes

46. Have you ever tried any inhalants?
 ___No (Go to Section 9)
 ___Yes (Continue)

47. How old were you when you first tried any?______

48. Have you ever been high on an inhalant to the point where you were pretty sure that you had experienced its effect?

___Not sure I ever got high ___Have gotten high more than once
___Have gotten high once ___I get high almost every time I use it

49. How many different times have you used inhalants?

	No times	1-2 times	3-5 times	6-9 times	10-19 times	20-39 times	40+ times
In your lifetime	__	__	__	__	__	__	__
During the last 12 months	__	__	__	__	__	__	__
During the last 30 days	__	__	__	__	__	__	__

Section 9. Tranquilizers

Tranquilizers are substances used to calm oneself, to relax or to get high. One such drug is Valium.

50. Have you ever had a chance to try tranquilizers? ___No ___Yes

51. Have you ever tried any tranquilizers?

___No (Go to Part 3)
___Yes (Continue)

52. How old were you when you first tried any?______

53. Have you ever been high on a tranquilizer to the point where you were pretty sure that you had experienced its effect?

___I never got high ___Have gotten high more than once
___Have gotten high once ___I get high almost every time I use it

54. How many different times have you used tranquilizers?

	No times	1-2 times	3-5 times	6-9 times	10-19 times	20-39 times	40+ times
In your lifetime	__	__	__	__	__	__	__
During the last 12 months	__	__	__	__	__	__	__
During the last 30 days	__	__	__	__	__	__	__

Part 3.

If you have never tried a drug answer #54. If you have tried a drug, skip to #55.

54. If you have never tried a drug, was it because of any of the following?
(Check the column that best applies to you for each item.)

	Very True of me	Often True of me	Sometimes True for of me	Seldom True of me	Not True of me
Fear of damage to my mind	__	__	__	__	__
Moral reasons	__	__	__	__	__
Knowing friends who had a bad trip	__	__	__	__	__
Fear of having a bad experience	__	__	__	__	__
No opportunity to try a drug	__	__	__	__	__
Disappoint my parents	__	__	__	__	__
Pressure from friends	__	__	__	__	__
May cause addiction	__	__	__	__	__
It is illegal	__	__	__	__	__
Not important for me to try	__	__	__	__	__
Becuase of something I learned in school	__	__	__	__	__

(Skip to #56)