KENTUCKY DIVISION OF SUBSTANCE ABUSE
EVALUATION OF THE EARLY INTERVENTION PROGRAM

FINAL REPORT

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TABLE OF CONTENTS

Index of Tables

KENTUCKY DIVISION OF SUBSTANCE ABUSE
EARLY INTERVENTION PROGRAM EVALUATION

Executive Summary

The alcohol, tobacco, and other drug (ATOD) Early Intervention Program (EIP), funded through the Safe and Drug Free Schools and Communities Act, Title IV, is administered by the Kentucky Division of Substance Abuse. The program targets high-risk youth between the ages 13 and 18 who have had first or second time substance use related charges and who, after screening, are determined to be appropriate for an educational type intervention program aimed at substance use abstinence or reduction. The EIP is built on the assumption that an educational program emphasizing increased awareness of risk, along with beliefs and attitudes favorable to abstinence or reduced ATOD use, will impact subsequent behavior. In other words, imparting knowledge will affect attitudes and beliefs, which will affect behavior in the desired direction; this theory is known as the K-A-B model (Paglia & Room, 1999).

Although the Early Intervention Program is now open to referrals from various sources, e.g., community-based services and schools, this evaluation was conducted only with youth who were referred through the courts. Referrals came from both the informal system (the Court Designated Workers) and from judges through the formal system. Data was collected from the youth and a parent/guardian at the time of screening by the Early Intervention Specialist, with follow-up obtained after the completion of the diversion program during the period of November 1997 to February 2000. Over 3,000 youths and parents/guardians participated in the study.

Youths were asked about their drug use during the initial screening by the Early Intervention Specialist and again at the end of the diversion period (approximately six months later). The evaluation focuses on short-term changes in behavior, beliefs, and/or attitudes before and after the intervention. Other factors are explored that may protect a youth from problematic substance use or the increased risk of use. Also, changes noted by the parent/guardian are examined. A major goal of the program is to reduce the number of youth engaging in the use of substances. There were statistically significant reductions in use in all categories. After the diversion period, the proportion of youth who reported abstinence from use increased 21.0% for beer, 8.2% for wine, 20.7% for liquor, and 17.9% for marijuana.

The youth and parent surveys are built around the current literature on youth substance use, particularly research exploring risk and protective factors (Hawkins & Weis, 1985). Within the youth environment, some factors tend to protect against problematic substance use, e.g., effective family communication, positive school experiences, and rewarding involvement in conventional activities (Hawkins & Weis, 1985; Donovan & Jessor, 1985; Dewey, 1999). Youth were asked about their grades and extracurricular activities, attendance at church, synagogue, or temple, and volunteer experience (Scales & Leffert, 1999). Study youth who reported getting good grades and being involved in conventional activities were significantly less likely to use most of the substances assessed both at the beginning and after the completion of the program. Conversely, increased reports of getting into trouble at school are significantly related to increased reports of use of all substances assessed. At the end of the six-month study, more youth reported being involved in extracurricular/community activities.

Several risk factors have been identified that correlate with substance use, such as biological risk and family history of substance abuse. Children who grow up in families with a positive history of parental alcohol or other drug abuse are twice as likely to drink and four times more likely to use illicit drugs as children from families without a history of alcohol or other drug abuse (Chassin, Rogosch, & Barrera, 1991). In this study, youth from families that indicated alcohol and/or other drug problems reported greater use of cigarettes, beer, liquor, and marijuana than those families reporting no substance abuse issues.

Reports about adolescent ATOD use indicates that clear expectations and messages about alcohol and other drugs influences youth attitudes and subsequent use of drugs (Hawkins & Weis, 1985; Hawkins, Catalano, & Miller, 1992; Steinberg, 1991). In an effort to ascertain if parental expectations are recognized by study youth, questions to parents about their expectations were compared to youths' perceptions of what their parents would think of certain behavior. Discrepancies between what parents say what their expectations are and what youth think they would say can be seen as an indicator of the clarity of the messages given and received. An analysis of the data revealed that youth reflecting a wide "gap" regarding parental expectations were no more likely to be involved with ATOD use than those with a close understanding of parents' expectations.

Although unclear expectations did not seem to correlate with increased use, youths and their parents/guardians reported improved communication about ATOD use at the end of their diversion period. Initially, 78% of the youth said they talked with their parents about drug and alcohol use but, after participating in the program, 43% said that they talk even more to their parents. Forty-five percent of the youth said it was easier to talk to their parents after being in the program and 55% of the parents reported improved family relationships. In addition, a majority of parents (53.6%) reported that their ability to communicate with their child about ATOD use had increased. Approximately 62% indicated that their child's communication with them had increased as well.

A known risk factor for youth and their use is the availability of drugs. Over half the youth (63.5%) felt that it was "Very easy" to get cigarettes. The second easiest drug to get is marijuana, with 37.9% indicating it is "Very easy" and an additional 20.7% reporting "Fairly easy." Beer is not as easy to get, with only 27.3% reporting "Very easy."

Research shows that if a youth's peers use substances the youth is more likely to use substances as well (Bucholz, 1990). Pre- and post- measures of perception of peer use of alcohol reflected a statistically significant drop in the number of perceived friends that drink ($p=.001$). Statistically significant differences also show up in the number of friends who youth reported as smoking marijuana (fewer post-diversion). The differences can be attributable to a change in friends, i.e., 49.6% of the study youth reported associating with different friends after the diversion period.

The K-A-B model suggests that attitudes and beliefs about ATOD use may influence drug-taking behaviors. There were some statistically significant changes in the attitudes and beliefs of study youth in approving of never smoking cigarettes and not drinking at any age. More noticeably were statistically significant changes in disapproving of getting high on pot, disapproving of smoking an occasional joint, and approving of never trying marijuana.

The changes in attitudes and beliefs mirrored statistically significant changes in behavior. Tobacco use was less when comparing the six months prior to EIP with the six months of the diversion period (p=.000). The same was true for alcohol (beer, wine/coolers, and liquor). Even more dramatic were the changes in marijuana use. Using the same comparison of six months prior to EIP and the past six months reported at the time of the follow-up, those not using rose from 46% to 68% and those who reported using, used less.

The evaluation is concerned with the intervention process and is not an evaluation of a particular curriculum. Thus, youth were asked to what degree the various events made an impression, e.g., encounters with police and judicial personnel, family consequences, and ATOD program components. Youth ranked the reaction of family as first, whereas parents thought family consequences would affect their youth less (third). This may indicate that parents sometimes do not realize how important their responses are to their youth regarding ATOD use.

Seventy-three percent of the parents found the handouts from the classes useful for family discussion. Overall, they reported positive changes in their child's behavior after the program, i.e., 52.5% reported decreased signs of drug/alcohol use, a 22.2% decrease in physical fights, a 28.5% decrease in time spent alone, and a 26.1% increase in extracurricular/community activities.

In summary, the findings documented in this report indicate that there have been several changes in behavior, attitude, and troubling behavior among the court-diverted youth. The participants reported reduced use of cigarettes, alcohol, and/or marijuana after the diversion period. Over half have made new friends and the study youth perceive these friends as using alcohol and marijuana less than what was reported at the beginning of the intervention. Relationships with parents/guardians have improved according to both youth and their parents/guardians. The importance of family is noted, and the diversion process and educational program appear to be effective tools for change for youth who have limited experience with alcohol and other drugs.

Introduction

Background

There is a growing awareness that the interaction of a complex combination of characteristics produces problematic rates of adolescent alcohol and drug use rather than simply a few factors operating in relative isolation (Orenstein & Ullman, 1996; Szapocznik & Coatsworth, 1996). Thus, nationwide prevention and early intervention efforts have adopted a more comprehensive approach that identifies and addresses family, school, and mental health issues around drug use in collaborative community forums. The emphasis in prevention programming is to circumvent the problems related to substance abuse by intervening before significant problems—costly to both adolescent and society—arise.

In Kentucky, one response to address the alcohol and drug use of our adolescents was to provide the ATOD Early Intervention Program as a diversion option to the courts for youth who had been cited for an alcohol or drug-related offense. This report is an evaluation of the impact of the intervention program, comparing data collected at the time of the initial screening for the program and at the end of the diversion period.

Description of the Early Intervention Program

The ATOD Early Intervention Program is funded through the Safe and Drug Free Schools and Communities Act, Title IV, and is administered by the Kentucky Division of Substance Abuse and delivered through the regional prevention centers. The goals of the program are to reduce the number of youth who engage in high risk drinking, reduce the number of youth using marijuana, reduce the recidivism rate of youth who have experienced an alcohol or drug-related charge, and to positively impact the following factors: (a) clear communication by parents of family rules against alcohol and drug use to their youth; (b) clear messages of social disapproval or getting drunk or using marijuana; (c) perception and understanding of the dangers of getting drunk or using marijuana; and (d) beliefs and attitudes consistent with abstinence and low-risk choices. The program targets youth between the ages 13 and 18 who have had first or second time substance abuse charges. Referrals come from both the informal system (the Court Designated Workers) and from judges through the formal system. The objective of the program is to intervene early in the alcohol/drug use behavior of participants in order to decrease the risk of developing life-impairing alcohol, tobacco, and other drug problems.

The program consists mainly of two components. The first is the parent/youth Impact Intervention Education Program. This session is approximately three hours in length and is aimed at engaging the parents/guardians in accepting the seriousness of their child's alcohol or drug charge and the intricate part they play in the decisions their youth make with regard to substance use choices. This session draws the parent's attention to the reality of youth substance use and perceptions of use, the importance of parent communication with regard to expectations around substance use for their youth, and the need for value based consequences for infractions of household rules with regard to substance use.

Paper and pencil screening instruments are administered to youth and parents to ascertain the youth's current level of involvement with substances at this initial "Impact" session. Based on the results of the screening instruments, the youth are then referred for an intensive Lifestyle Risk Reduction Education Program conducted by the Early Intervention Specialist, or referred for an ATOD assessment for treatment needs in the community. Youth represented in this

evaluation attend the impact class and the intensive Lifestyle Risk Reduction therapeutic education program used in this project (Prevention Research Institute's PRIME for Life Under Twenty-One curriculum).

The education program offered in the diversion program uses research-based information and persuasive communication processes to increase youths' perception of the risks associated with substance use and to convince youth that alcohol/drug problems, including addiction, can happen to them. Also, the program attempts to teach youth to realize that the choices they make, in combination with their biological make-up, can determine whether or not they develop problems associated with substance use. The program strives to enhance the youths' beliefs and attitudes that are consistent with abstinence and other low-risk choices, to guide the youth in doing a self-assessment of their level of progression towards chemical dependency, and to help them develop a plan for following through with age-appropriate low-risk choices.

Conceptualization and Evaluation Issues

The Early Intervention Program is built on the assumption that knowledge and understanding of the risks associated with drug use will guide youth toward beliefs and attitudes favorable to abstinence or reduced ATOD use, which will impact subsequent behavior. In other words, imparting knowledge will affect attitudes and beliefs, which will affect behavior in the desired direction. This is referred to as the K-A-B model (Paglia & Room, 1999). Based on this model, the evaluation of the program compares youth use and beliefs and attitudes before and after the educational intervention. In addition, other factors are explored that may protect a youth from problematic substance use or the increased risk of use.

The youth and parent surveys are built around the current literature on youth substance use, particularly research exploring risk and protective factors (Hawkins & Weis, 1985). Research has demonstrated that multiple risks cluster with substance use among youth, including accidents and homicides, delinquency, sexually transmitted diseases, and development of self-identity and social competence (Peterson et al., 1994; Newcomb & Bentler in Lawson & Lawson, 1992). Also, a strong predictor of problematic substance use is disrupted family management and communication processes (Peterson et al., 1994).

Within the youths' environment, other factors tend to protect against problematic substance use, e.g., effective family communication, positive school experiences, and rewarding involvement in conventional activities (Hawkins & Weis, 1985). The youth and parent survey questions were developed within this framework under the assumption that early intervention and increased awareness of the problems associated with drug use would interrupt the progression to more use or delay the onset of use.

Risk factors. Several risk factors have been identified that correlate with substance use. One is environmental influence such as biological family history of substance abuse. Research indicates that parental alcoholism increases probability of problem drinking and chemical dependency in children (Denton & Kampfe, 1994). Parents/guardians were asked about the presence of alcohol problems in the youths' biological family.

A second risk factor is the accessibility of drugs. From 83% to 90% of high school seniors participating in a recent national survey believe marijuana is "Fairly easy" to "Very easy" to get. Alcohol availability as reported by 10^{th}-graders is 88% and for 12^{th}-graders, 95% (NIH, 2001). The easier it is to obtain the substances, the higher the risk that some youth will engage in use of

these substances. The baseline survey includes questions on how accessible or how easy is it for the youth to obtain alcohol, tobacco, and other drugs.

A third important factor related to substance use by adolescents is the influence of peers. Adolescent drinking has been found to co-vary with perceived peer approval of alcohol use (Kline & Canter, 1994). Association with drug-using peers is among the strongest predictors of adolescent substance use (Shilts, 1991). The baseline and follow-up surveys include questions on the youths' knowledge of the number of their friends using ATOD as well as their friends' reaction to their involvement in the incident that led them to being referred to the program.

Protective factors. Equally important in examining the complex issue of substance use among youth are areas that enhance a youth's bond to conventional behavior. The school is seen as an important socializing institution that influences adolescent behavior. Positive reinforcing experiences in school correlate with low drug involvement (Hawkins & Weis, 1986). Also, in a 1991 study of early adolescent use, non-users reported significantly higher involvement in extracurricular activities compared to user/abuser groups (Shilts, 1991). Youth were asked about their grades and extracurricular activities. In addition to school attendance, involvement and avoidance of activities and attendance at church, synagogue, or temple appear to correlate with the absence or presence of drug use (Scales & Leffert, 1999). Questions about volunteer experiences and involvement in religious institutions were included in the surveys.

Youth who abuse drugs typically describe their communications with parents as closed and unclear (Rees & Wilborn, 1983; Cannon, 1976; Gantman, 1978; Denton & Kampfe, 1994). Jurich, Polson, Jurich, & Bates (1985) found that adolescent drug abusers report more of a communication gap between themselves and their parents than nonusers. In addition, parental attitudes and norms regarding ATOD use have been found to influence adolescent substance use problems. The current literature also supports the value of parental communication of their beliefs and expectations regarding ATOD use. Some studies suggest that "permissive" parental attitudes exert a stronger influence than does actual parental alcohol use behavior (Andrews et al., 1993; Ary et al., in press; Barnes & Welte, 1986; McDermott, 1984).

Both the baseline and follow-up surveys include questions on parental attitudes and norms regarding adolescent substance use. In addition, survey questions ask youth what their parents would think about certain issues. A comparison of the youths' responses with those of the parents was used as an indicator of communication clarity. Further, both youth and parents were asked questions about changes in communication after the youth completed the intervention.

The K-A-B model suggests that attitudes and beliefs about ATOD use may influence drug-taking behaviors. The curriculum offered through the EIP emphasizes increasing youths' awareness of the risks associated with drug-taking and to enhance youths' beliefs and attitudes that are consistent with abstinence and other low-risk choices. Questions are included in the baseline and follow-up surveys to determine both youth and parental attitudes about ATOD use. These questions focus on tolerance and perceptions of harmfulness and addiction risk.

The anticipated outcome of the EIP is that through the awareness of risks and persuasion toward healthy choices, participating youth will alter their drug use patterns. Nationally, the use of ATOD continues to alarm. The 2000 Monitoring the Future Survey of Secondary School Students (NIH, 2001) reports that in the 1990s the annual prevalence of marijuana use more than doubled among 10^{th}-graders and grew by nearly three-quarters among 12^{th}-graders—from 22% in 1992 to 39% in 1997. Nearly one in seventeen 12^{th}-graders (6%) is now a current daily

marijuana user. Seventy-one percent of 10th-graders and 80% of 12th-graders have used alcohol and, further, 30% of 12th-graders report occasional binge drinking. The National Household Survey of Drug Abuse (SAMHSA, 2001) reports that Kentucky has the highest youth cigarette use (23.5%) and the highest use of any tobacco for youths (27.7%). Youth use of substances continues to be a major issue for the nation.

Questions on the initial survey focus on age of first use as well as the amount and frequency of their use over the past 30 days, past six months, and past year. In the follow-up survey, the same questions are repeated but only asked for the past 30 days and six-month use. Youth attitudes and beliefs about ATOD use were explored along with information about peers.

The evaluation is concerned with the intervention process and is not an evaluation of a particular curriculum. Thus, included in the evaluation is the relative impact on youth of events surrounding the ATOD incident. Questions were asked of youth to ascertain the degree to which various events made an impression, including encounters with police and judicial personnel, family consequences, and ATOD program components. Additionally, parents/guardians were asked about changes they noticed since their youngster completed the educational program, and also, what they thought most impacted their child in the intervention process.

Methodology

Design and Data Collection

The evaluation uses a basic pre- and post-test design. The baseline data are collected by means of a questionnaire administered at the initiation of the early intervention program and follow-up surveys are conducted at the end of the six-month diversion period. Separate surveys are constructed for the adolescents and for their parents/guardians at each stage of the data collection. For a limited number of program participants and their parents/guardians, some information was obtained 18 months after the initial baseline data were collected. Because of the limited number of respondents at the 18-month point, these data were not included in the overall analysis of the program.

There are limitations to a pre- and post-test design; because of the statewide availability of the EIP, however, control groups were not feasible. In addition, the limited response by participants one year after the completion of the program preclude a longitudinal design. The strength of the evaluation design lies in the fact that youth and parents/guardians are paired and examined at two points in time, enabling us to track changes over a six month period of time in knowledge, attitudes, and behavior.

The data collection began in November 1997 with the initial impact class and ran through February 2000, including a total of 2,296 youth and their parents/guardians. At the end of the diversion period (approximately six months after the baseline), youth and their parents/guardians completed a follow-up questionnaire.

The information presented so far has been based on the 2,296 participants for whom we have reasonably complete data on items such as age, grade, gender and other demographic questions. In reporting the distribution of participants according to those categories, it makes sense to indicate those for whom we do not have information on a given question. For example, 23 adolescents did not indicate their age, while 258 did not report their grade. Such "missing data" is a common occurrence in any research.

When analyses are run examining associations among a number of variables, such as among the reports of various activities like getting into trouble at school and the reports of use of various substances, those who did not indicate a response for a given question become more problematic. Associations cannot be calculated when there is no value for one of the measures, so those who did not respond to a particular question must be ignored for all analyses that involve that question. It is possible, however, to use their responses to other questions used for analyses that involve those other questions. When analyses exclude just those who failed to respond to one of the questions in a given pair of variables, but use their responses to other questions, it is called excluding missing data in "pairwise" fashion.

Such pairwise exclusion of cases has the benefit of maintaining the largest number of cases for every analysis. It has the problem, however, of giving results that are based to some degree on different sets of participants for each analysis. If 10 participants are excluded from the first analysis, 10 others are excluded from the second, and a different 20 others are excluded from the third, then the three analyses represent relationships that summarize slightly different groups. To report analyses that are based on a single, consistent group of participants, anyone who failed to respond to any of the questions is ignored for the entire set of analyses. This is referred to as "listwise" exclusion of missing data. It has the benefit of reporting analyses that refer to the exact same group of adolescents. It has the problem, however, of reducing the number of participants considered, sometimes substantially.

A combination of listwise and pairwise exclusion of data was used in this report. In keeping with general research practices, listwise exclusions were used when reporting the findings for a given area. For example, when the changes in use of substances before and after the intervention are reported, only the 391 youth who answered all the questions about use of substances during the past six months both at baseline and at the end of the diversion were considered. In addition, since youth are matched with parent survey responses, youth must have answered all questions, plus we must have complete data from parents for both baseline and the end of the diversion period. This practice results in a single consistent group for reports of change for all substances and allows direct comparison between them. For example, one can see that there was a greater increase in the number of those reporting no use of beer in the past six months (82) than those reporting no use of wine in the past six months (32).

For many analyses, pairwise exclusion of data was used; therefore, different groups of analyses were based on different groups of adolescents—larger groups where available, and smaller groups where necessary. This combination allows for consistency within general areas such as changes in reports of attitudes about substances while allowing for the largest number of youth possible for each analysis. This resulted in the following numbers considered for the various analyses, ranked from largest to smallest numbers. (See Table 1 below).

Table 1: Number of Responses	
Basic information like age	2,296
Youth's reports of peer use of substances	2,217
Parental perceptions of risk	2,162
Report of family history	2,075
Parental attitudes: baseline	2,074
Youth's reports of ease of getting substances	2,020
Relation of parental attitudes and youth substance use: baseline	1,975
Report of family history and use of substances	1,596

Table continues...

Table 1 continued. Number of Responses	
Parents' reports of communication	1,042
Parental perceptions of changes in youth	1,008
Changes in parental attitudes	551
Parents' and adolescents' reports on changes in friendships	402
Change in reports of use of substances	391
Changes in youth's reports of own and peer's use of substances	390
Changes in attitudes and reports of substance use	390
Parents' reports of friends and youths' reports of substance use	374
Changes in parental attitudes and youth substance use	336
Perception of importance of elements of program	114
Changes in attitudes and reports of substance use: 18 month follow-up	68

For many of the analyses, data from over half of the youth participating in the EIP are available. For analyses that examine youth substance use, however, only about 18% of the youth and their parents sufficiently completed survey information, limiting the representativeness of the data for the EIP population. The value of the analyses of this data, however, lies in the matching of pre- and post-data of youth with parents/guardians' responses, enabling us to examine changes over time for a sizeable population.

Statistical analysis. In reporting these results, several methods and statistics were used. In a number of cases such as youth's age, simple summaries of the number of youth in a given category is reported (e.g., 76 were 13 years of age), along with the corresponding percentage that number is of the total group (in this case, 3.3%). These numbers, also referred to as frequencies, describe the specific characteristics of the participants in this program.

In addition, several kinds of comparisons are used. In some cases, as with the analyses of changes in the reports of the use of substances, the proportions of all categories of use such as "None," "1-5 times," "6-10 times," "11-19 times," and "20 or more times" are compared. These proportions are presented in tables. These comparisons are also summarized by the use of a correlation coefficient. Correlation coefficients summarize an overall relationship between measures. A positive correlation indicates that as one measure increases, the other measures tend to increase. A negative correlation indicates that as one measure increases, the other measures tend to decrease.

Two types of correlation coefficients are used. Many of the measures used in this program are called ordinal measures because the responses can be ordered from least to most, but the differences between levels are not the same. For example, the categories of use of substances noted in the previous paragraph can clearly be ordered with "None" as the least and "20 or more times" as the most. As the group of "20 or more times" could include 20 times or as many as 100 times, however, the increase from "11-19 times" to "20 or more times" cannot be meaningfully compared to the increase from "None" to "1-5 times" and so on. Because of the nature of these measures, tendencies are summarized using Kendall's tau-b, a correlation coefficient that is used for ordinal data.

In some cases, the measures used are called interval measures because the intervals between categories are the same. Grade in school is an interval measure, as grades 8, 9, 10, and 11 are all separated from the ones adjacent to them by a difference of one grade. Pearson correlation coefficients are used with interval data. Pearson correlations are used when appropriate because they offer additional options not available with Kendall's tau-b. For example, partial correlations can be calculated with Pearson coefficients. Partial correlations indicate the

association between two measures when the values for a third measure are controlled. For example, if older participants tended to have more friends who used substances, and all participants with more friends who used substances tended to have stronger attitudes in favor of substance use, controlling for numbers of friends who use substances would indicate whether or not there was also a tendency for older participants to have stronger attitudes in favor of substance use even when the number of friends was held constant. Pearson correlation coefficients are reported when the measures examined are interval measures. Partial Pearson correlation coefficients are also used when controlling for a third variable yields important insights into the relationships among measures. As there is no way to calculate a partial Kendall's tau-b, the partial Pearson correlation gives an approximate way to control for a third variable in such cases.

In many cases, the multiple categories used for correlation coefficients can be simplified into two pairs of two categories each. For example, changes in use of substance can be collapsed from the many categories noted above into proportions reporting "None" and "Some" use of the substance at the beginning of the program and then at the follow-up. In such cases, odds ratios indicate a relationship that has an intuitive meaning not matched with correlation coefficients. For example, suppose equal numbers of adolescents used "None" and "Some" of a substance at the baseline assessment. Suppose also that twice as many used "None" as "Some" at the end of the diversion. The odds are thus twice as good at the end of the diversion as at the beginning that an adolescent would use "None" of the substance, and so the odds ratio would be 2.00. If the proportions had changed from even to three times as many who used "None" as "Some" at the end of the diversion, the odds ratio would be 3.00. Odds ratios are presented where they summarize changes in such direct ways.

For most of the analyses, probability values are reported, which are ways of taking chance variations into account. Particularly when considering comparisons, there typically will be some difference between groups even when there is no meaningful change occurring. For example, it actually would be unlikely that the exact number of adolescents would report they used "None" of a substance at the baseline and at the six-month follow-up, even if the overall pattern of use had not substantially changed. Whether a few simply happened not to use the substance that particular time or just happened to be more careless in reporting their use, some small differences commonly occur even when there is no significant difference. Probability values are statistical ways of indicating how likely it is that the given results, such as the correlation coefficient or the odds ratio, happened simply by such chance differences. By tradition, if findings would have occurred by chance fewer than five times out of 100 even if there were no significant difference, researchers assume the results indicate a reliable finding. These probabilities are reported in the form "$p=0.03$" or "$p<0.0005$". All values less than 0.05 indicate that the results are considered statistically significant, or not having occurred by chance, and thus show a significant difference.

Findings

Study Population Profile

The description of the population in the study includes all youth who were admitted to the EIP between November 1997 and November 2000. The EIP sites included Ashland, Bardstown, Elizabethtown, Lexington/Fayette, Louisville/Jefferson, and the six surrounding counties in the Mountain Region, Northern Kentucky, and Owensboro. The sites included urban, suburban, and rural areas of the state.

There is a substantial range of ages and grades represented among those in this study. As seen in Table 2 below, the majority is 16 or 17 years of age (68%). This finding can be explained by driving laws, i.e., having access to a car may increase the likelihood that a youth may be in situations where alcohol and other drugs may be present.

Table 2: Age

Age	Number	Percentage Reported	Cumulative Percentage
13	76	3.3	3.3
14	177	7.8	11.0
15	363	15.9	26.8
16	641	28.1	54.7
17	910	39.9	94.4
18	106	4.6	99.0
Other or Not Reported	23		
Total	2,296	100.0	100.0

Table 3 shows the grade level and enrollment status of the study population at the time of the first Impact class. The vast majority of the study youth are in high school (84.9%), mainly 11th and 12th grade. Only 8.6% are pre-high school. This is in keeping with the ages noted above and probably reflects a population with less parental supervision than those in lower grades. Eighty-five percent are currently enrolled in school.

Table 3: Grade in School

Grade	Number	Percentage Reported	Cumulative Percent
6	7	.3	.3
7	41	2.0	2.1
8	129	6.3	7.7
9	311	15.3	21.3
10	382	18.7	37.9
11	590	28.9	63.3
12	448	22.0	83.1
Other	130	6.4	88.8
Not Reported	258		
Total	2,296	100.0	100.0
Enrollment Status			
Enrolled	1,954	85.1	
Not Enrolled	277	12.1	
Not Reported	65	2.7	
Total	2,296	100.0	

Table 4 shows the gender of the study population; there were nearly three times as many males as females.

Table 4: Gender

Gender	Number	Percentage
Female	589	25.7
Male	1,690	73.6
Not Reported	17	.7
Total	2,296	100.0

The ratio of females and males, 1 to 3, is expected since more males than females are picked up by the police for offenses. Professional opinion suggests that the disproportionate number of males reflects the societal tendency to treat young men and women differently, i.e., police are

more apt to cite the young men and release the young women to their parents. Further, young males tend to have more opportunity to be out and found in settings where alcohol and other drugs are available than young females. More males than females tend to have access to cars and permission to be out at night with less parental monitoring. These tendencies would be in addition to any increased likelihood that males, compared with females, would be engaged in problematic behavior and using substances.

Table 5 shows the ethnicity of the study population. The ethnic distribution does not reflect the broader society. In Kentucky, approximately 90.1% of the population is White, 7.3% of the population Black or African American, 1.5% Hispanic, and 1.1% Other (which includes Asian). The larger number of African Americans in the study group (10.8%) is probably a function of Louisville/Jefferson County having the largest number of youth in the study; 2000 census data for Jefferson County indicate an African American population of 18.9%.

Table 5: Ethnicity

Ethnicity	Number	Percentage
White	1,969	85.8
Black	247	10.8
Hispanic	14	.6
Asian	12	.5
Other	20	.9
Not Reported	34	1.5
Total	2,296	100.0

Youth referred to the court diversion program that appear to use drugs frequently or in excess are referred to assessment for possible treatment; the remaining youth are eligible to participate in the EIP. These youth are at risk by virtue of past behavior and are the indicated population for intensive prevention intervention. The Court Designated Workers referred 63.7% to the program and the courts referred 27.1%. Other referral sources were the Department for Community-Based Services, who referred 2.9% of the youth, 2.3% were referred by schools, and 3.9% were referred by unidentified sources. Also, it is important to remember that this study population of youth in a court diversion program does not represent the larger youth population. Individuals in the study group have been cited for offenses and are eligible for court diversion services.

Table 6 shows the various charges that brought study youth to the attention of authorities. Most of the youth in the study population have been charged with either possession of alcohol (26.9%) or possession of marijuana (37.9%).

Table 6: Official Charges for EIP Youth

Charges	Number	Percentage
Possession of Alcohol	240	26.9
Possession of Marijuana	338	37.9
Beyond Parental Control	48	5.4
Alcohol Intoxication	109	12.2
Public Intoxication	19	2.1
Other Drug Suspicion	9	1.0
Theft & AOD Suspicion	11	1.2
Growing Marijuana	1	.1

Table continues...

Table 6 continued. Official Charges for EIP Youth

Charges	Number	Percentage
Dealing Drugs	15	1.7
Possession of Drug Paraphernalia	23	2.6
Possession of Alcohol Paraphernalia	17	1.9
Driving Under Influence	1	.1
Possession of Controlled Substance	2	.2
Other	5	.6
Missing data	38	4.3

The third most frequent charge is alcohol intoxication (12.2%). Approximately 5% were cited as beyond parental control and an additional 1.2% with theft and alcohol and other drug suspicion. One percent was charged with suspicion of other drugs only and no youth was charged with use of inhalants. Two to three percent where charged with dealing drugs and possession of drug paraphernalia (1.7% and 2.6% respectively).

Youth ATOD Use

Although there were 2,296 participants for whom we have data on most measures at the beginning of the program, there were only 2,137 who answered all of the questions regarding substance use. In order to give a consistent picture, therefore, all of the results for this first question about level of use will be given for those same 2,137. Tables for each substance, documenting reports of use for the past 30 days, for the past six months, and for the past year are in Appendix A.

A number of things stand out from these data. First, not surprisingly, these adolescents report a high level of use of substances. Considering use over the past year, large majorities report at least one use of cigarettes (75.8%), beer (72.9%), marijuana (66.5%), and liquor (61.1%). Substantial numbers report similar levels of use of wine (38.9%). Much smaller proportions report use of more severe substances: depressants (8.1%), LSD (7.9%), other drugs (6.2%), stimulants (4.9%), cocaine (2.9%), and inhalants (2.8%). These youth report a higher use of cigarettes, marijuana, and alcohol but lower use of stimulants, cocaine, and inhalants than the general population of Kentucky youth (KIP Survey, 2001).

Second, although substantial numbers report use of substances in the past 30 days, in the case of all specific substances besides cigarettes, more than twice as many adolescents in this program reported at least one use in the past year compared with the past 30 days. In the case of LSD, more than five times as many (168, or 7.9%) reported use in the past year compared with use in the past 30 days (33, or 1.5%). Looking at the use of substances over a longer period of time gives a more complete picture both of initial use and of changes. That is, even before entering the program, a large proportion of these adolescents did not use many of these substances in the previous month. Many fewer stayed "clean" for the previous six months, however. Increasing the number of those who did not use given substances for the past six months is an especially important accomplishment to consider and to document. For the rest of this report, the use of substances for the past six months will be considered, except for occasional references to other time periods.

Evaluation of Intervention

Examining changes in patterns of use following the intervention yielded some clear findings. Comparing the patterns of use at the six-month follow-up to the patterns before the intervention, participants reported using significantly less beer, wine, liquor, and marijuana over the past six

months. The following tables show the differences, with specifics for every level of reported use. The p-values at the bottom of the table represent the probability that the differences between these patterns of use could have happened by chance, and thus indicate high levels of confidence that these numbers indicate real changes in behavior. The analysis is based on listwise exclusion of data, matching pre- and post- surveys of youth with pre- and post- surveys of their parents/guardians. Although this reduces the number of respondents to 391, we are examining the same group for each of the analyses that use substance use as one of the variables.

Table 7: Substance Use in the Last Six Months

Use of beer	**None**	**1-5 times**	**6-10 times**	**11-19 times**	**20 times or more**	**Total**
Before EIP	124	176	65	15	11	391
	31.7%	45.0%	16.6%	3.8%	2.8%	100%
Six months later	206	116	44	13	12	391
	52.7%	29.7%	11.3%	3.3%	3.1%	100%
Use of wine	**None**	**1-5 times**	**6-10 times**	**11-19 times**	**20 times or more**	**Total**
Before EIP	306	72	11	0	2	391
	78.3%	18.4%	2.8%	0.0%	0.5%	100%
Six months later	338	46	5	1	1	391
	86.5%	11.8%	1.3%	0.3%	0.3%	100%
Use of liquor	**None**	**1-5 times**	**6-10 times**	**11-19 times**	**20 times or more**	**Total**
Before EIP	196	155	33	3	4	391
	50.1%	39.6%	8.4%	0.8%	1.0%	100%
Six months later	277	94	12	4	4	391
	70.8%	24.0%	3.1%	1.0%	1.0%	100%
Use of marijuana	**None**	**1-5 times**	**6-10 times**	**11-19 times**	**20 times or more**	**Total**
Before EIP	190	127	39	13	22	391
	48.6%	32.5%	10.0%	3.3%	5.6%	100%
Six months later	260	90	18	3	20	391
	66.5%	23.0%	4.6%	0.8%	5.1%	100%

p=.003 for wine. p=<.0005 for beer, liquor, and marijuana.

Although these tables show the changes, what becomes apparent is that the most frequent users do not seem to have made dramatic changes. Four adolescents used liquor 20 or more times in the six months before the intervention, and four reported the same level of use after six months. The heavier use may be indicative of youth who might be appropriate for treatment referral, i.e., in need of more intense intervention than solely an educational program. Therefore, changes in behavior can be expected to be minimal for this group.

A clearer summary, however, can be seen when comparing adolescents' reports of use before and after the intervention simply on the basis of whether they report any use or no use. Table 8 on the next page shows these changes.

These changes can be described in at least two ways. First, the proportion of adolescents reporting any use of these substances decreased by 21.0% for beer, 8.2% for wine, 20.7% for liquor, and 17.9% for marijuana, while the proportions reporting no use of these substances increased by the same amount.

Table 8: Use of Substance, None vs. Some (Any)			
Use of beer	**None**	**Any**	**Total**
Before EIP	124 31.7%	267 68.3%	391 100%
Six months later	206 52.7%	185 47.3%	391 100%
Use of wine	**None**	**Any**	**Total**
Before EIP	306 78.3%	85 21.7%	391 100%
Six months later	338 86.5%	53 13.5%	391 100%
Use of liquor	**None**	**Any**	**Total**
Before EIP	196 50.1%	195 49.9%	391 100%
Six months later	277 70.8%	114 29.2%	391 100%
Use of marijuana	**None**	**Any**	**Total**
Before EIP	190 48.6%	201 51.4%	391 100%
Six months later	260 66.5%	131 33.5%	391 100%

Another way to express these changes uses a number called an odds ratio. For example, at the follow up, 206 of the participants reported no use of beer, while 185 reported using some. As 206 is 1.114 times as large as 185, the odds of a participant reporting no use at the follow-up is 1.114 times that of reporting some use. Before the intervention, however, 124 reported no use, while 267 reported some use. As 124 is .464 times as large as 267, the odds of a participant reporting no use before the intervention is .464 times that of reporting some use. Comparing those two odds figures by converting them into a single ratio, we see that 1.114 (the figure for the follow-up) is 2.40 times as large as .464 (the figure for before the intervention). We can therefore summarize the change by noting that adolescents are 2.40 times as likely to report no use of beer at the follow-up compared with before the intervention. The corresponding odds ratios for the other substances are: wine, 1.77; liquor, 2.42; and marijuana, 2.10. See the following table for these two summaries.

Table 9: Change in Substance Use Before EIP and Six Months Later

Substance	Change in percentage of population (Increased percentage using none)	Odds ratio (Increased odds of using none of the substance)
Beer	21.0%	2.40
Wine	8.2%	1.77
Liquor	20.7%	2.42
Marijuana	17.9%	2.10

n=391.

These significant changes were found when considering use for the past six months. This measure was used instead of the past 30 days because, in some programs, the youth had been cited more than 30 days before the initial screening. It was assumed that this might influence use decisions artificially. Use over the past year was not compared because, at the follow-up six months after the intervention, that period of one year would still have included six months before the intervention, which would not have been affected by being in the program.

First, participants reported significantly lower uses of beer, marijuana, and depressants when asked about use over the past six months. In addition, they reported substantially lower uses of liquor when asked about use over the past six months, although the low numbers of participants meant that this difference was not statistically significant. The tables detailing these differences are listed in Appendix B.

The increases in percentages of those who reported no use over the past six months were: beer, 16.0%; liquor, 14.7%; marijuana, 38.2%; and depressants, 5.5%. For the report of use of marijuana over the past 30 days, the increase was 11.4%. Alternatively, the odds ratios, which report the increase in the odds that a participant would report no use of a given substance at the end of the program compared to the beginning of the program were: beer, 1.95, liquor, 1.89, marijuana (at 30 days) 2.85, and marijuana (for six months), 5.99. (See the following table.)

Table 10: Changes in Substance Use and Odds Ratio for Using None of the Substances

Substance	Change in percentage of population (Increased percentage using none)	Odds ratio (Increased odds of using none of the substance)
Beer (6 months)	16.0%	1.95
Liquor (6 months)	14.7%	1.89
Marijuana (30 days)	11.4%	2.85
Marijuana (6 months)	38.2%	5.99

18 month follow-up

Data on use patterns for depressants, LSD, inhalants, and other drugs are found in Appendix A.

Risk and Protective Factors

Many studies have documented that one of the strongest predictors of ATOD use among adolescents is the high-risk behaviors and choices they make. Cigarette smoking among teenagers has increased by as much as 25% per year since 1992, when 19% of high school seniors reported smoking. Marijuana use has increased and alcohol use has shown a fairly consistent high rate of use among teenagers. The issues of vulnerability and resilience have stimulated interest in the identification of protective factors in the lives of young people—factors that, if present, reduce the risk of substance use.

Of these protective factors, the most fundamental are those which make up the social contexts of the young person's life—the family, school, and community contexts are among the most critical. The degree of family, school, and community connectedness represents a critical environmental factor in the lives of school youth. Clear expectations and messages from parents and other adults about ATOD issues influences youth attitudes and increases the protective factors which leads to a reduction in the risk of use of drugs. (Elias, Gager, & Leon, 1997; Resnick, Bearman, & Hall, 1997; Hawkins & Weis, 1985; Dewey, 1999.)

Youth interactions with school and family. Some of the things that have been found to be associated with low-risk substance use are school performance (good grades and not getting into trouble), involvement in various activities (such as after-school activities, attending church, synagogue, or temple, and doing volunteer work), and talking with parents about drugs. Table 11 on the following page shows the numbers and percentages of adolescents who reported the various levels of these items.

The initial use of substances follows some patterns. As noted previously, behavior at school, involvement in various activities, and talking with parents about the effects of using drugs have been found elsewhere to be associated with the use of substances.

Table 11: Youth Involvement in School and Extracurricular Activities

Question	Never	Seldom	Sometimes	Often	A lot	Not Reported
Do you make good grades in school?	50 2.2%	156 6.8%	820 35.7%	779 33.9%	426 18.6%	65 2.8%
Do you get into trouble at school?	512 22.3%	904 39.4%	566 24.7%	172 7.5%	81 3.5%	61 2.7%
Are you involved in after-school activities?	815 35.5%	435 18.9%	403 17.6%	252 11.0%	325 14.2%	66 2.9%
Do you attend church, synagogue, or temple?	671 29.2%	580 25.3%	454 19.8%	272 11.8%	270 11.8%	49 2.1%
Do you do volunteer work?	942 41.0%	603 26.3%	456 19.9%	153 6.7%	94 4.1%	48 2.1%
Do your parents talk with you about the effects of using alcohol or other drugs?	163 7.1%	268 11.7%	758 33.0%	655 28.5%	420 18.3%	32 1.4%

n=2,296.

For the 2,102 adolescents who answered all of the relevant questions, the following associations were found.

Increased reports of getting into trouble at school are significantly related to increased reports of use of all substances assessed. Increased reports of involvement in after-school activities are significantly related to decreased reports of use of all substances except beer. Increased reports of volunteer work are significantly related to decreased reports of use of all substances except wine. Increased reports of attending church, synagogue, or temple are significantly related to decreased reports of use of all substances except wine. Increased reports of good grades are significantly related to decreased reports of use of all substances except beer and wine. Finally, reports of increased talking with parents are significantly related to decreased reports of use of cigarettes and beer. All of these are associations based on adolescents' reports at the beginning of the program.

All the associations among the five measures of students' behaviors and their reports of their use of cigarettes, alcohol, and marijuana are shown in Table 12. The first number in each cell is a correlation coefficient, and indicates the degree of association between the two measures listed in the row and the column. For example, in the first cell, the value of 0.166 indicates that there is a small to moderate association between the adolescents' reports that they get into trouble at school (the first column) and their reports of lower use of cigarettes during the past 30 days (the first row).

The specific correlation coefficient reported is Kendall's tau-b, noted previously as a correlation coefficient for ordinal data. The reports of use of substances and the answers to questions about grades, trouble in school, and the other matters are at the ordinal level of measurement. Specifically, the adolescents indicated whether they had used particular substances no times, "1-5 times," "6-10 times," 11-19 times," or "20 or more" times during the past 30 days. They reported their behavior on the other measures, such as getting good grades, "Never," "Seldom," "Sometimes," "Often," or "A lot." Those categories of answers clearly allow the adolescents to indicate greater or lesser levels of use or of activities such as doing volunteer work. All increases to the next category are not equivalent, however. Other correlation coefficients, like the Pearson r, that depend on equivalent differences among categories are thus inappropriate, and the associations among most of the measures in this report are presented as values of Kendall's tau-b.

Table 12: Associations of School and Other Behaviors and Substance Abuse Before EIP

Substance	Trouble in school	After-school activities	Volunteer work	Church, synagogue, or temple	Good grades	Parents talk
Cigarettes	.166 .0005	.219 .0005	.146 .0005	.151 .0005	.189 .0005	.045 .016
Beer	.060 .002	-.011 .557	.039 .040	.056 .003	.028 .150	.046 .014
Wine	.056 .005	.038 .047	.026 .170	.027 .164	.025 .203	-.007 .733
Liquor	.111 .0005	.069 .0005	.072 .0005	.064 .001	.060 .002	.024 .210
Marijuana	.182 .0005	.157 .0005	.159 .0005	.134 .0005	.161 .0005	.022 .244

n=2102. The first number in each cell is Kendall's tau-b: a correlation coefficient for ordinal data. The second number is the probability value.

For the sake of simplicity, all the values of Kendall's tau-b in Table 12 indicate associations between reports of lower levels of use of the substances and the obviously better description of behavior. Rather than using positive and negative values based on the way questions were asked, positive values indicate positive findings. Thus, the positive numbers in the first two columns indicate that adolescents who reported getting into trouble at school less often reported significantly *less* use of cigarettes, liquor, and marijuana, and those who reported getting good grades more often reported significantly less use of all substances. The minimally negative association between reports of beer and after-school activities shows there was an extremely small tendency for students who reported greater after-school activities to report more frequent use of beer.

The adolescents in the EIP thus appear to be similar to those in many other settings, although good communication with their parents is less universally related to decreased reports of substance use. Similar patterns were found at the six-month follow-up. (See Appendix C).

Family history of substance abuse. Family history of problems with substance use has been found to be associated with adolescents' use of substances and with their ability (or inability) to decrease their use. Research indicates that family alcoholism increases the probability of problem drinking and chemical dependency in children (Denton & Kampfe, 1994). Further, children who grow up in families with a positive history of parental alcohol or other drug abuse are twice as likely to drink and four times more likely to use illicit drugs as children from families without a history of alcohol or other drug abuse (Chassin, Rogosch, & Barrera, 1991). The 2,075 parents who reported on the history of problems with substance use among the adolescents' siblings, the parents and their siblings, and the grandparents reported the number of problems as shown in Table 13 on the next page.

The number refers to the sum of definite reports of problems. Responses indicating that the parent did not know about a given relative or that a question about a given relative was not applicable (for example, a question about father's siblings when the father was an only child) were counted as zero for that option. To permit the most straightforward analyses, the above information was simplified to two groups: the 590 (28.4%) who reported no family history of substance use problems, and the 1,485 (71.6%) who reported at least one person in the family with a history of substance use problems.

Table 13: Parental Report of Family Substance Abuse

Number of Problems	Number	Percentage	Cumulative Percentage
0	590	28.4	28.4
1	378	18.2	46.7
2	371	17.9	64.5
3	311	15.0	79.5
4	199	9.6	89.1
5	143	6.9	96.0
6	61	2.9	98.9
7	14	0.7	99.6
8	7	0.3	99.95
9	1	0.05	100.0

n=2,075.

Considering the association between family history and the adolescents' initial report of use of substances, there were significant relationships for all substances except wine. That is, for reports of use of cigarettes, beer, liquor, and marijuana, adolescents whose parents reported any family history of a substance use problem tended to report greater use of those four substances. These analyses were based on the 1,569 adolescents who responded to all the questions regarding substance use and whose parents responded to the questions about family history of substance use problems. (This smaller group showed a level of family history similar to the larger group, with 445 or 29.0% having no family history of problems and 1,114 or 71.0% reporting at least one person in the family with a history of problems.)

Table 14: Associations of Youth's Substance Use With History of Substance Use in Their Family

Substance	Family history of substance use problems
Cigarettes	.085 .0005
Beer	.056 .015
Wine	.044 .067
Liquor	.093 .0005
Marijuana	.083 .0005

n=1,596. The top number is Kendall's tau-b, a correlation for ordinal variables. The bottom number is probability level.

Family communication patterns. Reports about adolescent ATOD use indicate that clear expectations and messages from parents/guardians about alcohol and other drugs influences youth attitudes and subsequent use of drugs (Hawkins & Weis, 1985; Rees & Wilborn, 1983; Cannon, 1976; Gantman, 1978; Denton & Kampe, 1994). In an effort to ascertain if parental expectations are known to the study youth, youth were asked what they thought their parents attitudes would be about substance use. The 2,114 youth who answered these questions meaningfully at the beginning of the program reported their perceptions about their parents' attitudes as displayed in the table in Appendix D.

Questions to parents about their expectations were compared to youths' perceptions of what their parents would think of certain behaviors. Discrepancies between what parents say their expectations are and what youth think they would say can be seen as an indicator of the clarity of

the messages given and received. The following table depicts the differences between the youth's attitude and their perceptions of what their parents/guardians think.

Table 15: Differences Between Youth Attitudes and Youth Perception of Parent Attitudes Before EIP

Attitude	Own Attitude (average)	Perception of Parent's Attitude (average)	Difference	Probability
Having a drink at a family occasion	3.28	3.79	.51	<.0005
Waiting until age 21 to drink	2.75	1.90	-.85	<.0005
Coming home drunk	4.15	4.60	.44	<.0005
Never drinking at any age	3.27	2.38	-.88	<.0005
Having an occasional cigarette	2.76	3.55	.79	<.0005
Smoking on a regular basis	3.19	3.86	.67	<.0005
Never smoking cigarettes	2.61	1.99	-.62	<.0005
Getting high on pot	3.63	4.51	.88	<.0005
Smoking an occasional joint	3.54	4.46	.92	<.0005
Never trying marijuana	2.45	1.83	-.62	<.0005
Sampling other drugs once or twice	4.07	4.54	.46	<.0005
Never trying other drugs	2.21	2.01	-.20	<.0005

Not surprisingly, adolescents perceived that their parents held attitudes significantly more disapproving of substance use than the adolescents for all of the questions. Viewing the response categories as ordinal data, "Strongly approve" equals 1, "No opinion" is interpreted as neutral, and "Strongly disapprove" equals 5. The greatest average difference was on the question about "Smoking an occasional joint." Adolescents reported their own attitudes averaged 3.54, or about halfway between neutral and "Disapprove." They perceived their parents' attitudes averaging 4.46, or about halfway between "Disapprove" and "Strongly disapprove." The smallest difference was on the question about "Never trying other drugs." Adolescents reported their own attitudes averaged 2.21, or about one-fifth of the way toward "neutral" from "Approve." They perceived their parents' attitudes averaging 2.01, or almost exactly at "Approve."

The adolescents' perceptions of their parents' attitudes were significantly associated with most of the adolescents' reports of their use of the corresponding substances, both at the beginning of the program and at the six-month follow-up. (See the following tables for the values at the beginning of the program.) The first values are Kendall's tau-b—a correlation coefficient for ordinal data. The second values are the probability level for the correlation. The third values are odds ratios indicating the greater probability that those youth who perceive that their parents hold the most extreme positions against substance use also reported using none of that substance during the past six months. There was a similar pattern at the six-month follow-up.

Table 16: Association Between Youths' Perception of Parents' Attitudes and Youths' Substance Use

Youth's Perceptions of Parents' Attitudes	Beer	Wine	Liquor
Having a drink at a family occasion	-.099	-.079	-.107
	<.0005	<.0005	<.0005
	1.73	1.55	1.64
Coming home drunk	-.154	-.075	-.144
	<.0005	<.0005	<.0005
	1.77	1.46	1.84
Waiting until age 21 to drink	.045	.041	.039
	.021	.042	.047
	1.19	1.26	1.20

Table continues...

Table 16 continued. Association Between Youths' Perception of Parents' Attitudes and Youths' Substance Use

Youth's Perceptions of Parents' Attitudes	Beer	Wine	Liquor
	.091	.030	.085
Never drinking at any age	<.0005	.119	<.0005
	1.61	1.20	1.39
Cigarettes			
	-.385		
Having an occasional cigarette	<.0005	---	---
	4.92		
	-.382		
Smoking on a regular basis	<.0005	---	---
	4.47		
	.173		
Never smoking cigarettes	.0005	---	---
	2.24		
Marijuana			
	-.242		
Getting high on pot	<.0005	---	---
	2.91		
	-.234		
Smoking an occasional joint	<.0005	---	---
	2.78		
	.128		
Never trying marijuana	<.0005	---	---
	1.96		

The first value in each cell is Kendall's tau-b. The second value is the probability level. The third value is the odds ratio.

For study purposes, we are operating on the assumption that a discrepancy between attitudes expressed by youth and the attitudes parents think are held by their youth implies that there is a gap in understanding and/or communication. Parental attitudes and norms regarding ATOD use have been found to predict adolescent substance use problems (Rees & Wilborn, 1983; Cannon, 1976; Gantman, 1976.) The youth in this study group did not mirror this association. Youth reflecting a wide gap between what they thought their parents' expectations were and the actual expectations of the parents were no more likely to be involved with ATOD use than those with a close understanding of their parents' expectations. However, youth and their parents reported that communication patterns within the family improved after the EIP program.

Parent communication about ATOD with youth. A majority of parents reported that their communication with their child about drug and alcohol use had increased after diversion, and that their child's communication with them about drug and alcohol use had increased after diversion. (See the following table.)

Table 17: Communication Level Between Youth and Parents

	Decreased	Stayed the same	Increased
Parents' report of their own	43	487	612
communication with their child	3.7%	42.7%	53.6%
Parents' report of their child's	45	391	707
communication with them	1.6%	34.2%	61.9%

Further, their perception of their child's level of communication with them is significantly negatively associated with their adolescent's report of use of marijuana for the past six months at

the first follow-up ($r = -.13$, $p=0.029$). In other words, increased communication is correlated with "reduced" or "no marijuana use" during the past six months.

Accessibility of drugs. Data from the Monitoring the Future project involving 17,000 subjects per year between 1976 and 1987 noticed that higher Minimum Purchase Age Laws were associated with lower levels of alcohol use (O'Malley & Wagenaar, 1991). Decreased accessibility due to increased enforcement of laws and decreased tolerance of underage purchase and consumption led to a reduction in underage use (Wagenaar & Perry, 1994). Several patterns appear when observing the responses of the 2,228 youth who answered all of the questions "How easy is it to get ..." with each of the substances listed. First, the substances fall clearly into two basic categories by perception of accessibility. Substantial numbers of the youth report that it is "Fairly easy" or "Very easy" to obtain cigarettes, beer, wine, liquor, and marijuana, while many fewer report that it is "Fairly easy" or "Very easy" to obtain cocaine, stimulants, depressants, inhalants, LSD, or other drugs. For example, 1,789 (80.3%) say that it is "Fairly easy" or "Very easy" to get cigarettes, while 274 (12.3%) say that it is "Fairly easy" or "Very easy" to get cocaine. (See Appendix E for the complete list of responses.)

Second, the proportions of youth responding that they "Don't know" how easy it is to get substances also is substantially different based on those two categories. The largest proportion of those who say they "Don't know" how easy it is to get one of the substances in the first category are the 438 (19.7%) who say they "Don't know" how easy it is to get wine, while the smallest proportion of those who say they "Don't know" how easy it is to get one of the substances in the second category are the 1,019 (45.7%) who say they "Don't know" how easy it is to get inhalants.

The following table, therefore, summarizes the responses by simplifying the numbers in two ways. First, only those who did estimate the ease of getting the substances were included in each line. Second, the responses are combined into the first column which represents either "Cannot get" or "Fairly difficult" and into the second column which represents either "Fairly easy" or "Very easy."

Table 18: Accessibility of Drugs Perceived

Substance	"Cannot get" or "Fairly difficult"	"Fairly easy" or "Very easy"
Cigarettes	231 11.4%	1,789 88.6%
Beer	757 38.3%	1,220 61.7%
Wine	717 40.1%	1,073 59.9%
Liquor	782 40.6%	1,143 59.4%
Marijuana	576 30.6%	1,305 69.4%
Cocaine	859 75.8%	274 24.2%
Stimulants	834 73.4%	303 26.6%
Depressants	798 68.6%	366 31.4%
Inhalants	636 52.6%	573 47.4%

Table continues...

Table 18 continued. Accessibility of Drugs Perceived

Substance	"Cannot get" or "Fairly difficult"	"Fairly easy" or "Very easy"
LSD	842 70.3%	356 29.7%
Other Drugs	773 73.8%	274 26.2%

n=2,020.

As the table shows, a majority of youth who responded other than "Don't know" say that the substances in the first category are "Fairly easy" or "Very easy" to get, while a majority of youth who responded other than "Don't know" report that they "Cannot get" the substances in the second category or that they are "Fairly difficult" to get. Not surprisingly, cigarettes are perceived as the easiest substance to obtain. Cocaine is perceived as the most difficult substance to obtain. As mentioned earlier, the availability of drugs influences drug-taking behavior. The accessibility of cigarettes may be attributed to the fact that Kentucky is one of the largest tobacco-producing states in the nation. Also, Kentucky has a reputation for being a major producer of marijuana.

Influence of peers. Since peer influence is a factor present in use or nonuse of a variety of substances among youth, the youth were asked about how many of their friends used the various drugs. Adolescent drinking has been found to co-vary with perceived peer approval and association with drug-using peers is among the strongest predictors of adolescent substance use (Kline & Carter, 1994; Shilts, 1991). Below is Table 19 showing the youths' perceptions of their friends ATOD use. The 2,217 adolescents who answered all of the questions about their friends' use of substances at the initial assessment reported the following patterns.

Table 19: Perception of Substance Abuse by Friends

"How many of your friends ..."	None	A few	Several	Most
Smoke cigarettes	88 4.0%	557 25.1%	665 30.0%	907 40.9%
Drink beer	189 8.5%	956 43.1%	611 27.6%	461 20.8%
Drink wine or wine coolers	721 32.5%	883 39.8%	367 16.6%	246 11.1%
Drink liquor	349 15.7%	962 43.4%	553 24.9%	353 15.9%
Smoke marijuana	393 17.7%	975 44.0%	435 19.6%	414 18.7%

Vast majorities (91.5% to 96.0%) have at least some friends who drink beer or smoke cigarettes. Slightly fewer (82.3% to 84.3%) have at least some friends who smoke marijuana or drink liquor. Fewer, but still a sizeable majority (67.5%), have at least some friends who drink wine or wine coolers.

The 445 adolescents who completed all questions both at the initial assessment and at the follow-up about their perceptions of their friends' use of the various substances showed some clear patterns. At the six-month follow-up, they reported that significantly fewer of their friends used all of the following substances: cigarettes, beer, wine, liquor, and marijuana. (See Appendix F.)

As noted earlier, one way to describe the extent or degree of these changes is by using the odds ratio, which describes the change in the odds of being in one of two categories. In Table

20, the odds ratios are presented for each of the substances. These are based on a division whereby those adolescents who reported that "None" or "A few" of their friends use the substance were combined into one group. Those who reported that "Several" or "Most" of their friends use the substance were combined into the opposite group. This division is used because odds ratios have the drawback of overstating differences when they are based on categories with small numbers. For example, if only one person said that absolutely none of his or her friends used cigarettes at the beginning of the program and five people said that none of their friends used cigarettes at the six-month follow-up, the odds ratio would be 5.00, showing that adolescents were five times as likely to report no friends using cigarettes at the six-month follow-up. That would overstate the association, because while 444 adolescents had at least some friends who used cigarettes at the beginning of the program, 440 still had at least some at the six-month follow-up. By combining the "None" and "A few" friends categories, the odds ratios reflect more meaningful changes.

Reported thus, the odds ratios indicate that, for example, at the six-month follow-up, adolescents were almost twice as likely (1.88 times) than they were at the beginning of the program to report that "None" or "A few" of their friends used beer. This odds ratio value would happen by chance about five times out of 10,000, so we infer that change occurred in youth perceptions of friends use after attending the EIP. All of the ratios and the probability values are presented in the following table.

Table 20: Perception of Use by Friends: Odds Ratios

Substance	Odds Ratio	p-value
Cigarettes	1.39	.015
Beer	1.88	.0005
Wine	1.68	.0005
Liquor	1.46	.009
Marijuana	1.46	.001

n=445.

The importance of these decreases in number of friends who use substances can be seen in the way they are associated with patterns of substance use. Adolescents' reports of the number of friends who use a given substance are strongly associated with their own report of use. In combined initial and six-month follow-up data, the odds ratio for cigarette use with reports of friends is 4.41. That is, adolescents who report that "Several" or "Most" of their friends use cigarettes are 4.41 times as likely to report that they themselves smoked any cigarettes in the past six months compared with those who report that "None" or "A few" of their friends use cigarettes. The values for the specific substances are given in the following table.

Table 21: Perception of Friends' Use and Use of Youth: Odds Ratios

Substance	Odds Ratio
Cigarettes	4.41
Beer	3.30
Wine	4.50
Liquor	3.43
Marijuana	3.96

Reports at the beginning of the program and at the six-month follow-up are combined.

This is a good progression of evidence. The first analysis showed that adolescents reported having fewer friends using substances six months after the program compared to the beginning of the program. The second analysis combined two "snapshot" associations—one at the beginning of the program and one at the six-month follow-up; those who reported having fewer

friends using substances reported less use themselves. Perhaps most importantly, the final analysis considers the process of change. For all the substances, those who reported that they had fewer friends who used specific substances were significantly less likely to report using that particular substance.

The following tables show the specific numbers along with the odds ratios and probabilities. (Note: The largest proportion of adolescents reported the same number of friends using substances. For simplicity, they are combined with the very few who reported having more friends use. Likewise, a large proportion reported the same level of use—most commonly no use—of a given substance. These are also combined with the few who reported increased use to show the simplest comparison.)

Table 22: Substance Use by Youth

Variable	Less use	More or same use	Total
Cigarettes			
Fewer friends use	37 30.3%	85 39.7%	122 100.0%
Friends use same or more	43 16.0%	225 84.0%	268 100%
Beer			
Fewer friends use	65 49.2%	67 50.8%	132 100.0%
Friends use same or more	82 31.8%	176 68.2%	258 100%
Wine			
Fewer friends use	38 31.1%	84 68.9%	122 100.0%
Friends use same or more	28 10.5%	239 89.5%	267 100%
Liquor			
Fewer friends use	60 44.4%	75 55.6%	135 100.0%
Friends use same or more	74 29.0%	181 71.0%	255 100%
Marijuana			
Fewer friends use	69 50.7%	67 49.3%	136 100.0%
Friends use same or more	59 23.6%	191 76.4%	250 100%

Cigarettes: p=.003/Odds Ratio: 2.28. Beer: p=.001/Odds Ratio: 2.08. Wine: p=.0005/Odds Ratio: 3.86

These findings are particularly important because they are consistent with the possibility that changing friendships is one of the mechanisms which affects adolescents' substance use. That is, in general, adolescents tended to report less use of substances six and 18 months after the program than at the beginning. But that in itself does not indicate why some of them did use less as well as why some, unfortunately, did not. Finding that, as a group, the adolescents in the program reported having fewer friends who used substances six months later, and that those adolescents who reported having fewer friends who used given substances were less likely to use those substances themselves may be explained in different ways: Either the study youth reduces use and thereby makes new friends with whom they are more compatible, or a change in friends (who use less) influences the study youth to use less.

The above associations are clearest perhaps because they are substance-specific. That is, those adolescents who reported at the follow-up that fewer of their friends drink wine than at the beginning of the program also reported that they themselves drank wine less often. A further sign that changing friendship may be an important mechanism of the change that results from the EIP can be seen in more general changes of friendships. Those who reported at the six-month follow-up that they "are hanging out with different friends since the incident that got [them] into the program" reported using beer and marijuana significantly fewer times during the past six months. Although this general change in friendships was not associated with change in all substances used, the fact that a general change was associated with some specific substances is support that this is one of the important mechanisms of change.

Table 23: Youth Substance Abuse as Associated with Change in Friends

	Less use	More or same use	Total
Beer			
Different friends	91 43.8%	117 56.3%	208 100.0%
Same friends	57 31.0%	127 69.0%	184 100%
Marijuana			
Different friends	82 39.4%	126 60.6%	208 100.0%
Same friends	48 26.1%	136 73.9%	184 100%

Beer: p=.008/Odds Ratio: 1.73. Marijuana: p=.004/Odds Ratio: 1.84.

Finally, these changes are not simply based on self-reports by the adolescents. At the six-month follow-up, parents were also asked if their children's "circle of friends" had improved, if there was no change, or if it was worse. There was a reasonably strong correspondence between parents' responses and their adolescents' reports, as shown in the following table.

Table 24: Parents' and Youth Reports on the Change in Friends

Parents' report on the Circle of Friends	Youths' report whether they were "hanging out with different friends"		
	Yes	No	Total
Improved	140 69.3%	62 30.7%	202 100.0%
No change	63 31.5%	137 68.5%	200 100%

p<.0005. Odds Ratio: 4.91

As with the adolescents' reports, this general change in friendships was not associated with changes in friendships regarding use of all substances. In fact, parents' observations on the changes of friendships were significantly associated with their adolescents' reports on changes in the number of friends who used specific substances only with regard to marijuana. The parents' observations were, however, significantly related to their adolescents' reports of use of beer and liquor at the six-month follow-up. (See the following table.)

Table 25: Youth Substance Abuse by Parent's Perception of Youth's Circle of Friends

Parents' report on the Circle of Friends	Youths' report of use of beer for past six months		
	None	Some	Total
Improved	115 61.8%	71 38.2%	186 100.0%
No change	83 44.1%	105 55.9%	188 100%

Table continues...

Table 25 continued. Youth Substance Abuse by Parent's Perception of Youth's Circle of Friends

Parents report on the Circle of Friends	Youths' report of use of liquor for past six months		
	None	Some	Total
Improved	115	71	186
	61.8%	38.2%	100.0%
No change	83	105	188
	44.1%	55.9%	100%

Use of beer: p=.001/Odds Ratio: 2.05. Use of liquor: p=.005/Odds Ratio: 1.96

As with the above points about adolescents' own reports, the relation between parents' observations about their adolescents' circle of friends and those adolescents' report of use of substances suggests that change in friendships affect adolescent substance use.

Knowledge, Attitudes, and Beliefs

The Early Intervention Program is based on the premise that increased knowledge of ATOD risk can change attitudes and beliefs, which in turn, can redirect behavior. Therefore, youth were asked about their perceptions of harm in using tobacco, alcohol, and marijuana.

Not surprisingly, given the circumstances that led to the youths' participation in this study, a majority of youth says that alcohol and marijuana are harmful in a variety of ways, even before the program began. The following table reveals responses of the 2,192 youth who gave meaningful answers to all of the questions regarding harmfulness of use of alcohol and marijuana. (The 34 who answered every question either "Strongly agree" or "Strongly disagree" were excluded, as they appeared not to be paying attention to the content of the questions.)

Table 26: Attitudes and Beliefs About ATOD

Question	Strongly agree	Agree	No opinion	Disagree	Strongly disagree
Drinking alcohol can injure a young person's health	946	940	208	73	25
	43.2%	42.9%	9.5%	3.3%	1.1%
Teenagers are more likely to get hurt when they've been drinking alcohol	856	881	257	164	34
	39.1%	40.2%	11.7%	7.5%	1.6%
Teenagers can get addicted to alcohol just like adults can	1,042	864	163	70	53
	47.5%	39.4%	7.4%	3.2%	2.4%
The only real danger to using alcohol is getting caught	75	133	305	909	770
	3.4%	6.1%	13.9%	41.5%	35.1%
Marijuana can affect school performance	854	711	353	181	93
	39.0%	32.4%	16.1%	8.3%	4.2%
Marijuana can be addictive	719	621	397	276	179
	32.8%	28.3%	18.1%	12.6%	8.2%
Driving ability can be affected by marijuana	670	638	497	239	148
	30.6%	29.1%	22.7%	10.9%	6.8%

n=2192.

There were 432 youth who gave meaningful answers to all seven questions both before they entered the program and at the six-month follow-up. Even with the strong initial tendency for the youth to report beliefs in concordance with what they might expect the program desired, as a group, the youth increased their concordance by the six-month follow-up. All of these changes were statistically significant, with the exception that responses to "Drinking alcohol can injure a young person's health" did not reach standard significance levels. (See Appendix G for complete tables.)

As with the analyses for some of the previous research questions, combining the responses into just two categories simplifies the comparisons and allows for odds ratios to be calculated. (See Appendix H for tables that show these combined results with statistics on probability and odds ratios.) In all cases, as a group, the youth were more likely to endorse beliefs more compatible with reduced use or abstinence at the six-month follow-up than they did at the beginning of the program. These differences occur even when looking at only the most extreme cases, for example, at those who "Strongly agree" that "Drinking alcohol can injure a young person's health." Although these combinations have the advantage of providing odds ratios showing that—for many of the questions—because youths at follow up were roughly 1.4 times as likely to give the most extreme response than they were at the initial assessment, they do not take into account the other differences. Thus, the effect actually appears to be smaller than the full comparison indicates.

The importance of these changes can be seen by considering the association of these beliefs to reports of use, which suggests that changes in these beliefs may be a mechanism whereby the program affects use of substances. As Appendix H shows, responses to each of these questions was related to the level of use of one or more of the corresponding substances either at the beginning of the program, at the six-month follow-up, or both. Combining the categories of response into only the strongest agreement (or disagreement for the question about whether "The only real danger to using alcohol is getting caught") compared with every other response, the odds ratios show that those expressing the strongest positive response were 1½ to 2½ times as likely to abstain from the substance as those who gave any other response. The odds ratios are displayed in the following table.

Table 27: Likelihood of Decreased Substance Use Association With Strongest Response of Belief: Odds Ratios

At The Start of The Program

Belief	Substance	Odds Ratio
Drinking alcohol can injure a young person's health	Beer	2.07
Teenagers are more likely to get hurt when they've been drinking alcohol	Beer	1.91
Teenagers can get addicted to alcohol just like adults can	Beer	1.41
Teenagers can get addicted to alcohol just like adults can	Liquor	1.51
The only real danger to using alcohol is getting caught	Beer	0.53
Marijuana can affect school performance	Marijuana	1.95
Marijuana can be addictive	Marijuana	1.91
Driving ability can be affected by marijuana	Marijuana	2.04

At The Sixth-Month Follow-up

Belief	Substance	Odds Ratio
Drinking alcohol can injure a young person's health	Beer	2.25
Drinking alcohol can injure a young person's health	Wine	2.03
Drinking alcohol can injure a young person's health	Liquor	1.90
Teenagers are more likely to get hurt when they've been drinking alcohol	Beer	2.35
Teenagers are more likely to get hurt when they've been drinking alcohol	Liquor	2.57
Teenagers can get addicted to alcohol just like adults can	Beer	2.19
The only real danger to using alcohol is getting caught	Beer	2.55
The only real danger to using alcohol is getting caught	Wine	2.00
The only real danger to using alcohol is getting caught	Liquor	2.48
Marijuana can affect school performance	Marijuana	2.07
Marijuana can be addictive	Marijuana	2.19
Driving ability can be affected by marijuana"	Marijuana	2.38

The single exception was at the assessment at the beginning of the program. Those who strongly disagreed that "The only real danger to using alcohol is getting caught" were actually more likely to report using beer in the past six months than those who gave other responses. While this is counter to expectations, the responses at the six-month follow-up suggest an explanation. That is, at the follow-up, those who disagreed strongly to this question were twice as likely to abstain from wine, and roughly 2½ times as likely to abstain from beer and liquor as those who gave other responses. The most likely explanation is that, at the beginning of the program, there were a sufficient number of participants who had used beer in the past six months, and who then had come to believe that there were more dangers to using alcohol than just getting caught. The association of the belief with lower reported use across all alcoholic substances assessed at the follow-up suggests that beliefs are an important element.

Further, the individuals who changed certain beliefs between the beginning of the program and the six-month follow-up were more likely to report less use of the corresponding substance. Those who increased their agreement that "Driving ability can be affected by marijuana" and those who increased their agreement that "Marijuana can be addictive" were significantly more likely than others to report decreased use of marijuana at the six-month follow-up. Those who increased their disagreement that "The only real danger to using alcohol is getting caught" were significantly more likely than others to report decreased use of beer at the six-month follow-up for the past six months. Table 28 illustrates the youths' reports of change in belief.

Table 28: Substance Use Associated with Change in Belief

Significant Change

Driving ability can be affected by marijuana	**Change in report of use of marijuana**		
	Decrease	**Increase or no change**	**Total**
Increased agreement	54 41.2%	77 58.8%	131 100.0%
All other	76 29.3%	183 70.7%	259 100.0%
Odds Ratio: 1.69 p=.021			
Marijuana can be addictive	**Change in report of use of marijuana**		
	Decrease	**Increase or no change**	**Total**
Increased agreement	55 40.4%	81 59.6%	136 100.0%
All other	75 29.5%	179 70.5%	254 100.0%
Odds Ratio:1.62 p=.032			
The only real danger to using alcohol is getting caught	**Change in report of use of beer**		
	Decrease	**Increase or no change**	**Total**
Increased disagreement	59 47.6%	65 52.4%	124 100.0%
All other	91 34.2%	175 65.8%	266 100.0%
Odds Ratio: 1.75 p=.013			

Table continues...

Table 28 continued. Substance Use Associated with Change in Belief

Significant Change

Drinking alcohol can injure a young person's health	**Change in report of use of liquor**		
	Decrease	**Increase or no change**	**Total**
Increased agreement	12 57.1%	9 42.9%	21 100.0%
All other	12 25.5%	35 74.5%	47 100.0%
Odds Ratio: 3.89 p=0.014			

Teenagers are more likely to get hurt when they've been drinking alcohol	**Change in report of use of beer**		
	Decrease	**Increase or no change**	**Total**
Increased agreement	12 54.5%	10 45.5%	22 100.0%
All other	13 28.3%	33 71.7%	46 100.0%
Odds Ratio: 3.05 p=0.039			

Teenagers are more likely to get hurt when they've been drinking alcohol	**Change in report of use of liquor**		
	Decrease	**Increase or no change**	**Total**
Increased agreement	13 59.1%	9 40.9%	22 100.0%
All other	11 23.9%	35 76.1%	46 100.0%
Odds Ratio: 4.60 p=0.005			

Trend in Desired Direction

Drinking alcohol can injure a young person's health	**Change in report of use of beer**		
	Decrease	**Increase or no change**	**Total**
Increased agreement	11 52.4%	10 47.6%	21 100.0%
All other	14 29.8%	33 70.2%	47 100.0%
Odds Ratio: 2.59 p=0.082			

Teenagers can get addicted to alcohol just like adults can	**Change in report of use of beer**		
	Decrease	**Increase or no change**	**Total**
Increased agreement	12 42.9%	16 57.1%	28 100.0%
All other	13 32.5%	27 67.5%	40 100.0%
Odds Ratio: 1.56 p=0.386			

Teenagers can get addicted to alcohol just like adults can	**Change in report of use of liquor**		
	Decrease	**Increase or no change**	**Total**
Increased agreement	12 42.9%	16 57.1%	28 100.0%
All other	12 30.0%	28 70.0%	40 100.0%
Odds Ratio: 1.75 p=0.278			

Table continues...

Table 28 continued. Substance Use Associated with Change in Belief

Trend in Desired Direction			
Marijuana can affect school performance	**Change in report of use of marijuana**		
	Decrease	**Increase or no change**	**Total**
Increased agreement	14 60.9%	9 39.1%	23 100.0%
All other	18 39.1%	28 60.9%	46 100.0%
Odds Ratio: 2.42 p=0.084			
Driving ability can be affected by marijuana	**Change in report of use of marijuana**		
	Decrease	**Increase or no change**	**Total**
Increased agreement	11 64.7%	6 35.3%	17 100.0%
All other	21 40.4%	31 59.6%	52 100.0%
Odds Ratio: 2.71 p=0.080			

As in the case with beliefs, attitudes of youth toward certain behaviors are assumed to be associated with the performance of those behaviors. There were 2,130 youth who answered meaningfully the 12 questions regarding their attitudes toward various hypothetical uses of various substances at the beginning of the program. (The responses are presented in the table in Appendix K.) While these responses show a variety of attitudes, depending on the particular situation, they also suggest that the adolescents did not give only the answers that they think are expected or desired. That is, while only 4.6% "Approve" or "Strongly approve" of "Coming home drunk," which one might assume they realize is not generally an approved action, minorities "Approve" or "Strongly approve" of "Never smoking cigarettes" (42.4%) or of "Never trying marijuana" (47.3%). While a majority (60.7%) "Approve" or "Strongly approve" of "Never trying other drugs" these more likely represent adolescents who do use cigarettes, alcohol, and/or marijuana but disapprove of "harder" substances rather than a general response by all participants to give the impression that they disapprove of all substance use.

The 407 youth who answered the 12 questions meaningfully both at the beginning of the program and at the six-month follow-up showed some clear patterns. They were significantly more likely to increase their approval of "Waiting until age 21 to drink," "Never drinking at any age," "Never smoking cigarettes," and "Never trying marijuana," and to increase their disapproval of "Having an occasional cigarette," "Smoking on a regular basis," "Getting high on pot," and "Sampling other drugs once or twice."

Many of these attitudes were associated with use of corresponding substances. Disapproval of "Having a drink at a family occasion" and of "Coming home drunk" were significantly associated with less reported use of beer, wine, and liquor. Approval of "Waiting until age 21 to drink" and "Never drinking at any age" were also significantly associated with less reported use of beer, wine, and liquor. As an example of the full basis for these associations, see the following table showing that disapproval of "Coming home drunk" is associated with less reported use of beer. Although every single pair of cells does not show the pattern perfectly, in general, those responding "Strongly disapprove" are a decreasing proportion of those who use more, and those who "Strongly approve" are an increasing proportion of those who use more.

Table 29: Youth Attitudes and Reported Substance Abuse

	Coming home drunk					
Number of times used beer in past six months	**Strongly approve**	**Approve**	**No opinion**	**Disapprove**	**Strongly disapprove**	**Total**
None	11	14	106	183	431	745
	1.5%	1.9%	14.2%	24.6%	57.9%	100.0%
1-5	9	17	138	288	394	846
	1.1%	2.0%	16.3%	34.0%	46.6%	100.0%
6-10	1	20	79	126	77	303
	0.3%	6.6%	26.1%	41.6%	25.4%	100.0%
11-19	3	7	41	31	16	98
	3.1%	7.1%	41.8%	31.6%	16.3%	100.0%
20 or more	6	10	41	31	19	107
	5.6%	9.3%	38.3%	29.0%	17.8%	100.0%

n=2,099.

Table 30 summarizes these relationships for the 2,099 adolescents who answered all the questions meaningfully at the beginning of the program. The full associations can be summarized using Kendall's tau-b. For example, with the association of "Coming home drunk" and use of beer, the Kendall's tau-b value is –0.244. The value of .244 shows a moderately strong relationship for the association of the two measures, and the negative indicates that lower use is associated with disapproval.

As with other associations, an odds ratio can also be used to reflect dichotomous distinctions. In this case, these represent the increased odds of reporting no use of the substance during the past six months for those who "Strongly disapprove" of the first two statements, and "Strongly approve" of the second two. In Table 30, the first value is Kendall's tau-b. The second value is the probability that this correlation occurred by chance. The third value is the odds ratio. As the table shows, use of beer and liquor are especially associated with the attitudes about alcohol use, with correlations ranging from .148 to .244 in absolute value, and odds ratios from 2.01 to 3.12. Use of wine, while still significantly related to those attitudes, showed milder associations, partly because adolescents reported less use of wine than of beer and liquor. Favorable attitudes about smoking cigarettes and using marijuana, however, were much more strongly related to reports of use, with correlations ranging from 0.238 to 0.531 in absolute value, and odds ratios ranging from 3.94 to 11.19.

Table 30: Substance Use as Associated With Belief

	Alcohol		
Attitude	**Reported use of beer**	**Reported use of wine**	**Reported use of liquor**
Having a drink at a family occasion	-.162	-.125	-.171
	.0005	.0005	.0005
	2.15	1.79	2.01
Coming home drunk	-.244	-.125	-.241
	.0005	.0005	.0005
	2.30	1.78	2.38
Waiting until age 21 to drink	.228	.129	.234
	.0005	.0005	.0005
	3.12	2.24	2.95

Table continues...

Table 30 continued. Substance Use as Associated With Belief

Attitude	Reported use of cigarettes		
	-0.527		
Having an occasional cigarette	0.0005	---	---
	11.19		
	-0.531		
Smoking on a regular basis	0.0005	---	---
	9.87		
	0.254		
Never smoking cigarettes	0.0005	---	---
	4.55		
Attitude	**Reported use of marijuana**		
	-0.462		
Getting high on pot	0.0005	---	---
	6.71		
	-0.439		
Smoking an occasional joint	0.0005	---	---
	6.32		
	0.238		
Never trying marijuana	0.0005	---	---
	3.94		

The first row is Kendall's tau-b. The second row is probability level. The third row is the odds ratio.

The fact that these attitudes are associated with reports of use of substances at given times and that these attitudes change over time for those who participated in the program are important details of the effects of the program. Further, to the degree that changes in these attitudes are associated with changes in reports of use of substances, such findings support the assumption that changes in attitudes are another mechanism by which this program leads to changes in use of substances. Table 31 shows these associations. To simplify the comparisons, the analyses were based on two categories for each variable. The variables concerning the use of substances indicated whether or not an adolescent reported less use of the substance at the six-month follow-up than at the beginning (which combines both greater use and use at the same level). Likewise, the variables concerning attitudes indicated whether or not an adolescent endorsed a stronger position on the given attitude in keeping with less use of the substance (which combines both weaker positions on the attitude and the same position on it). The numbers reported are the odds ratios and the probability. All odds ratios indicate that adolescents who changed on the attitude over time were more likely to report decreased use.

Table 31: Odds Ratios and Probability for Changes in Attitudes and Changes in Use of Substances

Attitude	Reported use of beer	Reported use of wine	Reported use of liquor
	Alcohol		
Having a drink at a family occasion	1.62	1.92	1.44
	0.032	0.017	0.106
Coming home drunk	1.45	1.78	1.84
	0.124	0.047	0.012
Waiting until age 21 to drink	1.83	1.32	1.71
	0.006	0.320	0.016
Never drinking at any age	1.37	1.78	1.55
	0.147	0.033	0.045

Table continues...

Table 31 (continued). Odds Ratios and Probability for Changes in Attitudes and Changes in Use of Substances

Cigarettes			
Attitude	**Reported use of cigarettes**		
Having an occasional cigarette	3.42 0.0005	---	---
Smoking on a regular basis	2.93 0.0005	---	---
Never smoking cigarettes	1.98 0.007	---	---
Marijuana			
Attitude	**Reported use of marijuana**		
Getting high on pot	2.72 0.0005	---	---
Smoking an occasional joint	2.81 0.0005	---	---
Never trying marijuana	1.69 0.017	---	---

n=386.

Individuals who indicated stronger positions at the six-month follow-up toward the attitudes listed on the table above also reported significantly less use of two of the three alcoholic substances. Further, those who indicated stronger positions at the six-month follow-up on all of the attitudes relevant to cigarettes and marijuana showed significantly less use of those substances. The strongest of the associations is for the change in attitude regarding "Having an occasional cigarette" and the reported use of cigarettes over the past six months. Of the 386 adolescents who answered all of the relevant questions at the beginning of the program and at the six-month follow-up, 81 (21.0%) reported decreased use of cigarettes. Of the 139 who reported stronger disapproval of smoking an occasional cigarette, 48 (34.5%) reported decreased use of cigarettes, which is 3.42 times as likely as those who reported greater approval of the attitude or no change of the attitude. These numbers are unlikely to have happened by chance, i.e., the probability of getting this strong an association simply by random arrangements is less than five in 10,000 times. As with some of the previous questions, these results provide evidence that one of the mechanisms by which the EIP leads to change in use of substances is through change in attitudes about the appropriateness of various examples of use of those substances.

Parent/guardian attitudes of ATOD use. Of the 2,074 parents who answered all the questions about personal expectations of their children, 81 gave logically contradictory answers. Examples include parents saying that they would "Strongly disapprove" if their child 1) "Had a drink at a family occasion," 2) "Drank, but only after age 21," and 3) "Came home drunk," and yet said they would also "Strongly disapprove" if their child 4) "Chose never to drink at any age." For several other questions, these 81 parents repeated such contradictions. For example, they also responded "Strongly disapprove" to both the questions of whether their child 5) "Sampled other drugs once or twice" and 6) "Never tried drugs." While it is possible that some of these parents were responding in a meaningful way to all these questions, it is most likely that those 81 were not paying attention to these questions and to their answers, and so the following analyses include only the 1,993 remaining parents.

Of the questions, eight concerned various specific uses, such as "Had a drink at a family occasion," "Drank, but only after age 21," or "Came home drunk." The four other questions

concerned total abstinence: "Chose never to drink at any age" or "Didn't smoke at all." These two general groups are listed separately in Table 32 below.

Table 32: Parent/Guardian Attitudes of Youths' ATOD Use

Ordered by decreasing proportion of those who either disapprove or strongly disapprove.

"How would you feel if your child..."	Strongly approve	Approve	No opinion	Disapprove	Strongly disapprove
Came home drunk	11	9	11	305	1,657
	0.6%	0.5%	0.6%	15.3%	83.1%
Got high on marijuana	8	3	28	356	1,598
	0.4%	0.2%	1.4%	17.9%	80.2%
Smoked an occasional joint	26	12	47	387	1,521
	1.3%	0.6%	2.4%	19.4%	76.3%
Sampled other drugs once or twice	92	16	32	273	1,580
	4.6%	0.8%	1.6%	13.7%	79.3%
Smoked on a regular basis	34	74	128	599	1,158
	1.7%	3.7%	6.4%	30.1%	58.1%
Had a drink at a family occasion	3	170	125	762	933
	0.2%	8.5%	6.3%	38.2%	46.8%
Had an occasional cigarette	26	148	231	880	708
	1.3%	7.4%	11.6%	44.2%	35.5%
Drank, but only after age 21	51	539	519	644	240
	2.6%	27.0%	26.0%	32.3%	12.0%

Ordered in decreasing totals of those who strongly approve or approve.

"How would you feel if your child..."	Strongly approve	Approve	No opinion	Disapprove	Strongly disapprove
Didn't smoke at all	1,570	313	49	23	38
	78.8%	15.7%	2.5%	1.2%	1.9%
Never tried drugs	1,623	243	55	24	48
	81.4%	12.2%	2.8%	1.2%	2.4%
Chose never to drink at any age	1,358	477	100	31	27
	68.1%	23.9%	5.0%	1.6%	1.4%
Never tried marijuana	1,513	310	55	28	87
	75.9%	15.6%	2.8%	1.4%	4.4%

n=1,993.

The answers to these questions show that there is extremely strong disapproval for children coming home drunk, getting high on marijuana, smoking even an occasional joint, and sampling other drugs once or twice. Between 93% and 98% of parents reported they either disapproved or strongly disapproved of these actions. Slightly fewer reported that they either disapproved or strongly disapproved of their child smoking on a regular basis (88.2%), having a drink at a family occasion (85.0%), or having an occasional cigarette (79.7%). Slightly less than half (44.3%) reported that they would "Disapprove" or "Strongly disapprove" if their child drank, but only after age 21. The four questions about abstinence also show clear patterns that indicate vast majorities (over 90%) of parents either approve or strongly approve of abstinence from these substances.

As these responses are measured with a five-point Likert scale anchored by parallel terms ("Strongly approve" and "Strongly disapprove," and "Approve" and "Disapprove"), comparisons regarding the responses by parents at different times can be meaningfully made on the basis of the average response. That is, using a value of 1 for "Strongly approve," 2 for "Approve," and so on through 5 for "Strongly disapprove," the average response for how parents would feel if their child came home drunk was 4.80—or a point four-fifths of the way toward "Strongly

disapprove" from "Disapprove." Table 33 shows the average responses for the 551 parents who answered these questions at both the initial point and the follow-up six months after the program. As with the general report, those parents making obviously contradictory responses were ignored.

Table 33: Differences in Parent/Guardian Attitudes Before/After EIP

"How would you feel if your child ..."	Average Time 1	Average Time 2	Difference	P value
Came home drunk	4.81	4.80	-0.01	0.75
Smoked an occasional joint	4.67	4.71	0.04	0.25
Sampled other drugs once or twice	4.60	4.75	0.16	0.002
Smoked on a regular basis	4.43	4.41	-0.02	0.68
Had a drink at a family occasion	4.25	4.24	-0.01	0.77
Had an occasional cigarette	4.08	4.05	-0.03	0.50
Drank, but only after age 21	3.15	3.17	0.02	0.70
Chose never to drink at any age	1.44	1.41	-0.03	0.38
Never tried marijuana	1.40	1.41	0.01	0.86
Didn't smoke at all	1.28	1.29	0.01	0.96
Never tried drugs	1.24	1.29	0.05	0.26

The only significant change between these two reports regards parents' feelings about whether their children sampled other drugs once or twice, with parents reporting a slightly increased level of disapproval at the follow-up assessment. In general, however, parents showed a high level of consistency—very strong disapproval for children coming home drunk, smoking marijuana even occasionally, and sampling other drugs even one or twice. They showed slightly less strong levels of disapproval for their children smoking cigarettes on a regular basis, having a drink at a family occasion, and having an occasional cigarette. They are about evenly split between approval and disapproval for children drinking only after age 21. Parents strongly approve of their children never smoking, never trying drugs, never trying marijuana, and never drinking at any age.

The lack of significant change on more than the one question is probably a reflection of two facts. First, parents probably already had clearly fixed opinions. They held strong opinions of disapproval for children getting drunk and using any drugs besides alcohol and tobacco even occasionally. They appear to have somewhat less extreme feelings about tobacco and use of alcohol that does not lead to getting drunk. They appear to be divided as a group on whether drinking after age 21 is problematic. And, when the questions regard the choice of abstinence, they approve quite strongly. Second, the parents were not directly addressed by the intervention of the program, so it is not surprising that their attitudes changed very little.

All of these results about youth and parental attitudes can be combined with the points made earlier about family communication patterns. Results show that adolescents' perceptions of their parents' attitudes are significantly associated with most of the adolescents' reports of their own use of substances. These results are consistent with those that show adolescents' own attitudes about the use of substances are significantly associated with the adolescents' reports of their use. These separate results do not specify, however, whether these associations reflect a single tendency or a more complex effect. That is, it would be possible for those adolescents who report less use of cigarettes to report both that they themselves disapprove of smoking on a regular basis and that they believe their parents disapprove of it. An important question is: Are adolescents' perceptions of their parents' attitudes associated with those adolescents' reports of use *above and beyond* the association of their own attitudes.

To put it another way, consider just those adolescents who themselves approve of smoking an occasional cigarette. If those adolescents who believe their parents also approve of smoking an occasional cigarette report no greater use than those who believe their parents do not approve, the adolescents' perceptions of their parents' attitudes are redundant. If, however, those adolescents who believe their parents disapprove of smoking an occasional cigarette in fact report smoking cigarettes fewer times, their perceptions of their parents' attitudes have an additional association beyond their own attitudes. The procedure to test for the additional association is known as controlling for a variable—in this case, the adolescents' own attitudes.

Although statistical software packages have no readily available procedure to calculate a correlation coefficient for ordinal data while controlling for other variables, partial Pearson correlations (which assume interval data) can give approximate analyses. Considering the associations found at the beginning of the program, adolescents' perceptions about their parents' attitudes are significantly related to reports of their own use after controlling for their own attitudes in certain cases. These cases include "Having an occasional cigarette," "Smoking on a regular basis," and "Never smoking cigarettes" in regard to cigarette use, and "Getting high on pot" with regard to marijuana use. None of the significant associations of use of alcoholic beverages with perceptions of parents' attitudes about alcohol use remained significant when controlling for the adolescents' attitudes. (See the following table for the specific details of the partial correlation coefficient and probability level.) Although the fewer numbers involved in the six-month follow-up provided less opportunity to find similar associations, the adolescents' perceptions of their parents' attitude of "Having an occasional cigarette" was significantly associated with reports of their use of cigarettes, even when controlling for their own attitudes (partial r = -.173, p=0.001).

Table 34: Parent/Guardian Attitude and Youth's Substance Use, Controlling for Youth's Attitude

Parent/Guardian Attitude	Substance	Pearson Partial Correlation Coefficient	Probability Level
Having an occasional cigarette	Cigarettes	-.229	<.0005
Smoking on a regular basis	Cigarettes	-.131	<.0005
Never smoking cigarettes	Cigarettes	.069	.002
Getting high on pot	Marijuana	-.053	.020

n=1,975.

As the EIP was almost exclusively concerned with the adolescents, it is not surprising that the adolescents did not generally report changes in their perceptions of their parents' attitudes from the beginning to the six-month follow-up. The three exceptions were that adolescents reported that they perceived their parents were significantly more likely to approve of "Never drinking at any age," "Never smoking cigarettes," and "Never trying other drugs." Notably, those adolescents who changed their perceptions of their parents' attitudes at the follow-up in the direction of greater approval of never drinking were significantly more likely to report less use of beer (although not of wine or liquor).

Parent/guardian perceptions of risk. The perceptions of risk regarding consequences of use of various substances were assessed with six questions about negative consequences and one question worded in the opposite direction—namely that "Marijuana is a relatively safe drug." Of the 2,211 parents/guardians who answered all of these questions, 49 gave logically contradictory answers, strongly agreeing with all of the negative questions as well as with the assertion that marijuana is relatively safe. The results summarized in the following table are based on the remaining 2,162 parents/guardians.

Table 35: Parent/Guardian Perceptions of Risk for Youth ATOD Use

"Tell us if you agree or disagree with the following statements..."	Strongly agree	Agree	No opinion	Disagree	Strongly disagree
An adolescent can become addicted to alcohol.	1,648	472	16	8	18
	76.2%	21.8%	0.7%	0.4%	0.8%
Marijuana can affect school performance of an adolescent.	1,681	435	28	6	12
	77.8%	20.1%	1.3%	0.3%	0.6%
An adolescent is more likely to get hurt when they've been drinking alcohol.	1,591	517	26	16	12
	73.6%	23.9%	1.2%	0.7%	0.6%
Drinking alcohol will injure the health of an adolescent.	1,366	666	58	45	27
	63.2%	30.8%	2.7%	2.1%	1.2%
Smoking marijuana will injure the health of an adolescent.	1,448	583	74	38	19
	67%	27.0%	3.4%	1.8%	0.9%
An adolescent can become addicted to marijuana.	1,522	461	93	61	25
	70.4%	21.3%	4.3%	2.8%	1.2%
Marijuana is a relatively safe drug.	16	92	186	656	1212
	0.7%	4.3%	8.6%	30.3%	56.1%

Ordered by decreasing percentage that agree or strongly agree.

In general, the vast majority of parents (91.7% to 98.0%) "Agree" or "Strongly agree" with the statements about negative consequences, and "Disagree" or "Strongly disagree" (86.4%) with the statement that marijuana is relatively safe.

These findings suggest that because parents have such a high percentage of disapproval of use and beliefs that use will have negative consequences, these adolescents' initial use of substances is not primarily based on their parents' tolerant attitudes about use, nor on parents' beliefs that these substances will not harm adolescents. In fact, adolescents' initial reports of use of substances are not associated with the corresponding beliefs of their parents. That is, adolescents' reports of their use of various alcoholic substances were not significantly associated with any of the parents' responses to items about alcohol. Neither were the adolescents' reports of their use of marijuana significantly associated with their parents' responses to items about marijuana.

When correlations were computed among the measures relevant to marijuana with adolescents' later use, however, several associations were found to be significant. Adolescents' reports on their use of marijuana at the six-month follow-up were negatively related to their parents' agreement that smoking marijuana will injure the health of adolescents, and positively related to their parents' agreement that marijuana is a relatively safe drug. Further, increases in the adolescents' reports of use of marijuana were positively associated with their parents' agreement that marijuana is a relatively safe drug. That is, the more strongly parents agreed that smoking marijuana will injure the health of adolescents, the less their children tended to report using marijuana during the past six months at the follow-up. Likewise, the more strongly parents agreed that marijuana is a safe drug, the more their children tended to report at the follow-up having used marijuana during the past six months, and the more they tended to report having increased their use during the past six months, compared to their initial use. In Table 36 below, the negative values reflect that parents' greater agreement that smoking marijuana can injure health is associated with their adolescents' *lower* use. The positive values show that parent's greater agreement that smoking marijuana is relatively safe is associated with their adolescent's *greater* use.

Correlations, however, computed between the parents' responses to these questions regarding use of alcohol and their adolescents' initial report of use, report of use at six months, and change in use of beer, liquor, and wine yielded no significant associations. There is an association between parental attitudes regarding health and safety issues and marijuana; however, a similar association does not hold for the youths' use of alcohol.

Table 36: Relationships of Youths' Marijuana Use with Parental Attitude

	Adolescents' Reports at Six-month Follow-up	
Attitude	**Report of use of marijuana in past six months**	**Increase in use of marijuana in past six months, compared to initial report**
Parents' agreement:	-.14	-.09
Marijuana can injure health	.012	.109
Parents' agreement:	.16	.13
Marijuana is relatively safe	.004	.015

The top number in the cell is Kendall's tau-b. The bottom number is the probability value. Correlations based on 336 youth answering initial and six month follow-up questions and parents answering initial questions about attitudes and risks.

Perceptions of Impact of the Early Intervention Program

Table 37 shows responses regarding the impression of various elements of the program on adolescents who answered these questions meaningfully at the six-month follow-up. Unfortunately, a majority of the adolescents indicated that one or more of these elements did not apply to them, reducing the number of participants who actually experienced all of the events to 114 matched with their parents/guardians. For example, most study youth entered the EIP through court diversion and therefore, did not go before a judge. Therefore, meaningful comparisons can be made only by looking at the 114 who indicated the level of impression and rank order of these elements.

Table 37: Impact of Consequence of Youth Drug Behavior

	Made no impression	**Made some impression**	**Made a big impression**
Being stopped by the police	5 4.4%	25 21.9%	84 73.7%
The reaction of your family	6 5.3%	21 18.4%	87 76.3%
Parent and youth alcohol/other drug classes	12 10.5%	49 43.0%	53 46.5%
Going before the judge	6 5.3%	25 21.9%	83 72.8%
CDW process, alcohol/other drug citation, or beyond control petition	9 7.9%	38 33.3%	67 58.8%
Consequences at home (e.g., extra work or reduced privileges)	11 9.6%	34 29.8%	69 60.5%

The level of impression that adolescents reported the EIP classes had made on them was significantly associated with change in use of beer. Specifically, reports of greater impressions that the classes had made were associated with reduced or same level of use of beer over the past six months. (See the following table.)

There were no other significant associations between levels of impression of elements and any of the other substances. Unfortunately, even the 114 adolescents who gave meaningful answers about the impressions of the elements did not give overall meaningful answers for the

ranking of the various elements. Specifically, for those 114 individuals, there were 188 listings of elements that ranked "least" and only 88 listings of elements that ranked "most." It is possible the adolescents were confused by the instructions, or they were trying to indicate tied rankings; for whatever reason, the data are not interpretable.

Table 38: Impact of EIP on Youth Associated with Use

Reported level of impression of parent and youth alcohol/other drug classes	Reported use of beer			
	Less	Same	More	Total
Made no impression	1 12.5%	3 37.5%	4 50.0%	8 100.0%
Made some impression	8 25.0%	14 43.8%	10 31.3%	32 100.0%
Made a big impression	13 33.3%	22 56.4%	4 10.3%	39 100.0%

Kendall's tau-b = -0.248. p=0.012.

Parent/guardian perceptions of changes in youth. The responses of the 1,008 parents who answered meaningfully the questions about changes in youth behavior are shown in Table 39, shown below. Parents were asked, "Since your family's involvement in the program, do you think your youngster has a clearer understanding of your expectations regarding his/her use of alcohol and other drugs?" Eighty-seven percent said yes, 5.2% responded no, and 7.8% indicated that they weren't sure.

Table 39: Parent/Guardian's Perception of Change

What changes have you noticed in your child's behavior since completing the diversion program?

	Improved	No change	Worse	Not applicable	Don't know
School performance	504 50.0%	365 36.2%	21 2.1%	93 9.2%	25 2.5%
Circle of friends	504 50.0%	456 45.2%	9 0.9%	20 2.0%	19 1.9%
Family relationships	613 60.8%	332 32.9%	33 3.3%	21 2.1%	9 0.9%

What changes have you noticed in your child's behavior since completing the diversion program?

	Increased	No change	Decreased	Not applicable	Don't know
Obvious signs of drug/alcohol use	28 2.8%	181 18.0%	529 52.5%	227 22.5%	43 4.3%
Frequency of physical fights	9 0.9%	138 13.7%	224 22.2%	605 60.0%	32 3.2%
Amount of time alone	51 5.1%	375 37.2%	287 28.5%	277 27.5%	18 1.8%
Involvement in extra-curricular/community activities	263 26.1%	563 55.9%	32 3.2%	123 12.2%	27 2.7%

There were only 70 sets of parents and adolescents who answered all the questions in ways that can be applied to the use of substances. Parents' reports of improved school performance and improved circle of friends were significantly related to greater decrease in their adolescents' reports of use of liquor at the six-month follow-up. These are listed in Table 40 along with several other reasonably strong associations that are not statistically significant, being based on only 70 sources of information.

Table 40: Parent Rating if Improvement by Reduced Substance Use by Youth

Area rated by parents	Substance	Kendall's tau-b	Probability Level
School performance	Liquor	.270	.014
Circle of friends	Liquor	.226	.043
School performance	Beer	.176	.112
Circle of friends	Beer	.161	.151
Clearer understanding of expectations	Wine	.173	.141
Obvious signs of drug/alcohol use	Cigarettes	-.219	.051
Obvious signs of drug/alcohol use	Beer	-.212	.060

Positive values for Kendall's tau-b indicate an association of decreased use of the substance with improvement or increase in the area. Negative values indicate an association of decreased use of the substance with decrease in the area.

Parent/guardian involvement in EIP. Of the 1,103 parents who answered the question, 808 (73.3%) said that they used the handouts as a basis for discussions with their child, while 295 (26.7%) said they did not. For the 287 sets of parents and adolescents who answered these questions and those about substance use at the beginning of the program and the six-month follow-up, there were no significant associations between the parents using the handouts and changes in substance use. The use of handouts by approximately 75% of the parents who responded to the question is a positive result for the program in that a major goal of the program is to increase parent/child communication about ATOD use.

Additional sources of data. Eighteen months after entering the EIP, 93 youth and their parents/guardians completed a final questionnaire. This limited number raises concerns on how well findings from this group represent all the adolescents who participated in the EIP. With that caveat, these longer time span comparisons showed several points.

The 72 youth who gave meaningful answers to all questions at both the initial and the 18-month follow-up showed significant changes in their responses to the statement "Teenagers can get addicted to alcohol just like adults can." The odds ratio was 2.20, i.e., youth were 2.20 times more likely to respond "Strongly agree" 18 months after the program than at the start of the program. The odds ratio for "Drinking alcohol can injure a young person's health" was 1.76, and for "Marijuana can affect school performance" the odds ratio was 1.60. Because of the small number of adolescents who responded at the 18-month follow-up, however, these changes were not statistically significant.

Youth were asked about their substance use during the past year, past six months, and past 30 days. Those who reported beliefs at the 18-month follow-up recognizing greater danger for use of substances than they had reported at the beginning of the program were more likely to report lower use of the corresponding substance. Although all changes were in the desired direction, significance cannot be established based on the limited number of respondents. (See Appendix B.)

An attempt was made to collect recidivism data about the youth who completed the Early Intervention Program. However, due to the lack of statewide computerization of this type of data, only 462 were located. Of those able to be tracked, 353 (76.4%) had no additional charges and 109 (23.6%) had a new charge and had to reenter the system. No interpretation of this data can be made, however, since the new charges were not specified in most cases. Therefore, there is no way to ascertain if the problems experienced by the youths involved alcohol and/or other drugs.

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APPENDIX A:

Level of Use Reported Before Beginning the Early Intervention Program By the 2,137 Adolescents who Completed All Questions of Use

Cigarettes					
Number of times used during the:	**None**	**1-5**	**6-10**	**11-19**	**20 or more**
Past 30 Days	816	182	92	84	963
	38.2%	8.5%	4.3%	3.9%	45.1%
Past Six Months	632	183	105	69	1,148
	29.6%	8.6%	4.9%	3.2%	53.7%
Past Year	518	209	85	78	1,247
	24.2%	9.8%	4.0%	3.6%	58.4%

Beer					
Number of times used during the:	**None**	**1-5**	**6-10**	**11-19**	**20 or more**
Past 30 Days	1,460	554	64	23	36
	68.3%	25.9%	3.0%	1.1%	1.7%
Past Six Months	770	852	308	99	108
	36.0%	39.9%	14.4%	4.6%	5.1%
Past Year	579	708	366	217	267
	27.1%	33.1%	17.1%	10.2%	12.5%

Wine					
Number of times used during the:	**None**	**1-5**	**6-10**	**11-19**	**20 or more**
Past 30 Days	1,895	213	17	3	9
	88.7%	10.0%	0.8%	0.1%	0.4%
Past Six Months	1,615	430	57	15	20
	75.6%	20.1%	2.7%	0.7%	0.9%
Past Year	1,305	640	104	46	42
	61.1%	29.9%	4.9%	2.2%	2.0%

Liquor					
Number of times used during the:	**None**	**1-5**	**6-10**	**11-19**	**20 or more**
Past 30 Days	1,660	419	34	10	14
	77.7%	19.6%	1.6%	0.5%	0.7%
Past Six Months	1,117	729	191	51	49
	52.3%	34.1%	8.9%	2.4%	2.3%
Past Year	832	790	260	117	138
	38.9%	37.0%	12.2%	5.5%	6.5%

APPENDIX A (continued)

Marijuana					
Number of times used during the:	**None**	**1-5**	**6-10**	**11-19**	**20 or more**
Past 30 Days	1,528	409	100	36	64
	71.5%	19.1%	4.7%	1.7%	3.0%
Past Six Months	928	626	255	107	221
	43.4%	29.3%	11.9%	5.0%	10.3%
Past Year	715	596	243	159	424
	33.5%	27.9%	11.4%	7.4%	19.8%

Cocaine					
Number of times used during the:	**None**	**1-5**	**6-10**	**11-19**	**20 or more**
Past 30 Days	2,118	13	2	0	4
	99.1%	0.6%	0.1%	0.0%	0.2%
Past Six Months	2,092	34	8	2	1
	97.9%	1.6%	0.4%	0.1%	0.05%
Past Year	2,074	44	8	6	5
	97.1%	2.1%	0.4%	0.3%	0.2%

Stimulants					
Number of times used during the:	**None**	**1-5**	**6-10**	**11-19**	**20 or more**
Past 30 Days	2,102	20	11	3	1
	98.4%	0.9%	0.5%	0.1%	0.05%
Past Six Months	2,054	48	20	12	3
	96.1%	2.2%	0.9%	0.6%	0.1%
Past Year	2,033	54	20	12	18
	95.1%	2.5%	0.9%	0.6%	0.9%

Depressants					
Number of times used during the:	**None**	**1-5**	**6-10**	**11-19**	**20 or more**
Past 30 Days	2,056	58	17	2	4
	96.2%	2.7%	0.8%	0.1%	0.2%
Past Six Months	1,994	80	34	12	17
	93.3%	3.7%	1.6%	0.6%	0.8%
Past Year	1,963	90	27	23	34
	91.9%	4.2%	1.3%	1.1%	1.6%

APPENDIX A (continued)

"Acid"					
Number of times used during the:	**None**	**1-5**	**6-10**	**11-19**	**20 or more**
Past 30 Days	2,104	29	2	2	0
	98.5%	1.4%	0.1%	0.1%	0.0%
Past Six Months	2,034	88	8	5	2
	95.2%	4.1%	0.4%	0.2%	0.1%
Past Year	1,969	134	23	7	4
	92.1%	6.3%	1.1%	0.3%	0.2%

Inhalants					
Number of times used during the:	**None**	**1-5**	**6-10**	**11-19**	**20 or more**
Past 30 Days	2,121	14	1	1	0
	99.3%	0.7%	0.05%	0.05%	0.0%
Past Six Months	2,104	27	4	1	1
	98.5%	1.3%	0.2%	0.05%	0.05%
Past Year	2,077	46	8	4	2
	97.2%	2.2%	0.4%	0.2%	0.1%

Other Drugs					
Number of times used during the:	**None**	**1-5**	**6-10**	**11-19**	**20 or more**
Past 30 Days	2,066	55	7	5	4
	96.7%	2.6%	0.3%	0.2%	0.2%
Past Six Months	2,033	67	18	10	9
	95.1%	3.1%	0.8%	0.5%	0.4%
Past Year	2,005	74	21	16	21
	93.8%	3.5%	1.0%	0.7%	1.0%

APPENDIX B:

Tables of Comparisons of Use of Substances Between the Beginning of the Program and the 18-month Follow-up

Beer			
If used in the past 6 months...	**None**	**Any**	**Total**
Before	25	50	75
	33.3%	66.7%	100.0%
18 months later	37	38	75
	49.3%	50.7%	100.0%

p=.047

Liquor			
If used in the past 6 months...	**None**	**Any**	**Total**
Before	42	33	75
	56.0%	44.0%	100.0%
18 months later	53	22	75
	70.7%	29.3%	100.0%

p=.063

Marijuana			
If used in the past 30 days...	**None**	**Any**	**Total**
Before	64	15	79
	81.0%	19.0%	100.0%
18 months later	73	6	79
	92.4%	7.6%	100.0%

p=.035

Marijuana			
If used in the past 6 months...	**None**	**Any**	**Total**
Before	34	42	76
	44.7%	55.3%	100.0%
18 months later	63	13	76
	82.9%	17.1%	100.0%

p<.0005

Depressants			
If used in the past 6 months...	**None**	**Any**	**Total**
Before	69	4	73
	94.5%	5.5%	100.0%
18 months later	73	0	73
	100.0%	0.0%	100.0%

p=.043

APPENDIX C:

Associations of Report of Behaviors at School, Involvement in Activities, and Talking with Parents and Reports of Substance Use at The Six-month Follow-up

Substance	Better Grades	More trouble in school	Involvement in after-school activities	Church, synagogue, or temple	Volunteer work	Increased talking with parents
Cigarettes	-.066	.174	-.225	-.186	-.169	-.099
	.149	.000	.000	.000	.000	.030
Beer	-.156	.102	-.049	-.147	-.079	-.025
	.000	.019	.220	.000	.057	.595
Wine	-.105	.090	-.011	-.037	-.059	-.064
	.034	.069	.788	.406	.158	.225
Liquor	-.118	.155	-.055	-.091	-.076	-.023
	.010	.001	.193	.037	.072	.639
Marijuana	-.095	.231	-.138	-.122	-.136	-.020
	.042	.000	.000	.002	.001	.684

n=423. The first number in each cell is Kendall's tau-b: a correlation coefficient for ordinal data. The second number is the probability value for the tau-b value; smaller numbers represent smaller likelihoods that the correlation would occur just by chance.

APPENDIX D:

Youth Beliefs About Their Parents' Attitudes About ATOD Use

"How do you think your parents would feel about you . . .?"	Strongly approve	Approve	No opinion	Disapprove	Strongly disapprove
Having a drink at a family occasion	48	368	344	565	789
	2.3%	17.4%	16.3%	26.7%	37.3%
Waiting until age 21 to drink	944	695	289	87	99
	44.7%	32.9%	13.7%	4.1%	4.7%
Coming home drunk	19	30	147	400	1518
	0.9%	1.4%	7.0%	18.9%	71.8%
Never drinking at any age	633	421	757	199	104
	29.9%	19.9%	35.8%	9.4%	4.9%
Having an occasional cigarette	72	411	477	592	562
	3.4%	19.4%	22.6%	28.0%	26.6%
Smoking on a regular basis	69	317	360	483	885
	3.3%	15.0%	17.0%	22.8%	41.9%
Never smoking cigarettes	998	455	442	98	121
	47.2%	21.5%	20.9%	4.6%	5.7%
Getting high on pot	33	34	198	435	1414
	1.6%	1.6%	9.4%	20.6%	66.9%
Smoking an occasional joint	35	48	217	450	1364
	1.7%	2.3%	10.3%	21.3%	64.5%
Never trying marijuana	1252	343	267	81	171
	59.2%	16.2%	12.6%	3.8%	8.1%
Sampling other drugs once or twice	80	36	160	262	1576
	3.8%	1.7%	7.6%	12.4%	74.6%
Never trying other drugs	1279	252	174	71	338
	60.5%	11.9%	8.2%	3.4%	16.0%

APPENDIX E:

Youth's Perceptions of Accessibility of Substances By the 2,228 Adolescents Responding to All Questions Prior to The Program

Substance	Cannot get	Fairly difficult	Fairly easy	Very easy	Don't know
Cigarettes	118	113	379	1,410	208
	5.3%	5.1%	17.0%	63.3%	9.3%
Beer	293	464	611	609	251
	13.2%	20.8%	27.4%	27.3%	11.3%
Wine	355	362	516	557	438
	15.9%	16.2%	23.2%	25.0%	19.7%
Liquor	352	430	561	582	303
	15.8%	19.3%	25.2%	26.1%	13.6%
Pot	228	348	461	844	347
	10.2%	15.6%	20.7%	37.9%	15.6%
Coke	734	125	109	165	1,095
	32.9%	5.6%	4.9%	7.4%	49.1%
Uppers	719	115	121	182	1,091
	32.3%	5.2%	5.4%	8.2%	49.0%
Downers	678	120	154	212	1,064
	30.4%	5.4%	6.9%	9.5%	47.8%
Inhalants	585	51	81	492	1,019
	26.3%	2.3%	3.6%	22.1%	45.7%
Acid	672	170	149	207	1,030
	30.2%	7.6%	6.7%	9.3%	46.2%
Other Drugs	676	97	83	191	1,181
	30.3%	4.4%	3.7%	8.6%	53.0%

APPENDIX F:

Adolescents' Report of Use of Substances by Friends

Cigarettes					
Number of friends who use...	**None**	**A few**	**Several**	**Most**	**Total**
Before	19	111	130	185	445
	4.3%	24.9%	29.2%	41.6%	100.0%
Six months later	22	153	138	132	445
	4.9%	34.4%	31.0%	29.7%	100.0%

p<.0005

Beer					
Number of friends who use...	**None**	**A few**	**Several**	**Most**	**Total**
Before	32	202	125	86	445
	7.2%	45.4%	28.1%	19.3%	100.0%
Six months later	63	207	114	61	445
	14.2%	46.5%	25.6%	13.7%	100.0%

p=.001

Wine					
Number of friends who use...	**None**	**A few**	**Several**	**Most**	**Total**
Before	153	185	60	47	445
	34.4%	41.6%	13.5%	10.6%	100.0%
Six months later	161	220	43	21	445
	36.2%	49.4%	9.7%	4.7%	100.0%

p=.024

Liquor					
Number of friends who use...	**None**	**A few**	**Several**	**Most**	**Total**
Before	60	222	104	59	445
	13.5%	49.9%	23.4%	13.3%	100.0%
Six months later	96	235	75	39	445
	21.6%	52.8%	16.9%	8.8%	100.0%

p<.0005

Marijuana					
Number of friends who use...	**None**	**A few**	**Several**	**Most**	**Total**
Before	85	204	79	77	445
	19.1%	45.8%	17.8%	17.3%	100.0%
Six months later	126	199	68	52	445
	28.3%	44.7%	15.3%	11.7%	100.0%

p<.0005

APPENDIX F (continued)

Cocaine					
Number of friends who use...	**None**	**A few**	**Several**	**Most**	**Total**
Before	413	27	2	3	445
	92.8%	6.1%	0.4%	0.7%	100.0%
Six months later	424	18	2	1	445
	95.3%	4.0%	0.4%	0.2%	100.0%

p=.118

Stimulants					
Number of friends who use...	**None**	**A few**	**Several**	**Most**	**Total**
Before	413	28	1	3	445
	92.8%	6.3%	0.2%	0.7%	100.0%
Six months later	425	20	0	0	445
	95.5%	4.5%	0.0%	0.0%	100.0%

p=.081

Depressants					
Number of friends who use...	**None**	**A few**	**Several**	**Most**	**Total**
Before	407	34	2	2	445
	91.5%	7.6%	0.4%	0.4%	100.0%
Six months later	420	24	1	0	445
	94.4%	5.4%	0.2%	0.0%	100.0%

p=.085

Inhalants					
Number of friends who use...	**None**	**A few**	**Several**	**Most**	**Total**
Before	418	23	2	2	445
	93.9%	5.2%	0.4%	0.4%	100.0%
Six months later	437	8	0	0	445
	98.2%	1.8%	0.0%	0.0%	100.0%

p=.001

"Acid"					
Number of friends who use...	**None**	**A few**	**Several**	**Most**	**Total**
Before	349	83	8	5	445
	78.4%	18.7%	1.8%	1.1%	100.0%
Six months later	383	52	8	2	445
	86.1%	11.7%	1.8%	0.4%	100.0%

p=.003

Other Drugs					
Number of friends who use...	**None**	**A few**	**Several**	**Most**	**Total**
Before	401	36	5	3	445
	90.1%	8.1%	1.1%	0.7%	100.0%
Six months later	422	20	2	1	445
	94.8%	4.5%	0.4%	0.2%	100.0%

p=.007

APPENDIX G:

Changes in Reports on Perceptions of Harmfulness of Use

Drinking alcohol can injure a young person's health.	Strongly agree	Agree	No opinion	Disagree	Strongly disagree	Total
Before	199	181	36	11	5	432
	46.1%	41.9%	8.3%	2.5%	1.2%	100.0%
Six months later	224	167	26	10	5	432
	51.9%	38.7%	6.0%	2.3%	1.2%	100.0%

p=.07

Teenagers are more likely to get hurt when they've been drinking alcohol.	Strongly agree	Agree	No opinion	Disagree	Strongly disagree	Total
Before	186	166	41	30	9	432
	43.1%	38.4%	9.5%	6.9%	2.8%	100.0%
Six months later	221	145	41	24	1	432
	51.2%	33.6%	9.5%	5.6%	0.2%	100.0%

p=.01

Teenagers can get addicted to alcohol just like adults can.	Strongly agree	Agree	No opinion	Disagree	Strongly disagree	Total
Before	221	169	20	10	12	432
	51.2%	39.1%	4.6%	2.3%	2.8%	100.0%
Six months later	260	148	18	2	4	432
	60.2%	34.3%	4.2%	0.5%	0.9%	100.0%

p=.003

The only real danger to using alcohol is getting caught.	Strongly agree	Agree	No opinion	Disagree	Strongly disagree	Total
Before	11	20	66	178	157	432
	2.5%	4.6%	15.3%	41.2%	36.3%	100.0%
Six months later	8	13	47	168	196	432
	1.9%	3.0%	10.9%	38.9%	45.4%	100.0%

p=.002

Marijuana can affect school performance.	Strongly agree	Agree	No opinion	Disagree	Strongly disagree	Total
Before	170	142	66	34	20	432
	39.4%	32.9%	15.3%	7.9%	4.6%	100.0%
Six months later	206	131	56	25	14	432
	47.7%	30.3%	13.0%	5.8%	3.2%	100.0%

p=.008

APPENDIX G (continued)

Marijuana can be addictive.	Strongly agree	Agree	No opinion	Disagree	Strongly disagree	Total
Before	151	122	76	47	36	432
	35.0%	28.2%	17.6%	10.9%	8.3%	100.0%
Six months later	180	130	71	31	20	432
	41.7%	30.1%	16.4%	7.2%	4.6%	100.0%

p=.003

Driving ability can be affected by marijuana.	Strongly agree	Agree	No opinion	Disagree	Strongly disagree	Total
Before	159	129	90	37	17	432
	36.8%	29.9%	20.8%	8.6%	3.9%	100.0%
Six months later	177	146	66	30	13	432
	41.0%	33.8%	15.3%	6.9%	3.0%	100.0%

p=.04

APPENDIX H:

Changes in Reports on Perceptions of Harmfulness of Use Combined into Two Categories of Response with Odds Ratios

Drinking alcohol can injure a young person's health.	Strongly agree	All other	Total
Before	199 46.1%	233 53.9%	432 100.0%
Six months later	224 51.9%	208 48.1%	432 100.0%

Odds ratio: 1.26. p=.09

Teenagers are more likely to get hurt when they've been drinking alcohol.	Strongly agree	All other	Total
Before	186 43.1%	246 56.9%	432 100.0%
Six months later	221 51.2%	211 48.8%	432 100.0%

Odds ratio: 1.39. p=.02

Teenagers can get addicted to alcohol just like adults can.	Strongly agree	All other	Total
Before	221 51.2%	211 48.8%	432 100.0%
Six months later	260 60.2%	172 39.8%	432 100.0%

Odds ratio: 1.44. p=.007

The only real danger to using alcohol is getting caught.	Strongly agree	All other	Total
Before	157 36.3%	275 63.7%	432 100.0%
Six months later	196 45.4%	236 54.6%	432 100.0%

Odds ratio: 1.45. p=.007

Marijuana can affect school performance.	Strongly agree	All other	Total
Before	170 39.4%	262 60.6%	432 100.0%
Six months later	206 47.7%	226 52.3%	432 100.0%

Odds ratio: 1.40. p=.013

APPENDIX H (continued)

Marijuana can be addictive.	Strongly agree	All other	Total
Before	151	281	432
	35.0%	65.0%	100.0%
Six months later	180	252	432
	41.7%	58.3%	100.0%

Odds ratio: 1.33. p=.04

Driving ability can be affected by marijuana.	Strongly agree	All other	Total
Before	159	273	432
	36.8%	63.2%	100.0%
Six months later	177	255	432
	41.0%	59.0%	100.0%

Odds ratio: 1.19. p=.21

APPENDIX I:

Relation Between Reports on Perceptions of Harmfulness of Use and Reports of Use of Substances in The Past Six Months

At The Beginning of the Program

	Use of beer in past six months					
Drinking alcohol can injure a young person's health.	**None**	**1-5 times**	**6-10 times**	**11-19 times**	**20 times or more**	**Total**
Strongly agree	69	84	18	5	3	179
	38.5%	46.9%	10.1%	2.8%	1.7%	100.0%
All other responses	49	97	50	8	7	211
	23.2%	46.0%	23.7%	3.8%	3.3%	100%

p<.0005

	Use of beer in past six months					
Teenagers are more likely to get hurt when they've been drinking alcohol.	**None**	**1-5 times**	**6-10 times**	**11-19 times**	**20 times or more**	**Total**
Strongly agree	63	78	14	6	4	165
	38.2%	47.3%	8.5%	3.6%	2.4%	100%
All other responses	55	103	54	7	6	225
	24.4%	45.8%	24.0%	3.1%	2.7%	100%

p<.0005

	Use of beer in past six months					
Teenagers can get addicted to alcohol just like adults can.	**None**	**1-5 times**	**6-10 times**	**11-19 times**	**20 times or more**	**Total**
Strongly agree	67	96	25	6	4	198
	33.8%	48.5%	12.6%	3.0%	2.0%	100%
All other responses	51	85	43	7	6	192
	26.6%	44.3%	22.4%	3.6%	3.1%	100%

p=.013

	Use of liquor in past six months					
Teenagers can get addicted to alcohol just like adults can.	**None**	**1-5 times**	**6-10 times**	**11-19 times**	**20 times or more**	**Total**
Strongly agree	109	73	13	2	1	198
	55.1%	36.9%	6.6%	1.0%	0.5%	100%
All other responses	86	82	21	1	2	192
	44.8%	42.7%	10.9%	0.5%	1.0%	100%

p=.030

	Use of beer in past six months					
The only real danger to using alcohol is getting caught.	**None**	**1-5 times**	**6-10 times**	**11-19 times**	**20 times or more**	**Total**
Strongly agree	64	117	53	11	7	252
	25.4%	46.4%	21.0%	4.4%	2.8%	100%
All other responses	54	64	15	2	3	138
	39.1%	46.4%	10.9%	1.4%	2.2%	100%

p<.0005

APPENDIX I (continued)

At The Beginning of the Program

	Use of marijuana in past six months					
Marijuana can affect school performance.	**None**	**1-5 times**	**6-10 times**	**11-19 times**	**20 times or more**	**Total**
Strongly agree	91	53	5	2	4	155
	58.7%	34.2%	3.2%	1.3%	2.6%	100%
All other responses	99	72	37	11	16	235
	42.1%	30.6%	15.7%	4.7%	6.8%	100%

p<.0005

	Use of marijuana in past six months					
Marijuana can be addictive.	**None**	**1-5 times**	**6-10 times**	**11-19 times**	**20 times or more**	**Total**
Strongly agree	81	43	7	1	5	137
	59.1%	31.4%	5.1%	0.7%	3.6%	100%
All other responses	109	80	35	12	15	253
	43.1%	32.4%	13.8%	4.7%	5.9%	100%

p<.0005

	Use of marijuana in past six months					
Driving ability can be affected by marijuana.	**None**	**1-5 times**	**6-10 times**	**11-19 times**	**20 times or more**	**Total**
Strongly agree	84	46	5	1	4	140
	60.0%	32.9%	3.6%	0.7%	2.9%	100%
All other responses	106	79	37	12	16	250
	42.4%	31.6%	14.8%	4.8%	6.4%	100%

p<.0005

At The Six-month Follow-up

	Use of beer in past six months					
Drinking alcohol can injure a young person's health.	**None**	**1-5 times**	**6-10 times**	**11-19 times**	**20 times or more**	**Total**
Strongly agree	123	52	18	7	3	203
	60.6%	25.6%	8.9%	3.4%	1.5%	100.0%
All other responses	76	75	21	5	10	187
	40.6%	40.1%	11.2%	2.7%	5.3%	100%

p<.0005

	Use of wine in past six months					
Drinking alcohol can injure a young person's health.	**None**	**1-5 times**	**6-10 times**	**11-19 times**	**20 times or more**	**Total**
Strongly agree	835	16	3	0	1	203
	90.1%	7.9%	1.5%	0.0%	0.5%	100.0%
All other responses	153	31	2	1	0	187
	81.8%	16.6%	1.1%	0.5%	0.0%	100%

p=.021

APPENDIX I (continued)

At The Six-month Follow-up

	Use of liquor in past six months					
Drinking alcohol can injure a young person's health.	**None**	**1-5 times**	**6-10 times**	**11-19 times**	**20 times or more**	**Total**
Strongly agree	156 76.8%	38 18.7%	6 3.0%	1 0.5%	2 1.0%	203 100.0%
All other responses	119 63.6%	58 31.3%	5 2.7%	3 1.6%	2 1.1%	187 100%

p=.006

	Use of beer in past six months					
Teenagers are more likely to get hurt when they've been drinking alcohol.	**None**	**1-5 times**	**6-10 times**	**11-19 times**	**20 times or more**	**Total**
Strongly agree	122 61.3%	51 25.6%	17 8.5%	6 3.0%	3 1.5%	199 100%
All other responses	77 40.3%	76 39.8%	22 11.5%	6 3.1%	10 5.2%	191 100%

p<.0005

	Use of liquor in past six months					
Teenagers are more likely to get hurt when they've been drinking alcohol.	**None**	**1-5 times**	**6-10 times**	**11-19 times**	**20 times or more**	**Total**
Strongly agree	159 79.9%	32 16.1%	5 2.5%	1 0.5%	2 1.0%	199 100%
All other responses	123 60.7%	64 33.5%	6 3.1%	3 1.6%	2 1.0%	191 100%

p<.0005

	Use of beer in past six months					
Teenagers can get addicted to alcohol just like adults can.	**None**	**1-5 times**	**6-10 times**	**11-19 times**	**20 times or more**	**Total**
Strongly agree	138 58.7%	62 26.4%	20 8.5%	11 4.7%	4 1.7%	235 100%
All other responses	61 39.4%	65 41.9%	19 12.3%	1 0.6%	9 5.8%	155 100%

p=.001

	Use of beer in past six months					
The only real danger to using alcohol is getting caught.	**None**	**1-5 times**	**6-10 times**	**11-19 times**	**20 times or more**	**Total**
Strongly agree	113 63.5%	48 27.0%	11 6.2%	3 1.7%	3 1.7%	178 100%
All other responses	86 40.6%	79 37.3%	28 13.2%	9 4.2%	10 4.7%	212 100%

p<.0005

APPENDIX I (continued)

At The Six-month Follow-up

	Use of wine in past six months					
The only real danger to using alcohol is getting caught.	**None**	**1-5 times**	**6-10 times**	**11-19 times**	**20 times or more**	**Total**
Strongly agree	161 90.4%	14 7.9%	2 1.1%	0 0.0%	1 0.6%	178 100%
All other responses	175 82.5%	33 15.6%	3 1.4%	1 0.5%	0 0.0%	212 100%

p=.023

	Use of liquor in past six months					
The only real danger to using alcohol is getting caught.	**None**	**1-5 times**	**6-10 times**	**11-19 times**	**20 times or more**	**Total**
Strongly agree	143 80.3%	29 16.3%	4 2.2%	1 0.6%	1 0.6%	178 100%
All other responses	132 62.3%	67 31.6%	7 3.3%	3 1.4%	3 1.4%	212 100%

p<.0005

	Use of marijuana in past six months					
Marijuana can affect school performance.	**None**	**1-5 times**	**6-10 times**	**11-19 times**	**20 times or more**	**Total**
Strongly agree	121 75.2%	31 19.3%	3 1.9%	1 0.6%	5 3.1%	161 100%
All other responses	136 59.4%	60 26.2%	17 7.4%	2 0.9%	14 6.1%	229 100%

p<.0005

	Use of marijuana in past six months					
Marijuana can be addictive.	**None**	**1-5 times**	**6-10 times**	**11-19 times**	**20 times or more**	**Total**
Strongly agree	138 75.0%	38 20.7%	3 1.6%	0 0.0%	5 2.7%	184 100%
All other responses	119 57.8%	53 25.7%	17 8.3%	3 1.5%	14 6.8%	206 100%

p<.0005

	Use of marijuana in past six months					
Driving ability can be affected by marijuana.	**None**	**1-5 times**	**6-10 times**	**11-19 times**	**20 times or more**	**Total**
Strongly agree	123 76.9%	31 18.8%	3 1.9%	1 0.6%	3 1.9%	160 100%
All other responses	134 58.3%	61 26.5%	17 7.4%	2 0.9%	16 7.0%	230 100%

p<.0005

APPENDIX J:

Youth Attitudes About ATOD Use

"How do you feel about the following behaviors for yourself?"	Strongly approve	Approve	No opinion	Disapprove	Strongly disapprove
Having a drink at a family occasion	122	496	649	359	504
	5.7%	23.3%	30.5%	16.9%	23.7%
Waiting until age 21 to drink	304	602	696	353	175
	14.3%	28.3%	32.7%	16.6%	8.2%
Coming home drunk	30	69	413	665	953
	1.4%	3.2%	19.4%	31.2%	44.7%
Never drinking at any age	178	207	942	453	350
	8.4%	9.7%	44.2%	21.3%	16.4%
Having an occasional cigarette	347	698	480	282	323
	16.3%	32.8%	22.5%	13.2%	15.2%
Smoking on a regular basis	277	469	459	407	518
	13.0%	22.0%	21.5%	19.1%	24.3%
Never smoking cigarettes	558	346	763	241	222
	26.2%	16.2%	35.8%	11.3%	10.4%
Getting high on pot	83	231	691	519	606
	3.9%	10.8%	32.4%	24.4%	28.5%
Smoking an occasional joint	76	365	614	470	605
	3.6%	17.1%	28.8%	22.1%	28.4%
Never trying marijuana	574	435	789	174	158
	26.9%	20.4%	37.0%	8.2%	7.4%
Sampling other drugs once or twice	86	109	439	416	1,080
	4.0%	5.1%	20.6%	19.5%	50.7%
Never trying other drugs	939	354	463	112	262
	44.1%	16.6%	21.7%	5.3%	12.3%

APPENDIX K:

Differences in Youths' Substance Use: Initial and 18 Months Later

Significant Changes

At The Start of The Program

Belief	Substance	Odds Ratio
Drinking alcohol can injure a young person's health.	Beer	3.06
Teenagers are more likely to get hurt when they've been drinking alcohol.	Beer	3.40
Teenagers are more likely to get hurt when they've been drinking alcohol.	Liquor	3.92
The only real danger to using alcohol is getting caught.	Liquor	2.83

At The 18-month Follow-up

Belief	Substance	Odds Ratio
Drinking alcohol can injure a young person's health.	Beer	3.37
Teenagers are more likely to get hurt when they've been drinking alcohol.	Beer	5.34
Teenagers are more likely to get hurt when they've been drinking alcohol.	Liquor	2.60

Substantial but Not Statistically Significant Changes (Due to Small Numbers)

At The Start of The Program

Belief	Substance	Odds Ratio
Drinking alcohol can injure a young person's health.	Liquor	1.96
Teenagers are more likely to get hurt when they've been drinking alcohol.	Wine	1.56
Teenagers can get addicted to alcohol just like adults can.	Beer	2.52
Teenagers can get addicted to alcohol just like adults can.	Liquor	1.89
The only real danger to using alcohol is getting caught.	Wine	1.69
Marijuana can affect school performance.	Marijuana	1.73
Driving ability can be affected by marijuana.	Marijuana	1.50

At The 18-month Follow-up

Belief	Substance	Odds Ratio
Drinking alcohol can injure a young person's health.	Beer	1.98
Teenagers are more likely to get hurt when they've been drinking alcohol.	Beer	1.51
Teenagers can get addicted to alcohol just like adults can.	Wine	2.44
Teenagers can get addicted to alcohol just like adults can.	Liquor	2.21
The only real danger to using alcohol is getting caught.	Marijuana	2.70
Marijuana can affect school performance.	Marijuana	1.89
Driving ability can be affected by marijuana.	Beer	1.98

The odds ratios indicate the increased odds that adolescents who held stronger opinions on the given beliefs in the direction favoring less use also reported lower use of the substance listed.