

SECOND REPORT
TALKING WITH YOUR STUDENTS ABOUT ALCOHOL

**ONE, TWO, AND THREE YEAR FOLLOW-UP DATA ON STUDENTS
TAUGHT IN EITHER THE SEVENTH GRADE OR THE NINTH GRADE**

**PREPARED BY THE
PREVENTION RESEARCH INSTITUTE
AND THE
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SECOND REPORT TALKING WITH YOUR STUDENTS ABOUT ALCOHOL

A ONE, TWO AND THREE YEAR FOLLOW-UP ON STUDENTS TAUGHT IN EITHER THE SEVENTH OR NINTH GRADE

INTRODUCTION

This is the second in a series of reports on the evaluation of the curriculum, TALKING WITH YOUR STUDENTS ABOUT ALCOHOL (TWYSAA). This report only includes students who have answered every question and whose responses are present and matched on a case by case basis for at least two of the six data gathering waves included in this report, and thus includes only students who presented the most reliable data. For a more thorough understanding of how the evaluation was conducted, the reader is referred to the introduction of the *Project Reference Manual*.

The current national trend of increased alcohol use with increased age during the teen years provides a substantial challenge to prevention programs. Recent national surveys have shown that of the graduating class of 1985, 33% used alcohol by the end of the eighth grade, but 92% had used alcohol by the 12th grade. Heavy use of alcohol also increases with age. The percent of seniors who report drinking 5 or more drinks on one or more days in the previous month (37%) exceeds the percent of eighth graders that have tried alcohol at all¹. This high level of alcohol consumption has led to serious problems among young Americans. In turn this has led to a number of efforts to reduce alcohol-related problems through education.

The purpose of the TALKING WITH YOUR STUDENTS ABOUT ALCOHOL curriculum is to reduce alcohol-related problems among participants throughout their life. The curriculum has three behavioral goals, each of which can reduce alcohol-related problems, and which have special application to the junior and senior high school population. The first behavioral goal is to increase the percentage of students who abstain from alcohol. This goal has become widely adopted in our country as a goal for adolescents. For those who do use beverage alcohol, in spite of legal, parental, and societal expectations to the contrary, a second TWYSAA goal is to delay the age at which use begins. This goal has also become widely adopted in our country. There remains, though, a sizable number of students who drink large quantities, are not chemically dependent, and who may not be likely to return to abstinence, in spite of expectations and laws to the contrary. It is these students who are at greatest risk of experiencing alcohol related problems because of their heavy consumption. Previous research has demonstrated that those high school students who sometimes drink four or more drinks on an occasion experience 44X more alcohol related problem incidences than those who drink but do not drink more than 1,2, or 3 drinks on an occasion². For this population we believe a third goal, to decrease the level of high-risk use, is essential.

In addition to these behavioral goals, the TALKING WITH YOUR STUDENTS ABOUT ALCOHOL program has specific attitudinal goals. Several of these are captured in a single attitude scale. One measurable goal of the curricula is to bring about changes in that attitudinal scale in a way that correlates with abstinence or minimal use. Previous research has indicated that adolescent abstainers and minimal users have almost identical attitudinal profiles, but their attitudinal profile differs markedly from adolescents who consume large quantities.²³

TALKING WITH YOUR STUDENTS ABOUT ALCOHOL is one of several curricula developed by the Prevention Research Institute, based on the Lifestyle Risk Reduction Model of prevention. It is intended to be taught in four grades in an every other year sequence. A brief introductory unit is taught in either the fifth or sixth grade with a core unit taught in either the seventh or eighth, followed by a second core unit in either the ninth or the tenth grade, and a refresher unit in the eleventh or twelfth grade. It is also designed to work as part of a parent/student set with the TALKING WITH YOUR KIDS ABOUT ALCOHOL program being offered to parents. Evaluation of the parent program was conducted separately and has been previously summarized.¹⁸ For evaluation purposes, the school curriculum was also tested separately. The parents of subjects included in the current report, then, did not receive the parent program in order to allow us to isolate the impact of the school curriculum. In theory, maximum impact of the program should be attained when the parents receive TALKING WITH YOUR KIDS ABOUT ALCOHOL and students receive TALKING WITH YOUR STUDENTS ABOUT ALCOHOL at all four levels. Thus, the current evaluation should be taken as the most minimal impact of which the curriculum is capable.

LITERATURE REVIEW

A variety of criteria can be used to evaluate the effectiveness of a given curricula. The simplest criteria is user satisfaction. The next level measures knowledge gains. A third level of evaluation measures impact on items that either theoretically or empirically are correlated with use such as attitudes, self-concept, or interpersonal skills. Another criteria is to measure changes in use related problems. The most demanding level of evaluation, and the one that has been most difficult for curricula to demonstrate, is changes in the quantity and frequency of alcohol use. In measuring changes in any of these areas an evaluator is confronted with limitations in the ability to accurately measure the actual indicator. The primary limitations are in the measuring instruments and limitations of accuracy of self-report. Others have looked at these problems in detail²¹ and we will not repeat that here. Their findings, however, while acknowledging the limitations of both self report and instrumentation, indicate that these limitations, generally speaking, are not so major as to invalidate results.

Of the above criteria to measure effectiveness of a curricula, the only ones addressed in this report, and thus the only ones that will be reviewed in this section, are changes in alcohol attitudes and quantity and frequency of alcohol use. Most reviews of research on program effectiveness have concluded that alcohol and drug prevention programs have made no real impact on behaviors.^{3,4,13,14} Some have actually shown that alcohol/drug education can lead to a negative impact.^{4,5} While the attitudinal and behavioral impact of prevention programs in general is of interest to theoreticians and program developers, the impact of specific curricula in use around the country has the greatest practical implications.

Behavior

The first major alcohol curricula to be researched was HERE'S LOOKING AT YOU. The evaluation showed that there was no impact on quantity and frequency of alcohol consumed. However, there was a reduction at the junior high level in the incidence of reported drunkenness.⁷ CASPAR, DECISIONS ABOUT DRINKING has also been heavily evaluated and results have shown similar findings in that there was no impact on quantity and frequency of use though there was a reduction in reported drunkenness in junior high. In CASPAR though, there was an *increase* in reported drunkenness among high school girls.⁸ Since being drunk is a function of the quantity of alcohol consumed, it is difficult to imagine that there could be either an increase or decrease in drunkenness without a corresponding change in quantity consumed. One possible explanation of this discrepancy, then, is that these two curricula changed students' *perception* of when they were drunk, rather than the incidence of actual drunkenness.

A variety of affective curricula have been evaluated and have shown little impact on drinking behavior. The NAPA Drug Abuse Prevention Project evaluated four affective curricula and two alternatives strategies and found none to have any impact on drinking behavior.⁹ PROJECT CHARLIE made a comparison of two schools using that curriculum with data from a statewide sample. The comparison showed that among eighth graders there was a nonsignificant, but smaller level of reported use among students receiving the curriculum. Among 10th graders there were no differences. Among 12th graders there was a smaller lifetime use reported by Project Charlie students but no differences in past year or past month use. Students in the 10th and 12th grades reported later age of onset of alcohol use than the statewide sample.¹⁰ It is difficult to know what to make of these findings. On any self-report item, the more recent periods of time are more accurately reported than longer periods of time. In the Project Charlie report, the major differences were in lifetime use, or remembered early use reports which are the least reliable. In their reports on more recent consumption (the more reliable self report measures) no impact on drinking was found.

The OMSBUDSMAN curriculum showed decreases in alcohol consumption as compared to a national sample. However, the program was taught in conjunction with 10 different teacher training programs and 11 parent education programs with no comparison group other than the national sample. It is therefore difficult to attribute the impact to only one of the variables present (Omsbudsman).²⁰

PROJECT SMART, while not widely used itself, is one of the more extensively evaluated curricula currently available. This peer resistance curriculum was initially designed as a smoking prevention program but has been applied to alcohol and marijuana prevention as well. Research has demonstrated that a single teaching in the sixth grade increased the percentage of students still abstaining from alcohol in the ninth grade. Of great interest both to this report and to the practical utilization of prevention programs is the fact that a single teaching of the material in the sixth grade had superior results to teaching the material each year, at least for the three year follow-up period.¹¹ Also of interest is that an affective program tested at the same time showed similarly positive outcomes. In direct contrast, a study of the impact of teaching both affective and peer resistance programs to seventh graders showed that the peer resistance program increased abstinence but the affective program actually appeared to *increase* use.¹² The resistance curriculum also led to decreases in the percent who had previously abstained but later consumed two or more drinks in the past month. It also slowed the rate of increase in drinking among those who drank at pretest time. Again there were strong negative effects on these measures with the affective curriculum.

The LIFESKILLS program is a blend of peer resistance and affective education. In a six month follow-up, evaluators documented a reduction in alcohol use among those who received the curriculum.¹⁹

Several popular curricula, such as Here's Looking at You 2000, Starting Early, the Mendez curricula, MeMe, BABES, Quest, and Project Dare have not been evaluated for impact on alcohol/drug attitudes and behaviors.

Attitudes

Changes in drinking attitudes has also been difficult to attain. Some curricula, such as CASPAR, that have attempted to get change on an entire attitude scale have been unable to do so.⁶ CASPAR achieved lasting change in only one of thirteen measured items: it increased the percentage of students who felt that parents should drink in front of their children and should give alcohol to their children at home.⁸ HERE'S LOOKING AT YOU was able to obtain changes in its thirteen item scale.⁷ (While both of these curricula used a thirteen item scale, only one of the items were the same.) However, other research has indicated that on the one item on which CASPAR achieved lasting change, and on one third of the attitude items used in evaluating CASPAR and HERE'S LOOKING AT YOU, the answer that the curriculum sought to achieve actually correlated with high-risk drinking choices rather than abstinence or minimal use.²⁴ The at-

titude change gained would appear to be in a *negative* direction for CASPAR, and at least partly negative for HERE'S LOOKING AT YOU. We find no evidence that the other curricula reported on above even measured impact on alcohol attitudes.

Literature Review Summary

A review of the literature on the ability of existing prevention education programs to change alcohol attitudes and behaviors shows little impact. Curricula using peer resistance strategies have shown impact but it appears to have been limited to a delay in the onset of use in junior high. We find no curricula that have yet demonstrated either a delay in onset or an increase in abstinence in high school. Also we see no evidence that any curricula have shown a reduction in high risk use in either junior high or high school. Impact on drinking attitudes is equally sparse with only two curricula showing any impact, and that of questionable benefit. This paucity of prevention impact makes the need for prevention program evaluation even more critical.

METHODS

School Selection

A letter was sent to all public schools in Kentucky, and selected schools in southeastern Ohio, inviting their participation in a project that would provide their school with the TWYSAA curriculum and teacher training. In exchange they would participate in evaluation by having teachers administer a survey instrument to students twice a year. Ten schools that expressed a willingness to make a multi-year commitment to the project were accepted. Of that number, three were dropped from the study due to poor compliance with procedures. In the second year of the study two more schools were added. The grades in which the curricula was to be taught was left to the the school administration. Of these nine schools, three provided students for both the seventh grade and ninth grade analysis. Three others provided students for the seventh grade only and three others for the ninth grade only.

Instrument

The survey instrument included 94 items. Eighteen of these items were attitude statements using a five point Likert scale. Some of these items had been drawn from evaluation studies on other curricula and were used for comparison purposes.^{7,8} The items used to evaluate TWYSAA had been the subject of considerable work over a period of years^{15,23,24} and are strong predictors of drinking behavior. Sixteen items were used to measure alcohol and drug use.^{1,16} (comparable to items used in a number of well validated studies) There were also fourteen problem items that were drawn from or modified from previous studies.^{16,17} The remaining items were demographics, questions on family history, items to allow for conflict checks, and items such as the students perception of parental response if the student engaged in selected drinking or drug taking behaviors. (These items will be the subject of future reports.)

The response form was a scanable answer sheet that fit into the question booklet so that the response circles fell directly beside each item. Questions were divided into two booklets, one of which was administered both fall and spring and one of which was administered only in the fall.

Data Collection and Processing

Survey forms were administered to the students (typically) by home room teachers. Detailed instructions were provided and the importance of adhering to the procedures was stressed. A videotape giving directions to students was also provided to all schools in order to standardize directions as far as possible. The surveys were answered on National Computer Systems custom designed answer forms and scanned on an NCS Sentry 3000 scanner. Scanning software was custom written by NCS. The version of the software first used rejects any form with blank answers in any space not designated as optional. Those rejected were scanned separately with a second version of the software that would reject only those forms with blanks in the alcohol quantity and frequency questions or the codes.

Conflict Scale and Data Stability

From the ninety four items on the survey, a nine item *conflict scale* was created to detect students who were lying on responses, not taking the survey seriously, or were otherwise giving conflicting answers. The range of students dropped from analysis due to conflicting answers was from 15-23% in the schools included in this report.

Based on completeness of data and presence or absence of conflicting responses, cases were grouped into three levels of data *stability*:

- Level 1. those cases in which all questions are answered and the conflict score is zero,
- Level 2. those cases in which one or more questions are blank and the conflict score is zero, and
- Level 3. those cases in which all questions may or may not be answered, but the conflict score is above zero, raising serious questions about the accuracy of the answers.

There were also some forms which were unusable due to blanks in the quantity/frequency data, or in some cases blank or erroneous school, grade, or program codes. These responses were dropped from the study.

This report concerns itself only with data on the first level of stability. Thus, it reports on only a portion of the student body, but it is the portion on whom we have the most reliable data.

Comparison Group

The comparison group consisted of students of the same grade level and graduating classes from other schools participating in the project but not teaching the TWYSAA program at that grade level.

Number of participants

This report combines data from three years of data gathering. Thus, three different graduating classes could provide cases for the one year follow-up, two for the two year, and only one for the three year. For this reason the available pool diminishes greatly for each successive year.

For those who received TWYSAA in the seventh grade, the report provides a three year follow-up on one class from one school. Of those students from the one TWYSAA class that could be followed for three years, we were able to retain 49% in the study. This figure compares favorably with others such as the Project Smart study which retained 44%¹¹. Retention rate was understandably higher for the one and two year follow-ups. The one year follow-up reports on 475 TWYSAA students (plus 111 controls). These students represent three separate graduating classes. Two year follow-up data is available on 153 TWYSAA students for the fall of the eighth grade (31 controls) and 108 for the spring of the eighth (26 controls), which represents two graduating classes. The three year follow-up is limited to 30 TWYSAA students for the fall and spring of the ninth grade (with 18 fall and 17 spring controls) from one graduating class in one school.

For those who received TWYSAA in the ninth grade, 341 TWYSAA students (plus 158 control students) were available for the spring ninth grade follow-up. This also represented three graduating classes. Second year follow-up data is available on 73 fall ninth (plus 92 controls), and 99 spring tenth (plus 81 controls) which represent two graduating classes. Third year data was not available for the ninth grade cohort.

Identification Code and Anonymity Assurance

The answers to the first five items on the questionnaire constituted a personal code used to match student responses from pretest to various follow-up administrations. This code included items which would not change over time such as sex, middle initial, first initial of mother's maiden name, birth month, and number of older biological siblings. While this does not provide a perfect tracking mechanism it did work satisfactorily and met the needs of the project. (Only 0-5% of the students in any one school have been lost to the study due to duplicate codes.)

Students were assured in the written instructions that were read to them as they followed in their survey booklet, that their responses would be completely confidential. The personally generated code further assured them that their responses could not be traced to them.

Statistical Methods and Data Presentation

Data is provided in the form of charts that compare student responses in the fall pretest (either 7th or 9th grade) with those provided by the same student in subsequent follow-up data gatherings. T tests were run on pairs of data within the charts.

One aspect of this report that is different from typical program evaluation reports is the way in which students are analyzed separately according to their pretest, reported drinking attitudes and behaviors. Typically reports of this type have simply said 'X' percent abstained at time one and 'Y' percent at time two. The innovation added in this study is to break down students according to their fall response. Thus, this report will say "Of those who abstained in the fall 'X' still abstained in the spring, while 'Y' percent of those who drank 1-3 in the fall abstained in the spring and 'Z' percent of those who drank 4 or more in the fall abstained in the spring". This gives much more information about the relative impact of the curriculum on different populations, but has the disadvantage of reducing the number of students in each cell and lowering the base of calculation for some statistical procedures, making statistical significance harder to achieve. Thus, many of the T tests were not significant primarily due to small sample size.

The reader is reminded then that the charts will look different. Summary charts start with either 100% or 0% depending on the particular measure. For example, in checking to see how many of those who abstained in the pretest still abstain at the first posttest, the first figure will be 100%. This is not saying that 100% of the students abstained. It is saying that, in that particular analysis we are only looking at students who abstained in the pretest. Thus, 100% of that subgroup abstained at pretest time. In the same way, if we want to see how many of those drank in the pretest abstained in the first posttest, the pretest percentage will have to be 0%. This is simply saying that in this subgroup, those who drank at the pretest, none of them were abstaining. While this requires some mental readjustment in order to follow the data, we believe it provides a superior way of examining the data.

Given the ages at which the analysis begins, however, and the small percent of students drinking at those ages, our ability to follow some subgroups over multiple years was limited. For example, the percent of students drinking four or more at pretest in the seventh grade was so small that we could not meaningfully analyze them even for that one year. The percent in the ninth grade drinking four or more at pretest was large enough to allow follow-up within the ninth grade but the smaller number of classes available for long term follow-up along with attrition made numbers too small for follow-up analysis through the tenth grade.

Limitations

For several reasons this program evaluation project lacks the rigorous controls of the evaluation previously done on the TALKING WITH YOUR KIDS ABOUT ALCOHOL program.¹⁸ (The companion parent program for the TWYSAA curriculum) A controlled study for a school curriculum generally involves:

1. randomly assigning entire school districts and
2. direct monitoring of both data collection and program implementation.

Both of these controls require financial resources to provide incentives to the school, willingness for entire districts that want curricula to accept not receiving one for several years, and significant field staff time for monitoring data collection and program implementation. Since this project lacked those resources the only remaining option was to conduct a field study without random assignment. In spite of those limitations we were successful in involving a number of schools that did a reasonable job of both teaching and data gathering, and we were able to identify comparison students. Therefore we feel the data and conclusions contained in this preliminary report on a portion of the schools can be viewed with confidence.

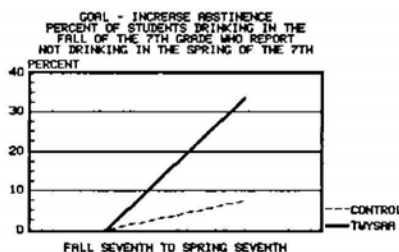
**EVALUATION SUMMARY
TALKING WITH YOUR STUDENTS ABOUT ALCOHOL
THE EFFECTS OF A SINGLE EXPOSURE IN THE SEVENTH OR NINTH GRADE**

GOAL ONE: TO INCREASE THE PERCENTAGE WHO ABSTAIN FROM ALCOHOL.

MEASURE: The attainment of this goal is measured by an increase in the percentage of students who report abstaining in the month prior to the posttest surveys, after being taught the program, but who had reported drinking in the seventh grade fall survey, prior to receiving the TALKING WITH YOUR STUDENTS ABOUT ALCOHOL program.

GENERAL POPULATION TRENDS: Surveys indicate that one should expect that the percentage of students who abstain will decrease each year between grades 7-12. Results from our first year of data gathering indicate that among students who are receiving no particular curriculum, those abstaining in the month prior to the fall survey drops by almost 50% between the seventh and eleventh grades. Any slowing of this trend should be seen as a sign of program success. Achieving this goal should become more difficult as students get older since the number who drink increases sharply with age, and opportunities to drink increase as well.

FINDINGS ON SEVENTH GRADE TWYSAA IMPACT: Among seventh graders who drank prior to receiving the curriculum (0% of this subgroup abstained at pretest time) 33% of the TWYSAA students reported no drinking after receiving the curriculum. This compared to only 7.1% of the control group. This difference was significant at the .05 level.



Numbers of students who reporting drinking in the first survey and for whom matched cases were present in subsequent follow-ups were too small to allow for analysis.

CONCLUSION: TWYSAA increased abstinence at a statistically significant level in the seventh grade.

OF STUDENTS WHO REPORTED SOME ALCOHOL USE IN THE MONTH PRIOR TO THE FALL SURVEY IN THE SEVENTH GRADE - PRIOR TO RECEIVING TWYSAA - WHAT PERCENT REPORTED NO USE IN THE MONTH PRIOR TO EACH FOLLOW-UP INTERVAL?

	FALL 7TH	SPRING 7TH	FALL 8TH	SPRING 8TH	FALL 9TH	SPRING 9TH
TWYSAA STUDENTS	0.0%	33.3%*	NA	NA	NA	NA
CONTROL STUDENTS	0.0%	07.1%	NA	NA	NA	NA

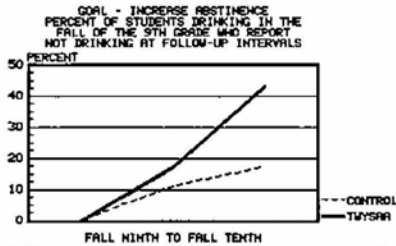
* p=.05

P=.02

! P=.01

FOR MORE DETAILED DATA SEE APPENDIX A

FINDINGS ON THE NINTH GRADE TWYSAA IMPACT



Of the students who drank in the month prior to the fall ninth grade pretest (i.e. 0% of these students abstained at pretest time) 17% of the TWYSAA students abstained in the month prior to the spring ninth grade posttest, compared to 11% of the control group.

By the fall of the tenth grade 43% of the TWYSAA students who had reported drinking now abstained compared to 17% of the control group.

The number of matched cases who drank in the fall ninth grade pretest and for whom matched data was available by the spring of the tenth grade, and later, was too small for analysis.

CONCLUSION:

While numbers were too small to attain statistical significance, there was a clear trend for TWYSAA to increase abstinence at the ninth and tenth grade level among students who received the curriculum in the ninth grade. In fact, the trend strengthened over time.

OF STUDENTS WHO REPORTED SOME ALCOHOL USE IN THE MONTH PRIOR TO THE FALL SURVEY IN THE NINTH GRADE - PRIOR TO RECEIVING TWYSAA - WHAT PERCENT REPORTED NO USE IN THE MONTH PRIOR TO EACH FOLLOW-UP INTERVAL?

	FALL 9TH	SPRING 9TH	FALL 10TH	SPRING 10TH
TWYSAA STUDENTS	0.0%	17.0%	43.0%	NA
CONTROL STUDENTS	0.0%	11.0%	17.0%	

* p = .05

P = .02

! P = .01

FOR MORE DETAILED DATA SEE APPENDIX A

GOAL TWO: TO DELAY THE ONSET OF USE.

MEASURE: The attainment of this goal is measured by an increase in the percent of students who report no drinking in the fall pretest survey (prior to receiving the curriculum) and who still report no use in the follow-up surveys, taken after being exposed to the TWYSAA program.

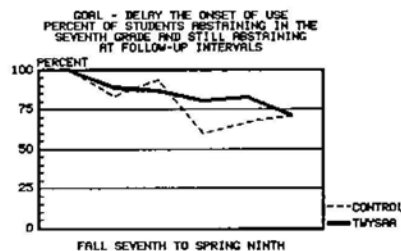
GENERAL POPULATION TRENDS: Surveys indicate that the percentage of students who begin drinking regularly will increase each year between grades 7-12. Any slowing of this trend should be seen as a sign of program success. As students get older, this goal should be more difficult to attain, since a higher percentage drink, and the opportunities to do so increase.

FINDINGS ON SEVENTH GRADE TWYSAA IMPACT: Among students who received TWYSAA in the seventh grade, 88.8% of the subgroup who abstained at pretest time still abstained at the spring posttest time compared to 82.5% of the control group. This difference was significant at the .05 level.

By the fall of the eighth grade 86.7% of the pretest abstainers who received TWYSAA were still abstaining, which is only 2% below the spring seventh grade figure. There was an 11% increase in control students reporting abstinence at this point in time. (This increase in abstinence in the control group would appear to be uncharacteristic of this age group when compared to national data monitoring use, in that the trend is a decrease in abstinence at this age. This difference, which favors the control group is not statistically significant.

By the spring of the eighth grade, more than one year after the curriculum was taught, the percentage of those who had abstained in the fall seventh and still abstained in the spring eighth was 1/3 higher among TWYSAA students than among control students. This 80% vs 60% difference was statistically significant at the .02 level.

By the fall of the ninth grade, those who had abstained in the fall of the seventh grade, and received TWYSAA during the seventh grade still showed substantially higher levels of nonuse. Among TWYSAA students, 82.6% of those abstaining in the fall of the seventh grade still abstained in the fall of the ninth, compared to only 66.7% of the control students. This finding was also significant at the .02 level.



By the spring of the ninth grade, the ability of a single exposure to TWYSAA in the seventh grade to continue to delay the onset of use had diminished. This would seem to support the curriculum design, calling for the program to be taught every other year. The percentage of abstainers among TWYSAA students was less than one percent higher than the control and was not statistically significant.

CONCLUSION: The data demonstrates that a single exposure to TWYSAA in the seventh grade delayed the onset of use of alcohol through the ninth grade, a span of 2 1/2 years, at a statistically significant level.

**OF STUDENTS WHO REPORTED NO ALCOHOL USE IN THE MONTH PRIOR TO
THE FALL SURVEY IN THE SEVENTH GRADE - PRIOR TO RECEIVING TWYSAA -
WHAT PERCENT STILL REPORTED NO USE
IN THE MONTH PRIOR TO EACH FOLLOW-UP INTERVAL?**

	FALL 7TH	SPRING 7TH	FALL 8TH	SPRING 8TH	FALL 9TH	SPRING 9TH
TWYSAA STUDENTS	100%	88.8%*	86.7%	80.4%#	82.6%#	71.4%
CONTROL STUDENTS	100%	82.5%	93.3%	60.0%	66.7%	70.6%

* p = .05

P = .02

! P = .01

FOR MORE DETAILED DATA SEE APPENDIX A

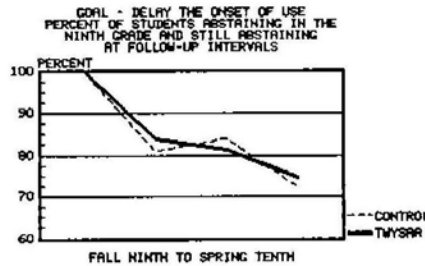
FINDINGS ON NINTH GRADE TWYSAA IMPACT:

Of the subgroup of students who abstained in the month prior to the fall ninth grade pretest, 83.7% of the TWYSAA students still abstained by the spring posttest, compared to 80.8% of the control group.

By the fall of the tenth grade, 81.4% of the TWYSAA students who had abstained in the fall of the ninth grade still abstained, compared to 83.8% of the control students.

By the spring of the tenth grade 74.6% of the TWYSAA students who had abstained in the fall of the ninth grade still abstained, compared to 72.2% of the control students.

CONCLUSION:



There is a small but nonsignificant delaying of onset of use for students who received a single exposure to TWYSAA at end of the ninth grade and end of the tenth grade, with a small but nonsignificant edge to the control group at the beginning of the tenth grade. The data would seem to support a conclusion that TWYSAA delayed the onset of use to a minimal extent in the high school sample.

OF STUDENTS WHO REPORTED NO ALCOHOL USE IN THE MONTH PRIOR TO THE FALL SURVEY IN THE NINTH GRADE - PRIOR TO RECEIVING TWYSAA - WHAT PERCENT STILL REPORTED NO USE IN THE MONTH PRIOR TO EACH FOLLOW-UP INTERVAL?

	FALL 9TH	SPRING 9TH	FALL 10TH	SPRING 10TH
TWYSAA STUDENTS	100%	83.7%	81.4%	74.6%
CONTROL STUDENTS	100%	80.8%	83.9%	72.2%

* p=.05
P=.02
! P=.01

FOR MORE DETAILED DATA SEE APPENDIX A

GOAL THREE: REDUCE HIGH-RISK USE

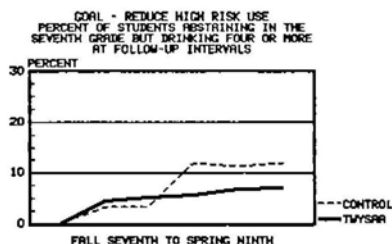
MEASURE: Attainment of this goal could be measured either by:

1. a decrease in the percentage of students who report consuming 4 or more drinks on one or more days in each of the posttest periods compared to the fall pretest survey (before TWYSAA was taught), AND/OR
2. a relative decrease in the percent who did not drink 4 or more in the fall 7th survey but did do so in subsequent data gatherings.

GENERAL POPULATION TRENDS: Surveys indicate that one should expect that the percentage of students who drink 4 or more on an occasion will increase each year between grades 7-12. Any reduction in the percent OR the rate of increase in the percentage drinking this quantity should be seen as a sign of program success. Results from our first year of data gathering indicate that among students who received no particular curriculum there was a six fold increase between the fall seventh and fall eleventh grades in those who reported consuming four or more drinks on one or more days in the previous month.

FINDINGS ON SEVENTH GRADE TWYSAA IMPACT: The number of students reporting this level of consumption in the fall of the seventh grade for whom there were matching cases in subsequent follow-ups were too small to be measured. Thus we cannot report on measure number one as listed above. The numbers available for measure number two were not large enough to achieve statistical significance in any survey period. The trends, however, show the following percentages for students who did not report drinking four or more on an occasion at pretest time, but did so at posttest times:

- *In the spring of the 7th grade TWYSAA 4.4%, controls 3.1%
- *In the fall of the 8th grade TWYSAA 5.3%, controls 3.3%
- *In the spring of the 8th grade TWYSAA 5.6%, controls 12.0%
- *In the fall of the 9th grade TWYSAA 6.9%, controls 11.1%
- *In the spring of the 9th grade TWYSAA 7.1%, controls 11.8%.



CONCLUSION: While the small numbers of students and the small percentages would argue for not drawing too strong a conclusion, the trends show an interesting pattern. Within the first six months after TWYSAA was taught to seventh graders, there was a very small tendency for TWYSAA students to be more likely to report high-risk quantities. However, by the end of the 8th grade there was a much stronger tendency for TWYSAA students to be **less** likely to report drinking 4 or more on any day. This trend was stronger and lasted longer than the earlier trend toward minimal increases in use.

This 'late blooming' effect is interesting. It has been postulated that prevention education may not have its real effect until sometime after the delivery of the program.¹² Most evaluations though have shown the curriculum effect, if any, to occur early and decay quickly. The authors of TWYSAA have suggested from the outset that the curriculum may be less likely to impact initial experimentation and most likely to impact use on a longer term basis. They have also believed that the unique content of this program and the persuasion format would make a delayed impact likely. These beliefs may be supported by the data, though the sample is small and further research is needed to determine if this is a replicable phenomenon.

OF STUDENTS WHO REPORTED NO ALCOHOL USE IN THE MONTH PRIOR TO THE FALL SURVEY IN THE SEVENTH GRADE - PRIOR TO RECEIVING TWYSAA - WHAT PERCENT REPORTED DRINKING FOUR OR MORE ON ONE OR MORE DAYS IN THE MONTH PRIOR TO EACH FOLLOW-UP INTERVAL?

	FALL 7TH	SPRING 7TH	FALL 8TH	SPRING 8TH	FALL 9TH	SPRING 9TH
TWYSAA STUDENTS	0.0%	4.4%	5.3%	5.6%	6.9%	7.1%
CONTROL STUDENTS	0.0%	3.1%	3.3%	12.0%	11.1%	11.8%

* p = .05

P = .02

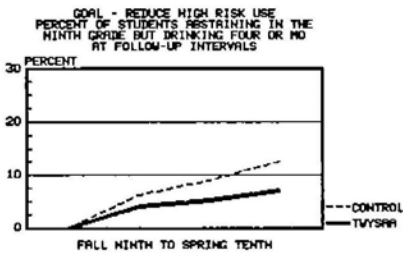
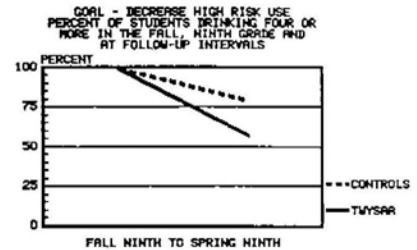
! P = .01

,

FOR MORE DETAILED DATA SEE APPENDIX A

FINDINGS ON NINTH GRADE TWYSAA IMPACT:

Of those students who reported four or more drinks in the month prior to the fall ninth grade pretest, 56.4% of the TWYSAA students still reported the same quantities, compared to 78.6% of the control group. The number from this group for whom there were matched cases available by the tenth grade was too small for analysis.



Of those students who abstained in the month prior to the ninth grade fall pretest, 4.0% of the TWYSAA students reported drinking four or more drinks on one or more days in the month prior to the spring posttest, compared to 6.2% of the control group. By the fall of the tenth grade, 5.1% of the TWYSAA students from this group reported four or more drinks compared to 8.8% of the control group. By the spring of the tenth grade, 7.0% of the TWYSAA students from this group reported four or more, compared to 12.5% of the controls.

When combining both abstainers and those who drank but reported less than four drinks on any day in the month prior to the ninth grade fall pretest, 7.1% of the TWYSAA group reported four or more in the spring ninth grade survey, compared to 8.3% of the control group. By the fall of the tenth grade, 7.2% of the combined TWYSAA group reported four or more compared to 9.3% of the control group. By the spring of the tenth grade, 9.1% of the TWYSAA group reported four or more compared to 13.2% of the control group.

CONCLUSION: While none of the numbers achieved statistical significance on a T-test, there was a consistent trend throughout the two years for high-risk choices to be reduced among TWYSAA students who had been making high-risk choices prior to receiving the curriculum. There was also a consistent trend of reducing the movement into the high-risk group among those who previously abstained or drank minimally. The reduction of high-risk use among those who made high-risk choices at pretest time actually strengthened over time.

OF STUDENTS WHO REPORTED FOUR OR MORE DRINKS IN THE MONTH PRIOR TO THE FALL SURVEY IN THE NINTH GRADE - PRIOR TO RECEIVING TWYSAA - WHAT PERCENT STILL REPORTED DRINKING FOUR OR MORE ON ONE OR MORE DAYS IN THE MONTH PRIOR TO EACH FOLLOW-UP INTERVAL?

	FALL 9TH	SPRING 9TH	FALL 10TH	SPRING 10TH
TWYSAA STUDENTS	100.0%	56.4%	NA	NA
CONTROL STUDENTS	100.0%	78.6%	NA	NA

* p=.05
P=.02
! P=.01

OF STUDENTS WHO REPORTED NO ALCOHOL USE IN THE MONTH PRIOR TO THE FALL SURVEY IN THE NINTH GRADE - PRIOR TO RECEIVING TWYSAA - WHAT PERCENT REPORTED DRINKING FOUR OR MORE ON ONE OR MORE DAYS IN THE MONTH PRIOR TO EACH FOLLOW-UP INTERVAL?

	FALL 9TH	SPRING 9TH	FALL 10TH	SPRING 10TH
TWYSAA STUDENTS	0.0%	4.0%	5.1%	7.0%
CONTROL STUDENTS	0.0%	6.2%	8.8%	12.5%

* p=.05
P=.02
! P=.01

OF STUDENTS WHO REPORTED NO ALCOHOL USE OR 1-3 IN THE MONTH PRIOR TO THE FALL SURVEY IN THE NINTH GRADE - PRIOR TO RECEIVING TWYSAA - WHAT PERCENT REPORTED DRINKING FOUR OR MORE ON ONE OR MORE DAYS IN THE MONTH PRIOR TO EACH FOLLOW-UP INTERVAL?

	FALL 9TH	SPRING 9TH	FALL 10TH	SPRING 10TH
TWYSAA STUDENTS	0.0%	7.1%	7.2%	9.1%
CONTROL STUDENTS	0.0%	8.3%	9.3%	13.2%

* p=.05
P=.02
! P=.01

FOR MORE DETAILED DATA SEE APPENDIX A

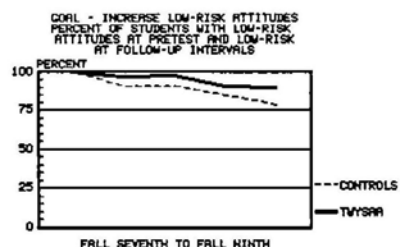
GOAL FOUR: TO INCREASE LOW-RISK ATTITUDES

The Prevention Research Institute has used discriminate analysis to identify an 11 item attitude scale (this will be the subject of a future report) that is capable of predicting with 86% accuracy whether a student is 1) an abstainer or a person who drinks but never more than 1, 2, or 3 drinks on an occasion or 2) a person who sometimes drinks 4 or more on an occasion. This scale generates both a high-risk attitude score and a low-risk attitude score for each individual in the sample. Those with a higher low-risk score are considered to have a low-risk attitude profile. Those with a higher high-risk score are considered to have a high-risk attitude profile. Since attitude status is derived by comparing two scores, those who have close scores may fluctuate from time to time in their status due to relatively minor changes in their response to the items. Because of this, as well as normal shifts that occur from time to time in people's attitudes, some amount of fluctuation in scores is to be expected even without any educational program.

MEASURE: An increase in those who have a low-risk attitude score will be considered positive. This will be measured both in terms of those who start with a low-risk score and maintain that status and those who start with a high-risk score and shift to low-risk status.

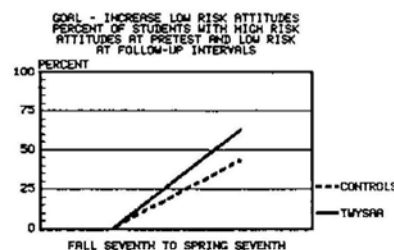
GENERAL POPULATION TRENDS: Results from our first year of data gathering showed that with no particular education program administered there is a five times increase between seventh grade and eleventh grade in those students who have a high-risk attitude profile.

FINDINGS ON SEVENTH GRADE TWYSAA IMPACT:



A total of 96.3% of the TWYSAA students who started the seventh grade with a low-risk attitude score maintained that score in the spring. This compared to 90.4% of the control group. This difference was significant at the .01 level. By the fall of the eighth grade, 97.4% of the TWYSAA students whose seventh grade pretest score was low-risk, maintained a low-risk score a year later, compared to 90.3% of the control group. By the spring of the ninth grade the trend continued with 90.7% of the TWYSAA group and 84.0% of the control group. By the fall of the ninth grade, the gap widened to 89.7% of the TWYSAA students and 77.8% of the controls maintaining a low-risk score.

Of those who started the year with a high-risk attitude score, 62.4% of the TWYSAA students had shifted to a low-risk score by spring, compared to only 42.9% of the control group. The number of students who started the fall seventh grade with a high-risk attitude score, and for whom we have matched cases in the eighth or ninth grade was too small for analysis.



CONCLUSION: The data clearly indicates that TWYSAA increased the percentage of students who maintained a low-risk attitude score and increased the percentage of those who started with a high-risk score and shifted to a low-risk score. As was true of some of the behavioral findings, difference between the TWYSAA and the control group continued to strengthen over time. This is in marked contrast to the experience of other curricula.

**OF STUDENTS WHO HAD A LOW-RISK ATTITUDE SCORE
IN THE FALL SURVEY IN THE SEVENTH GRADE - PRIOR TO RECEIVING TWYSAA -
WHAT PERCENT MAINTAINED A LOW-RISK SCORE
AT EACH FOLLOW-UP INTERVAL?**

	FALL 7TH	SPRING 7TH	FALL 8TH	SPRING 8TH	FALL 9TH	SPRING 9TH
TWYSAA STUDENTS	100%	96.3%!	97.4%	90.7%	89.7%	NA
CONTROL STUDENTS	100%	90.4%	90.3%	84.0%	77.8%	NA

**OF STUDENTS WHO HAD A HIGH-RISK ATTITUDE SCORE
IN THE FALL SURVEY IN THE SEVENTH GRADE - PRIOR TO RECEIVING TWYSAA -
WHAT PERCENT SHIFTED TO A LOW-RISK SCORE
AT EACH FOLLOW-UP INTERVAL?**

	FALL 7TH	SPRING 7TH	FALL 8TH	SPRING 8TH	FALL 9TH	SPRING 9TH
TWYSAA STUDENTS	0.0%	62.5%	NA	NA	NA	
CONTROL STUDENTS	0.0%	42.9%	NA	NA	NA	

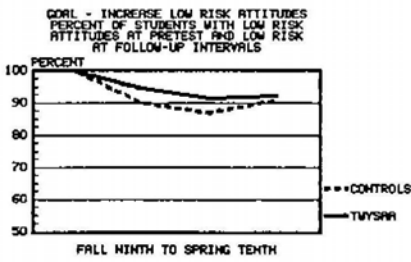
* p = .05

P = .02

! P = .01

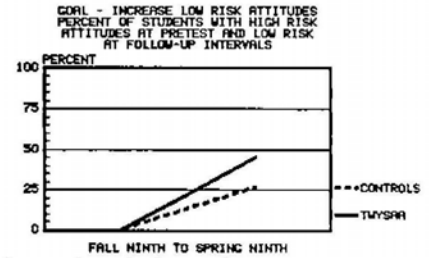
FOR MORE DETAILED DATA SEE APPENDIX B

FINDINGS ON NINTH GRADE TWYSAA IMPACT:



Of those who started the fall of the ninth grade with a low-risk attitude score, 94.5% of the TWYSAA students and 89.9% of the control students maintained it in the spring of the ninth grade. This finding was significant at the .05 level. By the fall of the tenth grade it was 91.4% and 86.7%. And by the spring of the tenth grade 92.0% of the TWYSAA students who started with a low-risk score maintained that score, compared to 90.5% of the controls.

Of those who started the fall of the ninth grade with a **high-risk** attitude score, 45.1% of the TWYSAA students finished the ninth grade with a **low-risk** score compared to 26.3% of the controls. Numbers in the tenth grade with matched cases were too small for meaningful analysis.



CONCLUSION: TWYSAA increased the percentage of students who maintained a low-risk attitude profile in the ninth and tenth grades, and increased those who changed from a high to a low-risk profile in at least the ninth grade.

**OF STUDENTS WHO HAD A LOW-RISK ATTITUDE SCORE
IN THE FALL SURVEY IN THE NINTH GRADE - PRIOR TO RECEIVING TWYSAA -
WHAT PERCENT MAINTAINED A LOW-RISK SCORE
AT EACH FOLLOW-UP INTERVAL?**

	FALL 9TH	SPRING 9TH	FALL 10TH	SPRING 10TH
TWYSAA STUDENTS	100%	94.5%*	91.4%	92.0%
CONTROL STUDENTS	100%	89.9%	86.7%	90.5%

**OF STUDENTS WHO HAD A HIGH-RISK ATTITUDE SCORE
IN THE FALL SURVEY IN THE NINTH GRADE - PRIOR TO RECEIVING TWYSAA -
WHAT PERCENT SHIFTED TO A LOW-RISK SCORE
AT EACH FOLLOW-UP INTERVAL?**

	FALL 9TH	SPRING 9TH	FALL 10TH	SPRING 10TH
TWYSAA STUDENTS	0.0%	45.1%	NA	NA
CONTROL STUDENTS	0.0%	26.3%	NA	NA

* p = .05
P = .02
I P = .01

FOR MORE DETAILED DATA SEE APPENDIX B

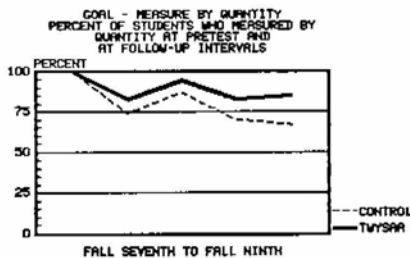
GOAL FIVE: TO INCREASE PERCENT WHO QUANTIFY "TOO MUCH" DRINKING

One question on the survey asked students to choose between six definitions of "How people could know when they have had too much to drink". Three of the answers relied on outcome of drinking (ie: getting sick, etc.) and three relied on some quantities of drinking, however accurate (ie: any at all, more than 3, more than 6). Responses were then collapsed into two categories, those who chose a behavioral measure and those who chose a quantity measure.

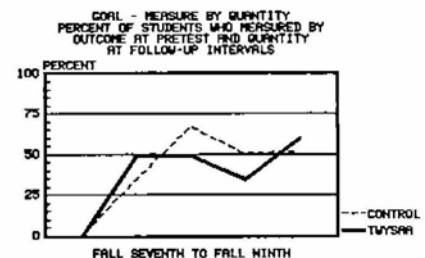
MEASURE: Attainment of this goal would be measured by 1) a higher percentage who start out with a quantity response and who maintain that response or 2) a higher percentage who start out with an outcome response and who shift to a quantity response.

GENERAL POPULATION TRENDS: Results from our first year of data gathering indicate that between the seventh and eleventh grades among students who are receiving no particular curriculum, there is a 22% decrease in the number of students who define too much drinking in terms of some quantity. Thus, with age students are less likely to define too much drinking in terms of quantity and more likely to use an outcome measure.

FINDINGS ON SEVENTH GRADE TWYSAA IMPACT: Of those who **measured by quantity** in the fall seventh grade pretest, 82.5% of the TWYSAA students maintained that response compared to 73.4% of the control group. This finding was significant at the .05 level. By the fall of the eighth grade 94.1% of the TWYSAA group who had started with quantity measures maintained that definition, compared to 86.4% of the control group. By the end of the eighth grade 82.9% of the TWYSAA students maintained the quantity viewpoint compared to 70.0% of the controls. By the fall ninth grade posttest the gap had widened to 85% of the TWYSAA students compared to 66.7% for the controls.



The numbers who measured by outcome in the fall of the seventh grade were smaller and the results were more variable over time. This variability may be an artifact of the small numbers. Of those who **measured by outcome** in the fall seventh grade pretest time, 48.7% of the TWYSAA students shifted to quantity by the spring, compared to 34% of the control group. By the fall of the eighth grade, 49% of the TWYSAA group gave a quantity measure compared to 66.7% of the control group. For the spring of the eighth grade the data again favored the control group with 34.6% of the TWYSAA students and 50% of the control students shifting to a quantity measure. By the fall of the ninth grade the shift was once again favored the TWYSAA students with 60% shifting compared to 50% of the control group.



CONCLUSION: The data clearly support a conclusion that among those students who came into their seventh grade year using a quantity definition, TWYSAA significantly increased those who maintained that view. The trend was consistent over the three years, but was statistically significant only in the first year. The data is not so clear on those who started their seventh grade year using an outcome definition. There

was a statistically significant shift toward quantity that favored the TWYSAA group in the first year, and a nonsignificant shift in the third year. However, there was a nonsignificant shift that favored the control group in the second year. In both years two and three the numbers were very small.

**OF STUDENTS WHO USED A QUANTITY MEASURE
IN THE FALL SURVEY IN THE SEVENTH GRADE - PRIOR TO RECEIVING TWYSAA -
WHAT PERCENT MAINTAINED A QUANTITY MEASURE
AT EACH FOLLOW-UP INTERVAL?**

	FALL 7TH	SPRING 7TH	FALL 8TH	SPRING 8TH	FALL 9TH	SPRING 9TH
TWYSAA STUDENTS	100%	82.5%*	94.1%	82.9%	85.0%	NA
CONTROL STUDENTS	100%	73.4%	86.4%	70.0%	66.7%	NA

**OF STUDENTS WHO USED AN OUTCOME MEASURE
IN THE FALL SURVEY IN THE SEVENTH GRADE - PRIOR TO RECEIVING TWYSAA -
WHAT PERCENT SHIFTED TO A QUANTITY MEASURE
AT EACH FOLLOW-UP INTERVAL?**

	FALL 7TH	SPRING 7TH	FALL 8TH	SPRING 8TH	FALL 9TH	SPRING 9TH
TWYSAA STUDENTS	0.0%	48.7%*	49.0%	34.6%	60.0%	
CONTROL STUDENTS	0.0%	34.0%	66.7%	50.0%	50.0%	

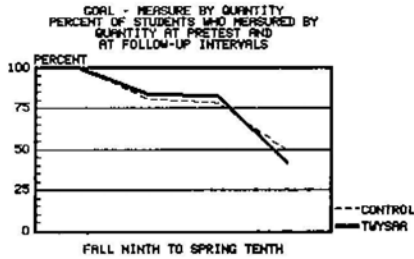
* p = .05

P = .02

! P = .01

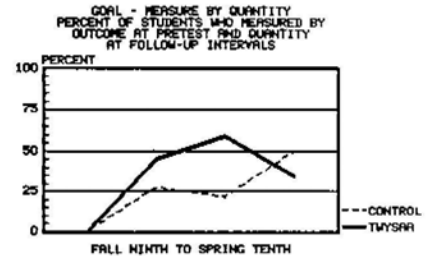
FOR MORE DETAILED DATA SEE APPENDIX B

FINDINGS ON NINTH GRADE TWYSAA IMPACT:



Of those who **measured by quantity** in the fall of the ninth grade, 83.8% of the TWYSAA students and 80.4% of the control students still did so by the spring of the ninth grade. By the fall of the tenth grade 82.4% of the TWYSAA students who started out measuring by quantity still used that measure compared to 77.9% of the controls. By the spring of the tenth grade 73% of these TWYSAA students and 78% of these control students continued to measure by quantity.

Of those who **measured by outcome** in the fall of the ninth grade 45.1% of the TWYSAA students and 27.5% of the controls used a quantity measure by the spring of the ninth grade (p=.02). By the fall of the tenth grade 59.1% of the TWYSAA students compared to 20.8% of the control students who had used an outcome measure switched to a quantity measure (p=.005). By the spring of the tenth grade 41.7% of the TWYSAA group who initially measured by outcome used a quantity measure, compared to 50.0% of the control group.



**OF STUDENTS WHO USED A QUANTITY MEASURE
IN THE FALL SURVEY IN THE NINTH GRADE - PRIOR TO RECEIVING TWYSAA -
WHAT PERCENT MAINTAINED A QUANTITY MEASURE
AT EACH FOLLOW-UP INTERVAL?**

	FALL 9TH	SPRING 9TH	FALL 10TH	SPRING 10TH
TWYSAA STUDENTS	100%	83.8%	82.4%	41.7%
CONTROL STUDENTS	100%	80.4%	77.9%	50.0%

**OF STUDENTS WHO USED AN OUTCOME MEASURE
IN THE FALL SURVEY IN THE NINTH GRADE - PRIOR TO RECEIVING TWYSAA -
WHAT PERCENT SHIFTED TO A QUANTITY MEASURE
AT EACH FOLLOW-UP INTERVAL?**

	FALL 9TH	SPRING 9TH	FALL 10TH	SPRING 10TH
TWYSAA STUDENTS	0.0%	45.1%#	59.1%**	34.6%
CONTROL STUDENTS	0.0%	27.5%	20.8%	50.0%

* p=.05
P=.02
** p=.005
| P=.01

FOR MORE DETAILED DATA SEE APPENDIX B

DISCUSSION

The impact of the TALKING WITH YOUR STUDENTS ABOUT ALCOHOL, as demonstrated in this report, is encouraging. The curriculum achieved each of its behavioral goals (increase abstinence, delay onset of use, and reduce high-risk use) and both of its attitudinal goals (increase low-risk profile and use of quantity measure for too much drinking) and demonstrated sustained impact at both the junior and senior high levels. In certain areas, the impact of the curriculum actually got stronger over time.

Since the goal of increasing abstinence was measured by returning drinking students to abstinence, and since relatively small numbers of students were drinking at pretest time, we only were able to track the progress of the goal for one year in the seventh grade and two years in the ninth. (See related explanation under 'Statistical Methods and Data Presentation' on page 5.) The effect on increasing abstinence was encouraging with a 3X increase in abstinence at the end of the seventh grade for those taught in the seventh, and a 2X increase in abstinence by the end of the tenth grade for those taught in the ninth. In the seventh grade the spread between controls and TWYSAA students was about twenty six percentage points by the end of the first year. For ninth grade students the spread was 6% at the end of the first year but 26% by the end of the second. This increase over time with the ninth grade is especially encouraging.

While TWYSAA demonstrated a positive impact on delaying the onset of use, this was the weakest of the TWYSAA impacts. For those taught in the seventh grade, this effect appeared to wear off at some point between the fall and spring of the ninth grade year. This fact supports the TWYSAA design which calls for the curriculum to be taught every other year. Thus, if properly taught, students who receive the curriculum in the seventh grade should receive it again in the ninth grade, preferably early in the year, before the effect on this goal begins to diminish. It should also be noted, however, that this effect was only apparent in the seventh grade cohort and only on this one goal. As noted both above and below, in certain other aspects the impact of the curriculum actually strengthened over time.

Reducing high risk use has proven to be the most difficult goal for any prevention program to achieve. In fact, up to this point no curriculum had demonstrated success in this goal, and the Center for Disease Control within this past year concluded that this probably could not be done with high-school students.²⁶ Those who begin drinking heavily at young ages are more likely to be rebellious, socially extroverted, adventurous, independent from parental or religious expectations, and to place less importance on success in school.²⁵ Sociopathic people are also more likely to begin drinking at a younger age.²² The younger heavy drinking occurs, the more likely it is that these traits will be present and strong. In addition, drinking is deeply integrated into the American adolescent lifestyle. These factors make the task of obtaining changes in that population using only classroom education very difficult. It is unlikely that any classroom education is going to alter related personality traits; it can only attempt to take them into account and not provoke rebellion or other resistant behavior.

Considering all the factors that can affect a program's ability to reduce high risk use, it is particularly encouraging that TWYSAA was able to demonstrate reduction of high risk quantities among eighth, ninth, and tenth graders. Among students taught in the seventh grade, TWYSAA did not initially reduce the percent drinking four or more drinks. However, by the end of the eighth grade such drinking was six percentage points lower among the TWYSAA students (which represents a 50% reduction). This trend continued through the fall and spring of the ninth grade. In the ninth grade cohort, TWYSAA students were less likely to be drinking these high risk quantities at each of the three follow-up points available. In fact, the effect actually became stronger each year.

The ability of the curriculum to increase low-risk attitudes was also encouraging. Both the seventh grade and the ninth grade cohorts experienced increases in the low-risk score by those whose pretest score was high-risk. Also in both cohorts, the characteristic movement from low-risk to high-risk attitudes was slowed.

Overall, this first evaluation of the TALKING WITH YOUR STUDENTS ABOUT ALCOHOL program gives reason to be optimistic, and appears to exceed the impact of other curricula that have been evaluated (see Literature Review section). Further evaluation is needed with larger numbers of students followed for several years with TWYSAA being taught in multiple years and with parents receiving TWYKAA.

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PRELIMINARY REPORT TALKING WITH YOUR STUDENTS ABOUT ALCOHOL

A ONE YEAR FOLLOW-UP ON STUDENTS TAUGHT IN EITHER THE SEVENTH OR NINTH GRADE

INTRODUCTION

This is the first in a series of reports on the evaluation of the curriculum, TALKING WITH YOUR STUDENTS ABOUT ALCOHOL (TWYSAA). It is preliminary and all findings should be viewed as such. It provides a one year follow-up report on two schools teaching the seventh grade level of TWYSAA and three schools teaching the ninth grade level. The one year follow-up takes place in the eighth and tenth grades. It only reports on a percentage of the students, but that percentage represents the most reliable data in that it only includes students who have answered every question and whose responses are present and matched on a case by case basis for the two data gathering waves included in this preliminary report. For a more thorough understanding of how the evaluation was conducted, the reader is referred to the introduction of the *Project Reference Manual*.

The current trend of increased alcohol use with increased age during the teen years provides a substantial challenge to prevention programs. Recent national surveys have shown that 33% of students have used alcohol by the end of the eighth grade, but 92% have used alcohol by the end of the 12th grade. Heavy use of alcohol also increases with age. The percent of seniors who report drinking 5 or more drinks on one or more days in the previous month (37%) approximates the percent of eighth graders that have tried alcohol at all.

Most prevention program evaluations have looked only at short term gains: impact on behaviors and attitudes measured immediately prior to the program and very shortly after the education. Of the few studies that included longer term follow-up, most have shown that short term gains were lost within a year after education.

One important measure of the effectiveness of a curriculum, then, is whether or not it can affect this trend toward increased use with increased age during adolescence. In order to reduce the risk of alcohol problems among adolescence, a program must demonstrate the ability to: 1) alter this trend by increasing the incidence of abstinence, delaying the age of onset, and/or reducing the incidence of heavy use, and 2) maintain this change with increased age. This, therefore, is the focus of this first report. Instead of simply comparing drinking behaviors and attitudes immediately before and immediately after education, we are comparing the change in drinking behaviors and attitudes between 6 months and 12 months after education, both in the TWYSAA group and the comparison group, to determine if exposure to TWYSAA altered the trend toward more adolescents using alcohol, and more adolescents using alcohol in large quantities.

This program evaluation project lacks the rigorous controls of the TWYKAA evaluation (1982-83) for several reasons. A controlled study for a school curriculum generally involves:

1. randomly assigning entire school districts and
2. direct monitoring of both data collection and program implementation.

Both of these require resources for incentives to the school, willingness for entire districts that want curricula to accept not receiving one for several years, and significant field staff time for monitoring data collection and program implementation. Since this project lacked those resources the only remaining option was to conduct a field study without random assignment. In spite of those limitations we were successful

in involving a number of schools that did a reasonable job of both teaching and data gathering, and we were able to identify comparison students. Therefore we feel the data and conclusions contained in this preliminary report on a portion of the schools can be viewed with confidence.

While this is a preliminary report and while we will expand this to include data on a larger number of students in the next report, it still includes a larger number of students, more schools, and considerably more variables than other currently respected program evaluations such as "Prevention of Alcohol Misuse Through the Development of Personal and Social Competence: A Pilot Study", by Botvin et. al. (Journal of Studies on Alcohol, Vol. 45, No. 6 pp 550-552, November, 1984).

METHODS

School Selection

A letter was sent to all public schools in Kentucky inviting their participation in a project that would provide their school with the TWYSAA curriculum and teacher training in exchange for their participation in evaluation by having teachers administer a survey instrument to students twice a year. All schools that expressed a willingness to make a multi-year commitment to the project were accepted. A few additional schools were added in the second year.

Data Collection and Processing

Survey forms were distributed to the schools just prior to data gathering and were administered to the students by teachers. Detailed instructions were provided and the importance of adhering to the procedures were stressed. A videotape giving directions to students was also provided to all schools in order to standardize directions as far as possible. The surveys were answered on National Computer Systems custom designed answer forms and scanned on an NCS Sentry 3000 scanner. Scanning software was custom written by NCS. The version of the software first used rejects any form with blank answers in any space not designated as optional. Those rejected were scanned separately with a second version of the software that would reject only those forms with blanks in the alcohol quantity and frequency questions or the codes.

Conflict Scale and Data Stability

From the ninety four items on the survey, a nine item *conflict scale* was created to detect students who were lying on responses, not taking the survey seriously, or were otherwise giving conflicting answers. The range of students dropped from analysis due to conflicting answers was from 15-23% in the schools included in this report.

Based on completeness of data and presence or absence of conflicting responses, cases were grouped into three levels of *data stability*:

- Level 1. those cases in which all questions are answered and the conflict score is zero,
- Level 2. those cases in which one or more questions are blank and the conflict score is zero, and
- Level 3. those cases in which all questions may or may not be answered, but the conflict score is above zero, raising serious questions about the accuracy of the answers.

There were also some forms which were unusable due to blanks in the quantity/frequency data, or in some cases blank or erroneous school, grade, or program codes. These responses were dropped from the study.

This report concerns itself only with data on the first level of stability. Thus, it reports on only a portion of the student body, but it is the portion on whom we have the most reliable data. Future reports will examine data from the other two levels of stability both separately and together.

Comparison Group

The comparison group was comprised of:

1. students of the same grade level and graduating class from other schools participating in the project but not teaching the program at that grade level, and/or
2. students from the same school, but one graduating class and grade level ahead of the experimental group.

Since most of the comparison students came from group two, and since the primary interest of the evaluators is long-term as opposed to short term impact, primary emphasis for evaluation was on the grade level following the grade in which TWYSAA was taught. Thus, students who received TWYSAA in the ninth grade were monitored and compared in the tenth and eleventh grades with students from their own school but one graduating class ahead (measured in the tenth grade one year before the experimental group) and with students from their same graduating class but another school (measured in the tenth grade in the same year as the experimental cohort).

Identification Code and Anonymity Assurance

The answers to the first five items on the questionnaire constituted a personal code used to match student responses from time to time. While this does not provide a perfect tracking mechanism it did work satisfactorily and met the needs of the project. (Only 0-5% of the students in any one school have been lost to the study due to duplicate codes.)

Students were assured in the written instructions that were read to them as they followed in their survey booklet, that their responses would be completely confidential. The personally generated code further assured them that their responses could not be traced to them.

Statistical Methods

Since this report is preliminary, only limited tests of statistical significance have been performed. Data is provided in the form of charts that compare student responses in the first semester of the school year with those at the end of the second semester. T tests were run on pairs of data within the charts. One aspect of this report that is different from other reports with which we are familiar is the way in which students are analyzed separately according to their fall responses. Typically reports of this type have simply said 'X' percent abstained at time one and 'Y' percent at time two. The innovation added in this study is to break down students according to their fall response. Thus, this report will say "Of those who abstained in the fall 'X' still abstained in the spring, while 'Y' percent of those who drank 1-3 in the fall abstained in the spring and 'Z' percent of those who drank 4 or more in the fall abstained in the spring". This gives much more information about the impact of the curriculum but has the disadvantage of reducing the number of students in each cell and lowering the base of calculation for some statistical procedures, making statistical significance harder to achieve. Thus, many of the T tests were not significant primarily due to small sample size. Future reports will overcome this because of a larger sample size.

For the tenth grade all students in the Level One stability group from the three schools were included in the report, and all drinking levels are included. For the eighth grade, the number of students in the Level One stability group that report drinking in the fall data wave was so small that they were dropped from this analysis. While they will be included in the next report (which will be on more schools and thus a larger number) the eighth grade portion of this report will only deal with eighth graders who reported no alcohol use in the previous thirty days during the fall data gathering. All drinking levels are included for tenth graders.

RESULTS

Quantity of Drinking

Of those who were abstainers in the fall of the eighth grade...

- *93% of the TWYSAA students were still abstainers in the spring
- *79% of the comparison group were still abstainers in the spring.
- This difference was statistically significant (p = .01).*

- *6% of the TWYSAA students reported drinking no more than 1-3 on any occasion
- *14% of the comparison group reported 1-3.
- This difference was statistically significant (p = .05).*

- *less than 1% of the TWYSAA students reported drinking 4 or more or getting drunk.
- *7% of the comparison group had peaks of 4 or more.
- This difference was statistically significant (p = .02).*

Of those who were abstainers in the fall of the tenth grade...

- *81% of the TWYSAA students were still abstainers in the spring
- *70% of the comparison students were still abstainers in the spring.
- This difference was statistically significant (p = .05).*

- *9% of the TWYSAA students reported drinking no more than 1-3 on any occasion
- *14% of the comparison group reported 1-3.

- *9% of the TWYSAA students reported drinking 4 or more or getting drunk.
- *16% of the comparison group had peaks of 4 or more.

Of those who reported drinking 1-3 in the fall of the tenth grade...

- *29% of the TWYSAA students were abstainers in the spring
- *30% of the comparison students were abstainers in the spring.

- *41% of the TWYSAA students still reported drinking no more than 1-3 on any occasion
- *10% of the comparison group still reported 1-3.

- *29% of the TWYSAA students reported drinking 4 or more or getting drunk.
- *60% of the comparison group had peaks of 4 or more.

Of those who reported drinking 4 or more or getting drunk in the fall of the tenth grade...

- *6% of the TWYSAA students were abstainers in the spring
- *0% of the comparison students were abstainers in the spring.

- *18% of the TWYSAA students reported drinking no more than 1-3 on any occasion
- *18% of the comparison group reported 1-3.

- *76% of the TWYSAA students still reported drinking 4 or more or getting drunk.
- *82% of the comparison group still had peaks of 4 or more.

In an expanded look at the tenth graders, the number reporting peaks of 13 or more in the fall was reduced to 43% in the spring among TWYSAA students while 75% of the comparison students still reported drinking that large amount ($p = .05$). For those drinking 4-12 in the fall 18% remained so in the spring TWYSAA group and 43% in the comparison.

Conclusion:

Students receiving TWYSAA who started the year as either abstainers or high-risk drinkers were more likely to be abstainers and less likely to be high-risk drinkers if they did use alcohol than comparison students. Students receiving TWYSAA who started the year drinking 1-3 drinks per occasion were more likely to continue minimal use while students from the comparison group who drank 1-3 in the fall were more likely to proceed to heavier, more high-risk use.

Problem Outcomes

The survey contained fourteen questions representing potential problems that could occur if a student uses alcohol or drugs. Students were asked to respond whether they had experienced each item in the previous month when only using alcohol, when only using other drugs, when using alcohol and drugs together, or not at all. Some items represented problems that could occur among adolescents with *any use at all* no matter how minimal. These include such things as trouble with parents or school due to use. If students only responded 'yes' to these items and no others they were classified as having 'problems related to use only'. Other items are associated with *impairment* such as accidents, injury, or fights. Those reporting positive on these items and no higher were classified as 'problems related to impairment'. Finally, some items are indicative of very heavy use, so much so that they are often associated with or symptomatic of *dependency*. These include such items as job loss due to use, missing school due to use, memory black-outs and morning shaking following heavy use. Students who indicate these problems are identified by 'symptomatic drinking'. It is not our intention to indicate that these students are chemically dependent, though that could not be ruled out at this level of problems. Certainly when changes occur either 'spontaneously' or following exposure to TWYSAA we do not imply that chemical dependency itself has been treated, only that there was a change in the incidence of problems connected to heavy use that our field has widely considered to be 'symptomatic'.

Of those who abstained and thus reported no use related problems in the fall of the eighth grade...

*99% of the TWYSAA students still reported no problems in the spring
*91% of the comparison students still reported no problems in the spring
This difference was statistically significant ($p = .005$).

*1% of the TWYSAA students reported an impairment related problem
*0% of the comparison students did so.

*0% of the TWYSAA students reported symptomatic alcohol
*7% of the comparison students reported symptomatic alcohol problems.
This difference was statistically significant ($p = .001$).

Of those who reported no problems in the fall of the tenth grade:

*93% of the TWYSAA students still reported no problems in the spring
*86% of the comparison students still reported no problem in the spring
This difference was statistically significant ($p = .05$).

*5% of the TWYSAA students reported symptomatic alcohol problems in the spring
*12% of the comparison students reported symptomatic alcohol problems.
This difference was statistically significant ($p = < .05$).

- *1.7% of the TWYSAA students reported symptomatic drug problems in the spring
- *1.2% of the comparison students reported symptomatic drug problems

Of those who reported some symptomatic problem in the fall of the tenth grade:

- *30% of the TWYSAA students showed no problem in the spring
- *0% of the comparison students reported no problem in the spring.

- *60% of the TWYSAA students still reported symptomatic alcohol problems in the fall
- *100% of the comparison group still did so in the fall.

Conclusion:

Students receiving TWYSAA who started the year reporting no problems were more likely to stay in the nonproblem category and were less likely to enter the problem category. Students receiving TWYSAA who started the year reporting some problem, were more likely to end the year in a non-problem status.

Attitudes

Before analyzing program outcome, attitude responses from a broad sample of students who had not been exposed to TWYSAA was used to determine if any of the attitude items could be used to predict drinking status. A computer run discriminate analysis generated a formula using 12 items that was 86% accurate in grouping students as either (1)an abstainer or person who drinks from 1-3 on occasion or (2)drinks 4 or more on an occasion. The scale produces both a low-risk attitude score and a high-risk attitude score. The goal, of course is to increase the number of students whose low-risk score is higher than their high-risk score. If the low-risk score was higher than the high-risk score, the student was classified as 'Low-risk Attitude'. Those with a higher high-risk attitude score were classified as 'High-risk Attitude'.

Of those with a low-risk attitude score in the fall of the eighth grade...

- *99% of the TWYSAA students were still in the low-risk attitude group in the spring
 - *91% of the comparison students retained low-risk attitude status.
- This difference was statistically significant ($p = <.005$).*

Of those with a high-risk attitude score in the fall of the eighth grade...

- *60% of the TWYSAA students moved to the low-risk attitude group in the spring
- *0% of the comparison students moved to low-risk attitude status however this represents too low a number of students to be meaningful.

Of those with a low-risk attitude score in the fall of the tenth grade...

- *93% of the TWYSAA students were still in the low-risk attitude group in the spring
- *87% of the comparison students retained low-risk attitude status.

Of those with a high-risk attitude score in the fall of the tenth grade...

- *30% of the TWYSAA students moved to the low-risk attitude group in the spring
- *15% of the comparison students moved to low-risk attitude status

TWYSAA also produced statistically significant changes in 6 of the 11 individual attitudes in the scale. (See Appendix C)

Conclusion:

Students receiving TWYSAA who started the year with low-risk attitudes were more likely than comparison students to maintain those low-risk attitudes. Students receiving TWYSAA who started the year with high-risk attitudes were more likely than comparison students to shift to low-risk attitudes. This was true both in individual attitudes and the attitude scale as a whole.

DISCUSSION

While the data presented in this report is preliminary and analyzes only a portion of the sample, it is very encouraging. Statistically significant changes were demonstrated in actual drinking behaviors, in problem outcomes, and in attitudes both at the junior and senior high school level.

Of greatest interest is the change in quantity of alcohol use. That has been the most difficult area for curricula to document change, particularly lasting change. However, it is an area in which TWYSAA performed particularly well, at least in this sample. The goals of the curricula are to increase abstinence, delay onset of use and decrease high-risk use. It is clear that abstinence was prolonged among those who started the year as abstainers, and a percentage of heavy users were persuaded to return to abstinence. Reducing high-risk use occurred at all levels of initial use (abstinence, 1-3, & 4+) and at both grade levels. On all types of alcohol related problems, TWYSAA students reported a significant reduction in number of problems while problems went up among comparison students. This of course would be consistent with the greater reduction in alcohol use among TWYSAA students after receiving the curriculum. There was a distinct absence of minimal problems reported by either group. Those who reported use related problems were far more likely to report more serious problems than minor problems. That the TWYSAA students reported fewer problems is perhaps even more meaningful when one considers the seriousness of the problems reported.

Reports on a number of other curricula have often had difficulty showing any change on an attitude *scale* and thus have resorted to reporting only on individual attitudes. TWYSAA demonstrated change both on an overall predictive *attitude scale* and on a number of *individual attitudes*. Statistically significant attitude change was achieved on 6 of the 11 items including the two items that are strongest correlates of abstinence or drinking no more than 1-3 per occasion. One item of interest to the program authors is that the weakest impact of the curricula was on those students who were undecided at the beginning of the year. While none of these were statistically significant, this trend will be watched closely in future reports and alterations made in the curricula to attempt to alter the impact. However, we are not familiar with any other program evaluation that analyzes attitude change finely enough to allow separate analyses of those who agreed, those who disagreed, or those who were uncertain at the beginning. In fact though, while it is expected that any curriculum would have a certain number of negative impacts, there were no statistically significant negative impacts in any area.

At a later time a separate analysis will be conducted on those screened out by the conflict scale. At this time it appears, however, that students with conflicting answers were also more likely to report heavier alcohol use than other students. This raises the question of, "Are heavy drinkers more likely to give conflicting, unreliable answers, or are students who do not take the survey form seriously, thus giving conflicting answers also more likely to report heavier use than is true for them as a form of play or rebellion?". It also could raise questions about the validity of the many student surveys of drinking behavior that are conducted and reported in this country that lack extensive conflict or 'lie' scales. How accurate is their data and to what extent (if at all) do they distort and over report the amount that American youth actually drink? These questions will also be considered in a later report.

APPENDIX C
THE ATTITUDE SCALE
AND
AN EXAMINATION OF THE INDIVIDUAL ITEMS
IN THE ATTITUDE SCALE

In analyzing the attitudes individually, students showed change in each of the items as indicated below. The response that correlates with abstinence or minimal drinking is given in parenthesis. The reader should be aware that conclusions on 'uncertain' responses and in some cases 'high-risk' responses are based on very small numbers and may well change in future reports.

ATTITUDES INCLUDED IN THE ATTITUDE SCALE

Drinking is a good way to have fun. (Disagree)

Eighth Grade:

TWYSAA students were more likely to maintain a low-risk attitude. ($p = .005$)

Neither group was more likely to change a high-risk attitude.

Comparison students were more likely to change from uncertain to low-risk attitude.

Tenth grade:

TWYSAA students were more likely to maintain a low-risk attitude.

Comparison students were more likely to change a high-risk attitude.

Comparison students were more likely to change from uncertain to low-risk attitude.

A person should find other ways of feeling better without using any alcohol at all. (agree)

Eighth Grade:

TWYSAA students were more likely to maintain a low-risk attitude.

TWYSAA students were more likely to change a high-risk attitude.

Neither group was more likely to change from uncertain to low-risk attitude.

Tenth grade:

TWYSAA students were more likely to maintain a low-risk attitude.

TWYSAA students were more likely to change a high-risk attitude.

Comparison students were more likely to change from uncertain to low-risk attitude.

I believe getting drunk for kicks is part of growing up. (Disagree)

Eighth Grade:

TWYSAA students were more likely to maintain a low-risk attitude. ($p = .02$)

TWYSAA students were more likely to change a high-risk attitude.

Comparison students were more likely to change from uncertain to low-risk attitude.

Tenth grade:

TWYSAA students were more likely to maintain a low-risk attitude.

TWYSAA students were more likely to change a high-risk attitude.

TWYSAA students were more likely to change from uncertain to low-risk attitude.

It is OK to drink as much as you want as long as you can handle it, and do not drive. (Disagree)

Eighth Grade:

TWYSAA students were more likely to maintain a low-risk attitude.

TWYSAA students were more likely to change a high-risk attitude.

TWYSAA students were more likely to change from uncertain to low-risk attitude.

Tenth grade:

TWYSAA students were more likely to maintain a low-risk attitude.

TWYSAA students were more likely to change a high-risk attitude.

TWYSAA students were more likely to change from uncertain to low-risk attitude.

It is never ok to get drunk even to celebrate something special. (Agree)

Eighth Grade:

- TWYSAA students were more likely to maintain a low-risk attitude.
- Comparison students were more likely to change a high-risk attitude.
- TWYSAA students were more likely to change from uncertain to low-risk attitude.

Tenth grade:

- TWYSAA students were more likely to maintain a low-risk attitude. (p = .02)
- Comparison students were more likely to change a high-risk attitude.
- Comparison students were more likely to change from uncertain to low-risk attitude.

As long as you keep out of trouble, it's ok to drink as much as you want. (Disagree)

Eighth Grade:

- TWYSAA students were more likely to maintain a low-risk attitude.
- TWYSAA students were more likely to change a high-risk attitude.
- TWYSAA students were more likely to change from uncertain to low-risk attitude.

Tenth grade:

- TWYSAA students were more likely to maintain a low-risk attitude.
- TWYSAA students were more likely to change a high-risk attitude.
- Comparison students were more likely to change from uncertain to low-risk attitude.

Drinking is a good way to get in a better mood when a person is depressed. (Disagree)

Eighth Grade:

- Neither group was more likely to maintain a low-risk attitude.
- TWYSAA students were more likely to change a high-risk attitude.
- Comparison students were more likely to change from uncertain to low-risk attitude.

Tenth grade:

- TWYSAA students were more likely to maintain a low-risk attitude. (p = .05)
- Neither group was more likely to change a high-risk attitude.
- Comparison students were more likely to change from uncertain to low-risk attitude.

It's really hard to have a good party unless people have a few drinks in them. (Disagree)

Eighth Grade:

- TWYSAA students were more likely to maintain a low-risk attitude.
- TWYSAA students were more likely to change a high-risk attitude.
- Number too small to know on uncertain to low-risk attitude.

Tenth grade:

- Comparison students were more likely to maintain a low-risk attitude.
- TWYSAA students were more likely to change a high-risk attitude.
- Comparison students were more likely to change from uncertain to low-risk attitude.

Drinking is a good way to help a person be friendly and meet new people. (Disagree)

Eighth Grade:

- TWYSAA students were more likely to maintain a low-risk attitude.
- Neither group was more likely to change a high-risk attitude.
- Comparison students were more likely to change from uncertain to low-risk attitude.

Tenth grade:

- TWYSAA students were more likely to maintain a low-risk attitude. (p = .05)
- Comparison students were more likely to change a high-risk attitude.
- Neither group was more likely to change from uncertain to low-risk attitude.

A person who has never been drunk is missing a good thing. (Disagree)

Eighth Grade:

TWYSAA students were more likely to maintain a low-risk attitude. ($p = .02$)

TWYSAA students were more likely to change a high-risk attitude.

TWYSAA students were more likely to change from uncertain to low-risk attitude.

Tenth grade:

TWYSAA students were more likely to maintain a low-risk attitude.

TWYSAA students were more likely to change a high-risk attitude.

TWYSAA students were more likely to change from uncertain to low-risk attitude.

It isn't necessary to plan activities for most parties. It is enough just to let people drink and talk with each other. (Disagree)

Eighth Grade:

TWYSAA students were more likely to maintain a low-risk attitude.

TWYSAA students were more likely to change a high-risk attitude.

TWYSAA students were more likely to change from uncertain to low-risk attitude.

Tenth grade:

TWYSAA students were more likely to maintain a low-risk attitude.

Comparison students were more likely to change a high-risk attitude.

Comparison students were more likely to change from uncertain to low-risk attitude.

A single item was included in the survey as an attempt to determine whether students measure 'too much drinking' in terms of outcome or quantity of use. Unlike the Likert scale attitude items, the 'too much' item has been previously untested and we are therefore not at all sure that it is the best measure for this goal.

In the eighth grade analysis 62% of those TWYSAA students who measured 'too much' by outcome shifted to a quantity measure, while only 30% of the comparison students made this shift ($p = .05$). However, 80% of the TWYSAA group who initially used the quantity measure still did so in the spring, 91% of the comparison group did so.

In the high school school the shift from outcome to quantity was 21% in the TWYSAA cohort and 21% in the comparison. Retention among those who started out using the quantity measure was 74% in the TWYSAA group and 77% in the comparison.