

NEW MEXICO DEPARTMENT OF HEALTH,  
OFFICE OF SUBSTANCE ABUSE PREVENTION

EVALUATION OF SUBSTANCE ABUSE PREVENTION  
PROGRAMMING IN NEW MEXICO: DIRECT SERVICES

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## *List of Abbreviations*

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## Introduction

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Substance use and abuse among adolescents in New Mexico is beginning to decrease but is still higher than the U.S. average. For example, among high school students in 2009, 24% of 9<sup>th</sup>-12<sup>th</sup> graders in NM were current smokers, which was 19% higher than the U.S. rate (19.5%).<sup>1</sup> Furthermore, 29.4% of high school reported having first drunk alcohol (other than just a few sips) prior to age 13 compared to 21.1% the U.S. average. Where progress has been made is in current drinking and binge drinking, where the prevalence has decreased to the U.S. averages. In N.M., 40.5% reported drinking alcohol at least once in the past 30 days compared with 41.8% in the U.S. as a whole. Among current drinkers in NM, 25% also reported recent binge drinking compared with 24.2% for the U.S.<sup>2</sup> Marijuana use among N.M. adolescents is also well above the U.S. average. Almost 18 and half percent of adolescents reported trying marijuana before the age of 13 compared to 7.5% across the U.S.; 28% of high school students in N.M. reported using marijuana at least once in the past 30 days compared to only 20.8% across the U.S. Males and females did not differ significantly on many of the ATOD use measures in 2009 meaning that females reported as much use as males. Minorities in N.M. are frequently at greater risk for ATOD use than their white non-Hispanic peers.

ATOD use among middle students in NM is also increasing rapidly increasing. Results from the 2009 YRRS middle school survey indicate that the smoking among middle school students had increased by 258% from 6<sup>th</sup> grade to 8<sup>th</sup> grade whereas between 9<sup>th</sup> and 12<sup>th</sup> grade there was only a 53% increase.<sup>3</sup> Binge drinking increased by 286% from 6<sup>th</sup> grade to 8<sup>th</sup> grade compared to a 45% increase from 9<sup>th</sup> to 12<sup>th</sup> grade. Substance use appears to be starting earlier and increasing rather dramatically in middle school and continuing to increase during high school. It is normal for ATOD use to increase by age because of maturation and increased exposure, however, the goal is to reduce the effects of maturation and exposure by reducing access and increasing resiliency. Prevention programming funded by New Mexico's Office of Substance Abuse Prevention (OSAP) through state and federal block grant funding and grants, attempts to do both these things.

Many factors influence whether one engages in high risk behavior such as ATOD use. Research indicates that an ecological model of influence is a comprehensive way to understanding the many levels of influence on an individual. Evidence-based prevention interventions typically target one or more levels of influence in order to reduce the likelihood of use. Some focus on parents, some on the youth and some on both. Others focus on changing the school and community environments in which youth interact. Figure 1 shows the multiple levels of

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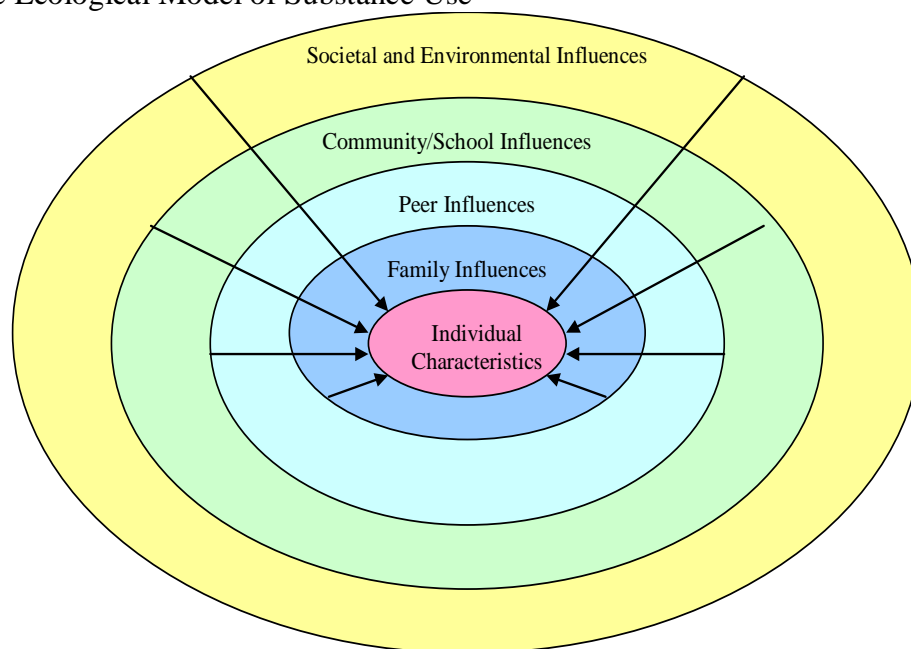
<sup>1</sup> Green, D. (2010). *Highlights from the 2009 New Mexico High School Youth Risk and Resiliency Survey*, New Mexico Epidemiology. NM Department of Health . Report can be found at: <http://nmhealth.org/ERD/healthdata/pdf/ER%20YRRS%20092410.pdf>.

<sup>2</sup> CDC Youth Online- High School YRBS. Located at: <http://apps.nccd.cdc.gov/youthonline/App/Default.aspx?SID=HS> accessed on September 25, 2010.

<sup>3</sup> Green, D. (2010). *Highlights from the 2009 New Mexico High School Youth Risk and Resiliency Survey*, New Mexico Epidemiology. NM Department of Health . Report can be found at: <http://nmhealth.org/ERD/healthdata/pdf/ER%20YRRS%20092410.pdf>.

influence on an individual's behavior. Individual characteristics such as self-esteem, attitudes, perception of risk, and even genetic predisposition all influence whether an individual is at increased likelihood of ATOD use. Added to those individual characteristics are the influences of the family including influences such as parents who may or may not use substances themselves, who may or not monitor their child's behavior and set clear boundaries and expectations, and even older siblings who may introduce younger ones even inadvertently to ATOD use. Most prevention programming focuses on these first two levels of influence and much of the research and evaluation of the effectiveness of prevention focus on these types of program. More recently, however, prevention providers are becoming trained in the use of environmental prevention strategies as well to enable prevention efforts to be directed a many levels of the model.

**Figure 1:** The Ecological Model of Substance Use



OSAP has designed a comprehensive prevention program to address risk and protective factors influencing substance use at each level of this model. In the Fiscal Year 2009-2010 (FY 10) this included a number of initiatives. These initiatives were:

- The Strategic Prevention Framework State Incentive Grant (SPF SIG)
- 12-17 year old Prevention Programs
- Pre-K through 6<sup>th</sup> grade Prevention Programs
- 0-6 Prevention Programs

OSAP requires local and statewide evaluation be conducted with the intent of learning about and improving the effectiveness of prevention programming in the state. Local prevention programs must have independent evaluators to assist with the design, collection, analysis, and interpretation of data.

Direct Service prevention programming involves implementing evidence-based curricula with target populations. These programs typically focus on increasing knowledge and awareness of the dangers involved, changing social norms around ATOD use, and increasing the ability of participants to resist pressure to engage in harmful behaviors by encouraging pro-social relationships and self-efficacy.

Prevention strategies that directly affect access are often implemented at an environmental level rather than the individual. These types of strategies might include changes in local policies, training retailers on how to check for age identification before selling alcohol or tobacco products, or increasing law enforcement efforts to patrol for parties that may involve underage drinking. In FY 2010, these types of strategies were not funded through direct services funding, but rather through the NM SPF SIG. Evaluation results of the NM SPF SIG are included in a separate report. This evaluation report will focus only on the evaluation results of direct service prevention programming.

### **State Evaluation Team**

The Pacific Institute for Research and Evaluation (PIRE) has served as the state level evaluation contractor for FY 10. The evaluation team includes Martha W. Waller, Ph.D., Elizabeth Lillioth, Ph.D., Robert Flewelling, Ph.D., Laurie Stockton, M.P.H., Mary Cho, M.A. and Lei Zhang, Ph.D.. The evaluators have been involved with OSAP during the planning process, the design of the evaluation plan and data collection instruments, the State Epidemiological Outcomes Workgroup (SEOW), monitoring and oversight of data collection, and providing training and feedback to OSAP staff, local consultants, and local evaluators and program providers.

### **State-Level Evaluation Plan**

As previously mentioned, NM has several prevention efforts underway funded by several mechanisms including: the Substance Abuse Prevention and Treatment Block Grant (SAPT), the Safe and Drug Free Schools and Communities (SDFSC), the State General Fund, and the SPF SIG. Programs are implemented in school settings, out-of school or after-school settings, and community settings.

For direct services prevention programming, programs collect data early on in the program and then again at the end of the program. This is analogous to pre and post-testing. The evaluation then examines differences between the two data points. However, in a true experimental design there would also exist pre and post-test data for a comparison group that did not receive prevention programming. The collection of comparison data is extremely challenging and prohibitively costly for NM. Therefore, data from the middle school and high school YRRS are used to compare to middle school and high school youth data. This is done through graphing pre and post-test data against comparable YRRS data. YRRS data are weighted to reflect the N.M. student population and therefore are representative of the “typical” or average student in N.M. More detail on how this was done is discussed in the Strategies for Success section. Some funding streams do not have any comparison group data and therefore, it is impossible to say

whether change from pre to post intervention is the result of the prevention program itself or some other cause external to the program and that might also have affected people not in the program. PIRE continues to explore alternatives to improving the evaluation design.

PIRE strives to work in collaboration with state and local prevention specialists and evaluators to create data collection instruments that are valid and reliable, while meeting the evaluation needs of all parties involved. In FY 10, a new instrument was introduced for 0-6 prevention funding. The instrument was designed and piloted in FY 09 with the input of local providers and evaluators receiving those funds. In FY 10, no new assessments were created.

During FY 10, PIRE focused on several goals related to the evaluation of direct services prevention programming. First was the revision of analysis syntax for the revised Strategies for Success to simplify and streamline the evaluation process for communities. Second was to create analysis syntax for the new Family Assessment Scale created during the previous year. Third was to help programs plan the best approach to collecting their pre & post prevention program data. This is extremely important. Changes from pre to post-test may reflect changes the comfort levels of the participants. At pre-test some respondents may feel less willing to answer truthfully even with the guarantee of anonymity. In this case, respondents may report less ATOD use at pre-test than is actually occurring. This in turn could lead to increases the in prevalence of use at post-test because respondents have developed a relationship with the program providers and trust has been established. Alternatively, at post-test respondents have learned the socially desirable response and therefore, provide the responses that reflect what they think the prevention providers want. Creating a test-taking situation in which respondents feel comfortable answering honestly at both pre and post-test is imperative yet can be difficult to do. PIRE has discussed with program providers and evaluators ways in which they might improve the test taking environments among their programs.

## *Family Assessment Scale: Ages 0-6*

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### **Background**

During FY09, the New Mexico Family Assessment Survey (FAS) was revised and first used in FY10. Over approximately 6 months, PIRE held meetings using Go-To-Meeting technology with local evaluators and 0-6 prevention providers in NM on a weekly basis to revise the instrument. Specifically, the revised instrument was designed to meet the evaluation needs of the state and local providers in as efficient and culturally appropriate way as possible. The recipients of 0-6 prevention programming vary dramatically across the state; some recipients are teen parents and others are adult substance using parents, and still others are parents of at-risk kids. In order to meet the needs of the varying prevention programs and their target populations, the revised FAS consists of 5 modules. The first module, Module A, is required by all 0-6 prevention programs. Module A measures past 30 day ATOD use, attitudes, and perceptions of risk associated with ATOD use, social support, family interactions, home environment, and self-efficacy. Module B measures parenthood preparedness and intentions to use ATOD after birth. Module C measures parenting skills and child well-being. Module D measures the handling of stress. Module E measures positive reinforcement, parent-child interactions, and effective discipline.

The items were chosen with an eye towards maximum face validity based on the target population. The instrument was piloted with a teen parent population and with an adult population in the spring of 2010 and revisions were made based on focus group feedback. The translation of all modules was conducted by an independent translation consultant located in southern NM and translations were reviewed by program participants. However, because there are new items on these instruments and scales have not yet been evaluated for reliability there may be modifications to the instrument for FY 11 based on findings.

In addition to the creation of the new evaluation instrument, new syntax files, new reporting templates, and a new guidance manual were all created by PIRE. New analyses include Generalized Linear Model (GLM) analyses. Prevention programs targeting 0 through 6 year olds work with the family to improve parenting skills and family interaction, and essentially create a safer and more supportive environment for the child. The developmental hypothesis behind these programs is that strong positive family bonding protects against later substance use. During FY 10, five sites received funds to address ATOD prevention among 0-6 year olds and their families. Sites provided one of the following evidence-based curriculums: *Parents as Teachers*, *Effective Black Parenting Program*, *Dare to be You*, *Meld Nueva Familia*, or *Strengthening Families*.

### *Parents as Teachers*

Parents as Teachers (PAT) is an international, early childhood parent education and family support program serving families throughout pregnancy until their child enters kindergarten, usually at age 5. The program is designed to enhance child development and school achievement

through parent education accessible to all families. It is a universal access model. Activities include personal visits to participants during which PAT certified parent educators help parents understand and have appropriate expectations for each stage of their child's development; group meetings that serve as a forum for parents to share experiences; developmental screenings to assess child's health, hearing, and vision; and linkage to a resource network for services outside the scope of the PAT program. The protective factors addressed by PAT are social connectedness, access to services, attitudes towards use, family communication, and family management skills.

### *Effective Black Parenting Program (EBPP)*

The Effective Black Parenting Program (EBPP) was originally developed for parents of African American children aged 2 to 12. Most of its evaluation studies have been conducted with this population. However, since beginning the national dissemination of the program in 1988, the program has been successfully used with teenage African American parents and their babies, and with African American parents of adolescent children. Thus, its widespread usage has been with parents whose children range from 0 to 18. EBPP is a cognitive-behavioral program designed to foster effective family communication, healthy African-American identity, extended family values, child growth and development, and healthy self-esteem.

### *Dare to Be You (DTBY)*

*The Dare to Be You* program is a curriculum based project that was founded in 1979 and is designed to reduce poor outcomes among children, especially alcohol, tobacco and other drug use, by increasing resiliency factors and reducing risk factors in families with young children. The target population is 3-5 year old children. Program facilitators encourage parent input, support, and participation. Sessions include Family Management Skills and Attitudes, Communication Skills, Positive Disciplining, Self Concept, Showing Love and Affection, Family Planning, and Social Skills.

### *Meld Para Nueva Familia*

The Teen Parent Center (TPC) is a service of the Santa Fe Public Schools which provides onsite child care, parenting, pre-natal, and life skill classes, academic tutoring, counseling, and case management services to pregnant and parenting adolescents. The specific mission of the TPC is to prevent negative outcomes for children of teen parents by providing high-quality, comprehensive support, and educational services that enable teenage parents to complete high school and to function as healthy, effective, and nurturing parents and community members. The Meld curriculum *Para Nueva Familia* is implemented with all individuals who receive services at the TPC. The objectives of this curriculum include: 1) increasing knowledge of the dangers of alcohol, tobacco, and other drug use 2) increasing knowledge of childhood development; 3) improving parenting skills among adolescent parents and their families; 4) improving parent/child attachment; 5) improving parent/child interactions; and 6) improving the developmental health of infants and toddlers. Meld prepares and supports teen parents in positive parenting, self-esteem, to continue in school, healthy relationships, resources to be a positive parent, and to delay childbearing until education has been completed. Meld is delivered

by trained staff members and a peer mentor who was a graduate of the program. The students also participate in teen panels in middle and high school classes to deliver presentations on teen pregnancy and the effects of alcohol, tobacco, and other drugs.

### *Strengthening Families Program*

Strengthening Families is a family-focused initiative that increases family management skills, reduces the likelihood for substance abuse and other problems associated with the teen years, and reduces family-related risk factors for adolescent problem behaviors. The curriculum follows an interactive model where parents and youth meet in different sessions for one hour then are united to participate in family activities the second hour. The program is designed to help parents/caregivers learn nurturing skills that support their children. It teaches parents/caregivers how to effectively discipline and guide their youth. The program is also designed to give youth a healthy future orientation and an increased appreciation of their parents/caregivers. It also teaches youth skills for dealing with stress and peer pressure.

### **Methods**

Parents or guardians completed the survey instrument (New Mexico Family Assessment Scale (FAS)) before participation in a curriculum and again after completion of the curriculum. The FAS consists of five modules. The first module, Module A, assesses current ATOD use in addition to safety and structure of the home environment, social support, ability to utilize social services, and family interaction. All 0-6 prevention programs must use Module A in their evaluation. The other four modules are optional for programs. The diversity of the programs as well as the diversity of the participants in each program warranted the construction of multiple modules. The table below (Table 1) captures the risk and protective factors for ATOD use, measured by the various scales for eleven constructs.

Using SPSS, analyses were conducted for parent surveys that had both a complete pretest and posttest. First, the data were cleaned and frequencies were run for pretest and posttest variables to identify outliers. Variables were then recoded, including reverse-coded when appropriate, so that sum scales and mean scales could be created to measure the 11 constructs. Scale reliability analyses were conducted to examine internal validity before running sample demographics and descriptive statistics. Factor analyses indicated that the six items on the Positive Reinforcement scale showed very low reliability ( $\alpha=.384$ ) and appeared to represent multiple factors. Therefore, each of the items was analyzed individually rather than as one factor.

Analyses were conducted to examine the percentage of respondents reporting past 30-day substance use at baseline and posttest for five measures: any alcohol, alcohol to intoxication, other illegal drugs, marijuana and cigarettes. Respondents reporting any substance use at baseline comprise a high-risk sub-group that is then isolated from the sample for further examination. Respondents who were inconsistent in their responses to ATOD use questions were excluded from some analyses.

**Table 1:** Risk and Protective Factors Measured by the NMFAS Construct Scales

Construct	Risk and Protective Factors
Home Environment	Housing stability; financial stability; reliable transportation; nutritious meals; good hygiene practices, and structured time for children (Module A)
Social Support	Positive interactions with neighbors and/or friends; support from relatives, neighbors, and/or friends and help with finances, childcare, cooking, etc. (Module A)
Social Services Utilization	Access to emergency medical services or a regular doctor; access to emergency help from friends, etc., and participation in activities to further education. (Module A)
Parenting Skills	Discipline; supervision; increased ability to support child's development; increased knowledge about child's language, emotional and motor development; ability to identify and willingness to seek services for mental health problems; resources to be a positive parent; physical ability to care for child and partner's involvement. (Module C)
Family Interaction	Planning family activities; support during times of crisis; open communication; acceptance; positive feelings and interactions; empowerment and improved decision making. (Module A)
Child Well-being	Regular medical care, including up to date immunizations; age appropriate development; use of a safe car seat and personal safety. (Module C)
Parent/child Interaction	Positive interactions and feelings and age appropriate expectations. (Module E)
Parenthood Preparedness	Positive attitudes and behaviors in preparation for becoming a parent. (Module B)
Handling of Stress	Positive ways of dealing with stress. (Module D)
Positive Reinforcement	Positive responses to good behavior of child. (Module C)
Effective Discipline	Constructive ways to discipline a child. (Module C)

In addition, an analysis was conducted using the GLM procedure in SPSS to generate a repeated measures MANOVA with one within group factor (time). The pretest and posttest mean scores were compared for the 11 constructs and the F statistic is reported along with the partial Eta squared ( $\eta_p^2$ ) which was calculated to examine the effect size of the program between pretest and posttest. The partial Eta squared is the proportion of the effect + error variance that is attributable to the effect.

## Results

Outcome data were collected from 129 parent surveys. The table below (Table 2) provides the distribution of 0-6 program participants by site. The percentage of female caregivers that completed the survey was much higher than the number of male caregivers (84.5% versus 15.5%). Across the sites, the age of the parent or guardian completing the survey ranged from 14 to 67, with a mean of 25.54 years old. More than half (69%) spoke a language other than English in their homes. The mean highest grade completed in school was tenth and less than half of the respondents were engaged in full (24%) or part-time (19%) employment.

**Table 2:** Distribution of 0-6 program participants by site

Site	Curriculum Provided	Number of Participants*	Percent of Total Participants
McKinley County	Dare to Be You	30	23.3%
Santa Fe Public Schools	Melda Para Nueva Familia	46	35.7%
Southern NM Human Development	Strengthening Families Program	26	20.2%
Tri-County Community Services	Dare to Be You	27	20.9%
Total		129	100.0%

As seen in Table 3, the number of respondents reporting cigarette and alcohol use generally decreased slightly from baseline to posttest, with the exception of “4 or more alcohol drinks at one time”, which remained the same. Use of prescription medication not prescribed decreased, with the exception of prescription pain pills, which increased rather dramatically, and prescriptions such as Ritalin, which increased only marginally.

**Table 3:** Percent of all participants reporting any past 30 days ATOD use<sup>a</sup> at baseline and posttest

Substance	Yes at Baseline	Yes at Posttest	% change	Desired Outcome
Any Cigarettes (n=122)	18.5%	18.0%	-2.7%	👍 Is better
Any Alcohol (n=124)	12.9%	11.4%	-11.6%	👍 Is better
Alcohol to Intoxication (n=122)	3.3%	4.1%	24.2%	👍 Is better
4 or more alcohol drinks at one time (n=123)	4.9%	4.9%	0.0%	👍 Is better
Any Prescription Medication not prescribed (n=123)	4.1%	3.3%	-19.5%	👍 Is better
Any Prescription Pain Pills not prescribed (n=123)	1.6%	4.1%	156.2%	👍 Is better
Any Prescription (Ritalin, Prozac, Adderal) not prescribed (n=123)	0.0%	0.8%	100.0%	👍 Is better
Any Prescription Tranquilizers not prescribed (n=122)	1.6%	0.8%	-50.0%	👍 Is better

<sup>a</sup> Dichotomous substance use variable (yes or no).

When only looking only at participants who reported any ATOD use at baseline, as seen in Table 4, again, cigarette and alcohol use generally decreased from baseline to posttest, with the exception of drinking alcohol to intoxication, which increased, and “4 or more alcohol drinks at one time”, which remained the same. The use of any prescription medication and prescription

tranquilizers not prescribed decreased while the use of prescription pain pills and medications such as Ritalin remained the same.

Table 5 presents the frequency of reported ATOD use at base-line and at posttest. Overall, respondents who reported use at baseline decreased the frequency of their use at posttest, indicating that participants in prevention programming, who initially report the use of substances, decrease the frequency of their use over the course of the program.

**Table 4:** Past 30-day use<sup>a</sup> of ATOD differences among those participants reporting any ATOD use at baseline.

Substance	Yes at Baseline	Yes at Posttest	% change	Desired Outcome
Any Cigarettes (n=35)	65.7%	44.1%	-32.9%	👍 Is better
Any Alcohol (n=33)	48.5%	31.3%	-35.5%	👍 Is better
Alcohol to Intoxication (n=32)	9.4%	15.6%	66.0%	👍 Is better
4 or more alcohol drinks at one time (n=32)	15.6%	15.6%	0%	👍 Is better
Any Prescription Medication not prescribed (n=30)	16.7%	6.7%	-59.9%	👍 Is better
Any Prescription Pain Pills not Prescribed (n=30)	3.3%	3.3%	0%	👍 Is better
Any Prescription (Ritalin, Prozac, Adderal) not prescribed (n=30)	0%	0%	0%	👍 Is better
Any Prescription Tranquilizers not prescribed (n=30)	6.7%	0.0%	-100.0%	👍 Is better

<sup>a</sup> Dichotomous substance use variable (yes or no).

**Table 5:** Average number of days participants reported ATOD use over the past 30 day at baseline and at posttest only among participants reporting any ATOD use at baseline.

Substance	Baseline Mean	Posttest Mean	Difference	Desired Outcome
Any Cigarettes (n=34)	13.63	8.62	-5.01	👍 Is better
Any Alcohol (n=32)	3.70	2.63	-1.07	👍 Is better
Alcohol to Intoxication (n=31)	.44	.28	-.16	👍 Is better
4 or more alcohol drinks at one time (n=31)	.84	.28	-.56	👍 Is better
Any Prescription Medication not prescribed (n=29)	2.23	.17	-2.06	👍 Is better
Any Prescription Pain Pills not prescribed (n=29)	.50	.07	-.43	👍 Is better
Any Prescription (Ritalin, Prozac, Adderal) not prescribed (n=29)	0.00	0.00	0.00	👍 Is better
Any Prescription Tranquilizers not prescribed (n=29)	1.67	0.00	-1.67	👍 Is better

Table 6 provides the results of the GLM analyses which compares average ATOD use at baseline to average ATOD use at posttest among the entire sample. The differences in ATOD use means were not significant when controlling for baseline use.

**Table 6:** Examining the effect of time on ATOD use at posttest controlling for baseline use.

Substance <sup>†</sup>	Baseline Mean	Posttest Mean	F-test & sig. (indicated by asterisk[s])	effect size <sup>a</sup>	Desired Outcome
Any Cigarettes	0.18	0.17	0.058	.000	⬇️
Any Alcohol	0.13	0.12	0.110	.001	⬇️
Any Alcohol to Intoxication	0.03	0.04	1.000	.009	⬇️
Any Binge Drinking	0.03	0.04	1.000	.008	⬇️
Any Prescription Medication Not Prescribed <sup>§</sup>	0.00	0.00	0.000	.000	⬇️

<sup>†</sup>Dichotomous (yes/no) ATOD use measures used

<sup>§</sup>Based on the combined responses to questions 37 through 40

<sup>a</sup>partial eta squared where effects are: small = .01, medium = .06, large = .14 or larger

\* $p \leq .05$ , \*\* $p \leq .01$ , \*\*\* $p \leq .001$

The scores for nearly all of the constructs measured by the NMFAS demonstrated movement in the desired direction, with the findings for six of the ten measures achieving statistical significance (Home Environment,  $F = 5.027$ ,  $p \leq .05$ ; Child Well-Being,  $F = 7.163$ ,  $p \leq .01$ , Handling Stress,  $F = 20.517$ ,  $p \leq .001$ , Positive Reinforcement,  $F = 11.480$ ,  $p \leq .001$ , Parent-Child Interaction,  $F = 5.660$ ,  $p \leq .05$  and Effective Discipline,  $F = 11.767$ ,  $p \leq .001$ ). Of the six measures, four had large effect sizes. The difference in mean scores for Social Services and Social Support were not statistically significant, however the scores moved in the desired direction. There were slight, non-significant decreases in mean scores for Parenting Skills and Family Interaction. All of the scales have moderate to high reliability. (See Table 7.)

As previously discussed, items that made up the positive reinforcement factor did not appear to group together as expected and overall reliability for the construct was too low to consider using the factor. Therefore, we examined each of the 6 items individually. Table 8 below presents the GLM results for the 6 items assessing the use of reinforcement techniques. The use of two techniques showed significant improvement over the course of the prevention program although all indicated trends in the desired direction. When looking at Positive Reinforcement items, in Table 8, significant increases were found for Praising or Complimenting a child for good behavior ( $F = 5.588$ ,  $p \leq .05$ ) and Giving points or stars on a chart ( $F = 8.563$ ,  $p \leq .001$ ). Over time, parents were responding to good child behavior with more praise and more use of a point reward system.

**Table 7:** Results of GLM analyses comparing baseline and posttest scale scores

Sub-Scale	Range	Baseline Mean Score	Posttest Mean Score	F-test & sig. (indicated by asterisk[s])	Effect size <sup>a</sup>	Desired Outcome	Posttest Cronbach Alpha
Home Environment (n=126)	0-3	2.58	2.70	5.027*	.039	👉 Is better	$\alpha = .805$
Social Services (n=126)	0-3	2.45	2.51	2.581	.020	👉 Is better	$\alpha = .707$
Family Interaction (n=127)	0-3	2.26	2.35	2.951	.088	👉 Is better	$\alpha = .850$
Social Support (n=123)	0-3	2.46	2.49	.319	.573	👉 Is better	$\alpha = .926$
Parenting Skills (n=46)	0-3	2.37	2.28	.749	.016	👉 Is better	$\alpha = .957$
Child Well-Being(n=45)	0-3	2.76	2.29	7.163**	.140	👉 Is better	$\alpha = .967$
Handling Stress (n=30)	0-3	1.86	2.08	20.517***	.414	👉 Is better	$\alpha = .680$
Parent-Child Interaction (n=55)	0-3	2.56	2.67	5.660*	.095	👉 Is better	$\alpha = .611$
Effective Discipline (n=53)	0-3	1.74	1.99	11.767***	.185	👉 Is better	$\alpha = .592$

<sup>a</sup> partial eta squared where effects are: small = .01, medium = .06, large = .14 or larger.

\* $p \leq .05$ , \*\* $p \leq .01$ , \*\*\* $p \leq .001$

Knowing that our sample is quite diverse with respect to the age of the parent, and race/ethnicity, we ran the GLM analyses again controlling for the age of the parent, the age of the child whom the parent is caring for, and the parent's race/ethnicity. Previous research has shown these sociodemographic variables to be associated with the outcomes and therefore, differences in our sample may be affecting our outcomes. As seen in Table 9, when controlling for age, child age, and ethnicity, changes in means were significant for Family Interaction ( $F = 5.995, p \leq .05$ ), and Parenting Skills ( $F = 4.677, p \leq .05$ ). Yet self-reported Parenting Skills actually diminished over the course of the program. This may be because participants are better able to identify strong parenting skills compared to when they started the program, and therefore can better judge their own parenting skills. However, this finding does warrant discussion with program providers and local evaluators to explore and understand why this finding is so strong. The number of Handling Stress responses was so low ( $n=27$ ) that no F statistic was computed.

**Table 8:** Results of GLM analyses comparing baseline and posttest scale scores for Positive Reinforcement items

•When my child behaves well or does a good job, I...	Range	Baseline Mean Score	Posttest Mean Score	F-test & sig. (indicated by asterisk[s])	Effect size <sup>a</sup>	Desired Outcome
...notice but do not respond (n=49)	0-3	1.98	2.24	3.091	.061	☐ Is better
...praise or compliment child (n=53)	0-3	2.66	2.89	5.588*	.097	☐ Is better
...give child hug, kiss, pat, handshake, high five (n=53)	0-3	2.79	2.87	1.619	.030	☐ Is better
...let child have special treat (n=53)	0-3	2.08	2.26	2.574	.047	☐ Is better
...give child extra privilege (n=47)	0-3	1.79	2.13	3.881	.078	☐ Is better
...give points or stars on a chart (n=41)	0-3	.85	1.37	8.563**	.176	☐ Is better

<sup>a</sup> partial eta squared where effects are: small = .01, medium = .06, large = .14 or larger.

\*p≤.05, \*\*p≤.01, \*\*\*p≤.001

**Table 9:** Examining the Effect of NMFAS Pretest Scores on Posttest Scores Controlling for Parent Age, Child Age, and Ethnicity

Sub-Scale	Range	Baseline Mean Score	Posttest Mean Score	F-test & sig. (indicated by asterisk[s])	Effect size <sup>a</sup>	Desired Outcome	Posttest Cronbach Alpha
Home Environment (n=53)	0-3	2.58	2.75	.038	.001	☐ Is better	α = .805
Social Services (n=53)	0-3	2.49	2.59	2.323	.045	☐ Is better	α = .707
Family Interaction (n=53)	0-3	2.28	2.45	5.995*	.109	☐ Is better	α = .850
Social Support (n=53)	0-3	2.53	2.66	.538	.011	☐ Is better	α = .926
Parenting Skills (n=30)	0-3	2.43	2.37	4.677*	.152	☐ Is better	α = .957
Child Well-Being (n=30)	0-3	2.79	2.29	1.285	.047	☐ Is better	α = .967
Handling Stress (n=27)	0-3	1.86	2.09	---	.000	☐ Is better	α = .680
Parent-Child Interaction (n=32)	0-3	2.61	2.73	1.223	.042	☐ Is better	α = .611
Effective Discipline (n=32)	0-3	1.77	1.96	.524	.018	☐ Is better	α = .592

<sup>a</sup> partial eta squared where effects are: small = .01, medium = .06, large = .14 or larger.

\*p≤.05, \*\*p≤.01, \*\*\*p≤.001

As seen in Table 10, when controlling for parent age, child age, and ethnicity, none of the changes in means for Positive Reinforcement items were significant.

**Table 10:** Results of GLM analyses comparing baseline and posttest scale scores for Positive Reinforcement items, controlling for Parent Age, Child Age, and Ethnicity.

When my child behaves well or does a good job, I...	Range	Baseline Mean Score	Posttest Mean Score	F-test & sig. (indicated by asterisk[s])	Effect size <sup>a</sup>	Desired Outcome
...notice but do not respond (n=32)	0-3	2.18	2.54	.057	.002	👉 Is better
...praise or compliment child (n=32)	0-3	2.66	2.97	3.975	.124	👉 Is better
...give child hug, kiss, pat, handshake, high five (n=32)	0-3	2.91	2.97	2.977	.096	👉 Is better
...let child have special treat (n=32)	0-3	2.00	2.12	.795	.028	👉 Is better
...give child extra privilege (n=28)	0-3	1.68	1.86	.095	.004	👉 Is better
...give points or stars on a chart (n=26)	0-3	.77	1.38	.798	.035	👉 Is better

<sup>a</sup> partial eta squared where effects are: small = .01, medium = .06, large = .14 or larger.

\*p≤.05, \*\*p≤.01, \*\*\*p≤.001

The number of parents reporting child involvement in Child Protective services decreased from baseline to posttest, however, the number of parents who said their child's immunizations are up to date also decreased slightly. The number of child injuries increased slightly.

**Table 11:** Percent of respondents who reported positively on any child safety item at baseline and posttest.

Child Safety Concerns	Baseline		PostTest	
	Yes		Yes	
	N	%	N	%
While in my care, my child has been involved in Child Protective Services.	19	41.3%	13	28.3%
My child's immunizations are up to date.	31	67.4%	26	57.8%
My child has been injured (other than minor scrapes, bumps, or bruises) in the last 3 months.	9	19.6%	11	24.4%

## Discussion

In general, the 0-6 programs had a positive impact on participants. Among participants reporting ATOD use at baseline, there were decreases in any reported use as well as in the frequency of reported use. There are definitely concerns raised about increases in users of prescription pain

killers and increases in the prevalence of drinking to intoxication. These may reflect new parents becoming “older” parents over the course of the prevention programming, which may be related to a loosening of restrictive behaviors. For example, the move from breastfeeding to bottle feeding might increase the likelihood of a mother’s consuming alcohol again, after having abstained for many months.

There were statistically significant improvements in protective factors as well. Participants reported improvement in their ability to handle stress in healthy ways, their use of positive reinforcement techniques and effective and appropriate discipline, and finally, improvements in the home environment and family interactions. All of these improvements indicate that over the course of the program, participants report building their resiliency and creating a life that is less likely to involve substance use and abuse.

And while not statistically significant, there was slight improvement in the measures for Social Services, Family Interaction, and Social Support. These measures suggest that after participating in the program, family members were more likely to have positive interactions with neighbors and/or friends, reported seeking support from relatives, neighbors, and/or friends for help with finances, childcare, cooking, and were more likely to seek help for a mental health problem.

It would appear that parents are learning how to be better parents and putting that knowledge into practice in their daily lives. Their expectations of their own parenting abilities may increase over the course of the program, in effect, causing parents to rate themselves lower on their skills as posttest.

With respect to the measures of child safety (Table 11), we can speculate as to why we might see a change in undesirable directions. First, at baseline, many new parents may be unaware of the recommended immunization schedule for children and indicate that immunizations are up to date, even though they are not. At posttest, participants should know the immunization schedule and ideally be attending well child check-ups routinely so as to be immunized. Yet, many may be without regular health insurance and see doctor’s visits, particularly when the child is not sick, as an unnecessary expense. This would indicate that more needs to be done to encourage parents to attend all well-child check-ups and perhaps help parents to create calendars indicating when these should occur for their child. The increase in injuries to children also warrants some speculation. Unfortunately we have no context for what caused the injury(ies), which may be due to poor parenting or possibly due to extraneous circumstances. It is important to recall that over the course of 6 to 9 months, infants and children can develop considerably, particularly with respect to motor skills. Increases in motor skills such as rolling over, crawling, pulling up, or walking, for which parents are not prepared, may help explain why there is a slight increase in reported injuries. This may indicate that programs can provide additional information to parents as their child grows so as to prepare parents and prevent injury.

While most findings are positive, the negative findings indicate that further dialogue with prevention providers, local evaluators, and even participants could be very valuable both in understanding responses and interpreting results. Finally, it is very important to note that there are no control data from parents who received no prevention programming. Therefore, no definite conclusions can be drawn on whether the prevention programs themselves caused the

change or if other causes may explain the changes found over time. While participants in the program do, in general, improve over time, the same improvements might also occur among other parents merely because of learning that takes place over time even without the benefit of special programs.

In conclusion, program participants do show gains in their resiliency and decreased use for some substances. While it is impossible to attribute these improvements solely to 0-6 prevention programming, it remains that these programs rely on strong developmental and behavioral theory to guide the work they do and that research indicates that programs that build knowledge, skills, and resiliency can decrease ATOD use and even prevent future use. Moreover, there is strong evidence that children of parents who do not abuse substances are far less likely to abuse them as well. Therefore, improving parents' use is one way to reduce the likelihood of future substance use problems in children.

## Pre-K through 6

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### Background

Prevention programs targeting Pre-K to 6<sup>th</sup> grade students aim to improve parent-child interactions, communication between family members, and parental attitudes through increasing parenting knowledge and skills. The Pre-K to 6<sup>th</sup> survey instrument was designed to assess a parent domain comprised of three constructs: Family Interaction, Parental Attitudes, and Parent Child Dysfunctional Interaction. The Family Interaction measure assesses the presence or absence of positive interactions between parent and child, positive reinforcement of appropriate behavior, inappropriate discipline methods, quality time spent together, and family communication skills. The second measure, Parental Attitudes, asks parents to rate themselves using a five-point scale (very poor, poor, so-so, good, very good) on their ability to manage their anger and emotions, to problem solve, parental participation in child's education, and parenting self-efficacy. The third measure also uses a five-point scale (strongly agree, agree, not sure, disagree, strongly disagree) to gauge overlap between parents' expectations and observations of their child's behavior and their relationship with their child.

Three sites received funds to address ATOD prevention for the Pre-K to 6<sup>th</sup> grade population. Sites provided the *Dare to be You* curriculum.

#### *Dare to Be You*

*The Dare to Be You* program is a curriculum based project that was founded in 1979 and is designed to reduce poor outcomes among children, especially alcohol, tobacco and other drug use, by increasing resiliency factors and reducing risk factors in families with young children. The target population is 3-5 year old children. Program facilitators encourage parent input, support, and participation. Sessions include Family Management Skills and Attitudes, Communication Skills, Positive Disciplining, Self Concept, Showing Love and Affection, Family Planning, and Social Skills.

### Methods

As with the other pre-adolescent OSAP science-based prevention programs, a pretest, posttest design without control groups was used to assess outcomes for program participants. Local evaluators monitored and provided oversight at each of the funded Pre-K - 6 prevention sites and worked closely with the statewide evaluation team to provide timely data submission. Table 12 shows distribution of Pre-K through 6 participants across all sites. Parents or guardians of the children completed the PreK to 6<sup>th</sup> survey instrument before their participation in a curriculum and again after completion of the curriculum. SPSS analyses were conducted on parent surveys that have both a complete pretest and posttest.

Once data were submitted, the data were cleaned and frequencies were run for pretest and posttest variables to identify outliers; variables were then re-coded, including reverse-coded

when appropriate, so that sum scales and mean scales could be created to measure the eight constructs; scale reliability analyses were conducted to examine internal validity before running sample demographics and descriptive statistics and finally, a series of paired sample t-tests was performed on each construct in order to assess whether the sum/ mean scores of the pretests were significantly different from the sum/mean scores on the posttests. The alpha criterion set was .05 ( $\alpha = <.05$ ). Finally, the GLM procedure in SPSS was used to conduct an analysis between pretest and posttest scores controlling for demographics.

**Table 12:** Distribution of Pre-K through 6 participants by site

Site	Curriculum Provided	Number of Participants*	Percent of Total Participants
Colfax County YES	Dare to Be You	30	23.8%
Youth Development, Inc.	Dare to Be You	49	38.9%
Sandoval County SAP Collaborative	Dare to Be You	47	37.3%
	Total	126	100.0%

\*This is the total number of participants that completed both a pretest and a posttest.

## Results

Data on the relationship between the caregiver and the child was available for 126 respondents. Nearly 92% of respondents identified themselves as the parent or guardian, followed by 5% for grandparents and 3% for other. The mean age of the survey respondents was 33 years old. Female caregivers were three times as likely to complete the survey as male caregivers (74.6% compared to 25.4%). Among the children, it seems that female program participants (57.1%) were slightly more common than male program participants (42.9%).

More respondents were single (40.7%) than married (22.8%), living with someone (24.3%), or separated or divorced (12.2%). The average number of children living with a respondent was 2 and the average number of people per home was 4. A language other than English was spoken in more than half of the homes (64.8%). The majority (80%) of respondents had completed 12 years or more of education and 60% reported that they were employed in either full or part-time work while 23% reported that they were unemployed and looking for work.

For the total sample, statistical significance on the score differences from pretest to posttest was reported for all three of the measures. Family Interaction ( $t = -5.87, p=.000$ ), Parental Attitudes ( $t = -7.83, p=.000$ ), and Parent-Child Dysfunctional Interaction ( $t = 3.24, p=.002$ ) increased and decreased significantly as predicted over the course of the prevention programming. The two latter scales had high reliability coefficients (.867 and .868 respectively) and the former had moderate reliability (.770). See Table 13 for the baseline and posttest comparisons.

**Table 13:** Parent report on all youth participants

Sub-Scale	Range		Baseline Mean Score	PostTest Mean Score	Paired T-Test	SIG.	Desired Outcome	Cronbach's Alpha
	Min	Max						
Family Interaction	0-4		2.89	3.15	t =-5.87	.000***	⬆️ Is better	0.760
Parental Attitudes	0-4		2.78	3.17	t = -7.83	.000***	⬆️ Is better	0.867
Parent-Child Dysfunctional Interaction	1-5		1.88	1.68	t = 3.24	.002**	⬇️ Is better	0.868

\*p≤.05, \*\*p≤.01, \*\*\*p≤.001

As seen in Table 14, when the sample was divided by child's biological sex, statistically significant findings were found for the female program participants on all three measures: the Family Interaction scale (t=-4.19, p=.000), the Parental Attitudes scale (t =-4.24, p=.000), and the Parent-Child Dysfunctional Interaction (t =2.39, p=.002). All of the scores changed in the desired direction

**Table 14:** Parent report on female youth participant findings

Sub-Scale	Range		Baseline Mean Score n=60	Posttest Mean Score n=60	Paired T-Test	SIG.	Desired Outcome	Cronbach's Alpha
	Min	Max						
Family Interaction	0-4		2.98	3.19	t =-4.19	.000***	⬆️ Is better	.773
Parental Attitudes	0-4		2.89	3.16	t =-4.24	.000***	⬆️ Is better	.873
Parent-Child Dysfunctional Interaction	1-5		1.77	1.61	t = 2.39	.002**	⬇️ Is better	.870

\*p≤.05, \*\*p≤.01, \*\*\*p≤.001

**Table 15:** Parent report on male youth participant findings

Sub-Scale	Range		Baseline Mean Score n=45	Posttest Mean Score n=45	Paired T-Test	SIG.	Desired Outcome	Cronbach's Alpha
	Min	Max						
Family Interaction	0-4		2.84	3.11	t = -3.32	.002**	⬆️ Is better	.689
Parental Attitudes	0-4		2.65	3.13	t = -5.76	.000***	⬆️ Is better	.863
Parent-Child Dysfunctional Interaction	1-5		1.99	1.81	t = 1.51	.139	⬇️ Is better	.875

\*p≤.05, \*\*p≤.01, \*\*\*p≤.001.

By comparison, statistically significant findings were found for the male program participants for only the Family Interaction (t=-3.29, p = .002) and Parental Attitudes (t=-5.66, p=.000) scales. Scores on the Parent-Child Dysfunctional Interaction scale did decrease slightly but the decrease was not significant (see Table 15)

## Discussion

The three constructs measured by the Parent Domain of the PreK to 6<sup>th</sup> survey instrument were associated with statistically significant, positive findings. However, when the sample was split by sex of the child participant, there were statistically significant findings on the Family Interaction and Parental Attitudes measure for parents of both female and male program participants, but statistically significant findings for Parent-Child Dysfunctional Interaction only for female program participants.

Improvement on the Parental Attitudes measure indicates increased self-efficacy as parents' skills move along a spectrum of "very poor" to "very good" in regards to anger management, expressing emotions, positive role modeling, positive reinforcement for child's appropriate behavior, and ability to provide appropriate discipline. Moreover, adult participants became more empowered as they learn to participate in their child's education, make plans to achieve personal goals and access community resources. As a result of these outcomes, personal relationships with children and other family members generally benefit.

Parents of both male and female program participants also experienced improved outcomes as a result of strengthened family interactions. Compared to baseline data, parent scores were more likely to move from "never" toward "always" along a response continuum at posttest when asked

about positive interactions and behavior toward their child. Several of the items in this construct measure parenting self-efficacy and the trend described by the scale is for parental empathy and understanding of their children to increase as a result of improved self-esteem. For parents of female program participants, these positive findings were accompanied by corresponding improvements in parental self-esteem and child awareness as captured by decreasing scores from baseline to posttest on the Parent-Child Dysfunctional Interaction measure. Although the difference was not significant, the Parent-Child Dysfunctional Interaction scores for parents of male program participants decreased as well.

In summary, parents of participants in the Dare to Be You program, as implemented by the three prevention programs report improvement in family interaction and parental attitudes and less dysfunctional interactions between the parent and child. However, it is important to note that without comparison data, we are unable to confirm that these improvements are due solely to the program. Positive changes might also be attributable to child maturation.

## *Kindergarten through 6<sup>th</sup> grade*

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### **Background**

The K through 6 programs share the same funding stream as the Pre-K to 6 programs, however, the survey instruments vary. The **K-6 Youth Survey** is used with 5<sup>th</sup> and 6<sup>th</sup> graders, the **K-6 Teacher Survey** is used for youth served in 4<sup>th</sup> grade and younger and is completed by the teacher, and the **K-6 Parent Survey** is completed by parents of youth in Grades Pre-K-6.

#### *Dare to Be You*

Please refer to description in the Pre-K through 6 section

#### *Botvin's Life Skills Training*

Please refer to description in the Pre-K through 6 section

#### *Too Good for Drugs*

Too Good for Drugs (TGFD) is a school-based prevention program designed to reduce the intention to use alcohol, tobacco, and illegal drugs in middle and high school students. Developed by the Mendez Foundation for use with students in kindergarten through 12th grade (5 to 18 years old), TGFD has a separate, developmentally appropriate curriculum for each grade level, and is designed to develop:

- Personal and interpersonal skills relating to alcohol, tobacco, and illegal drug use
- Appropriate attitudes toward alcohol, tobacco, and illegal drug use
- Knowledge of the negative consequences of alcohol, tobacco, and illegal drug use and benefits of a drug-free lifestyle
- Positive peer norms

The program's highly interactive teaching methods encourage students to bond with pro-social peers, and engages students through role-play, cooperative learning, games, small group activities and class discussions. Students have many opportunities to participate and receive recognition for involvement. TGFD also impacts students through a family component used in each grade level: "Home Workouts" is available for use with families in kindergarten through 8th grade, and "Home Pages" is used in high school.

#### *Across Ages Mentoring*

The Across Ages program is a mentoring program that links at-risk youth with older community members. Mentors meet with the youth for 2 hours weekly and work with the youth to set goals and develop community-based activities designed to raise awareness of ATODA risks and to

change community norms about alcohol use. Prevention specialists meet with mentors weekly to review progress and to provide support and information as needed.

Five students are selected at each school district for mentoring based on locally developed criteria that includes grades, attendance, discipline referrals, tardiness, and teacher and student ratings. Both boys and girls are paired with mentors. Ideally each site would have both a male and a female mentor to provide sex specific role models to the students but this is not always possible. The mentors come from the communities where the schools are located and match the students' ethnic, linguistic, and cultural backgrounds.

### *Protecting You/Protecting Me*

Protecting You/Protecting Me is a locally developed “promising program” tailored to meet the cultural needs, including language, of the population served by sites. In the schools, corps members mentor and tutor youth in grades Pre-K to 6th after-school four days each week and within assigned elementary classrooms providing targeted prevention lessons and service learning projects that build resiliency skills among the students. This program addresses specific competencies identified by the school district’s Needs Assessment Committee, while increasing overall grade levels, encouraging positive attitudes towards school and decreasing disciplinary problems in classrooms and playground. Key components of the approach include physical activity, homework assistance, PYPM curriculum, mentoring relationships, and safe environment. The key factors addressed by this approach include school success, bonding to school, caring relationships, and physical health.

### *Project Venture Middle School (PVMS)*

Project Venture Middle School (PVMS) is based on the original Project Venture developed by NIYLP and now a CSAP Model Program. PV employs alternative methods (outdoor/experiential education, servant leadership/service learning, reconnecting with traditional culture and the natural world) to help youth develop in healthy and positive ways, to do better in school, to get along better with family and friends, and to avoid using alcohol, tobacco, and other drugs, in addition to promoting cooperation, communication, trust, and problem-solving skills. PVMS includes activities during the school day in classrooms facilitated by Project Venture staff with the help of teachers. After-school activities occur weekly and are led by Project Venture staff and teacher-facilitators. Participants have the opportunity to attend special activities during the summer, such as NIYLP’s Sacred Mountain Learning Center camp, field trips, and extended wilderness excursions. Central to the Project Venture program is the philosophy of Service-learning. Service-learning helps young people to develop ideas and attitudes that allow them to lead by giving back to the community. Young people develop service projects that include community resources and involvement. In addition to community/cultural learning, the projects frequently involve academic and social skills such as math, language arts, research, interpersonal and public communication, and leadership challenges.

### *Talking Talons Youth Leadership*

TTYL provides high intensity, long-duration prevention services for 5<sup>th</sup>, 6<sup>th</sup> and 7<sup>th</sup> grade students in the East Mountain Areas of Bernalillo, Santa Fe and Torrance Counties. Services are structured based on best practices learned from State and Federal agencies such as DOH/OSAP and CSAP. Service delivery to youth is expected to yield social outcomes (see program findings) directly and student disapproval of drug use as an indirect effect. The TTYL prevention program is unlike any in the country. It utilizes a collection of live, injured, wild animals as teaching and inspirational tools and emphasizes science. The animals, around which the curriculum is built, and, more specifically, the attachment the students make with the animals, is one of the causal factors for social outcomes. The key factors addressed are self esteem, attitudes toward school, attitudes toward science, science knowledge, violence prevention, locus of control, and moral decision making.

### *Nurturing Parenting Program*

Please refer to description in the Pre-K through 6 section.

## **Methods**

The pretest, posttest format without control groups was used to assess outcomes for program participants. Three different survey instruments (youth, parent, and teacher) were completed at the discretion of program staff at each site. Program participants from 5<sup>th</sup> and 6<sup>th</sup> grade were administered a survey that asked about their perceptions about risk of harm from ATOD use, parental and personal attitudes about ATOD use, ever use of cigarettes, alcohol marijuana and inhalants, intentions to smoke, and past 30-day use of tobacco, alcohol, marijuana and prescription drugs. Parents were asked to rate their children on items that assessed measures for conduct problems, learning problems, psychosomatic symptoms, impulsive-hyperactive behavior, anxiety, and hyperactivity. Similarly, teachers also rated program participants' conduct problems, hyperactivity, inattentiveness and passive behavior.

Data were cleaned prior to running frequencies for pretest and posttest to identify non-matched data and possible outliers. Next, variables were then recoded, including reverse-coded when appropriate, so that sum scales and mean scales could be created for outcome measures. Scale reliability analyses were conducted to examine internal validity before running sample demographics and descriptive statistics. Finally, a series of paired sample t-tests was performed on each construct in order to assess whether the mean scores on the pretests were significantly different from the mean scores on the posttests, and GLM analyses were run to assess whether pretest scores predicted posttest scores. The alpha criterion set was .05 ( $\alpha = <.05$ ).

## **Results**

Data on program outcomes were collected from youth participants, their parents, and their teachers. Programs that collected youth survey data were not required to collect parent or teacher data but most did. This year, the new version of the K6 Youth Survey Instrument was the same as the SFS Middle School Module A instrument. Consequently, most of the K-6 data

on youth survey participants was submitted along with the middle school SFS data by sites that received funding to provide programming to both populations and K-6 results are intermingled with the middle school analyses. As a result, a distinction was not made between the two funding streams and data on most youth participating in K6 youth programs are included in the analyses of SFS middle school program participants. Nonetheless, PIRE estimated the number of K6 program participants by counting the number of unique survey instruments from the pool of submitted youth survey, parent survey and teacher survey instruments. The table below (Table 16) provides the estimated distribution of K -6th youth program participants by site.

**Table 16:** Distribution of K -6<sup>th</sup> program participants by site

Site	Curriculum Provided	Number of Participants*	Percent of Total Participants
Colfax County YES	Dare to Be You	134	12.9
Excel Educational Enterprises	After School Learning Center, Effective Black Parenting Program	30	2.9
Farmington Municipal Schools	Bully-Proofing Your School, Bully-Proofing Your Child, Second Step, Right Start	491	47.2
National Indian Youth Leadership	Project Venture	149	14.3
Rocky Mountain Youth Corps	Tutoring/Mentoring, Protecting You/ Protecting Me	108	10.4
Tri-County Community Services	Dare to Be You	129	12.4
Total		1,041	100.0

\*This is the total number of participants that completed both a pretest and a posttest.

In addition, PIRE also examined the data separately based on each survey instrument. These results are provided below.

### *Youth Survey*

Information on 281 youth program participants was submitted on the K6 version of the SFS Middle School Module A instrument and participant demographics are captured in Table 17. Slightly more female participants completed pretest and posttest surveys than male participants (51% versus 49%). The age range of participants was 10 to 14 years old with a mean age of 11.0 years old. For both males and females, 46% of participants were in 5<sup>th</sup> grade and 54% were in 6<sup>th</sup> grade. Half of the program participants came from homes where a language other than English was the primary language at home

**Table 17: Demographics for K-6 program participants**

Demographic	% K-6 Program Participants
<b>Sex</b>	
Male	49.3
Female	50.7
<b>Grade</b>	
5 <sup>th</sup> grade	46.0
6 <sup>th</sup> grade	54.0
<b>Race/Ethnicity</b>	
White	43.8
Hispanic	52.7
Native American	1.4
Other	2.1
<b>Language Other than English Spoken Most Often<sup>a</sup></b>	
Yes	50.0

<sup>a</sup> Dichotomous variable (yes or no) capturing the percentage of youth living in homes where English is not the primary language.

#### *Prevalence of substance use among K-6 Respondents*

Among program participants, we found that there were increases in reported substance use from pre to posttest for all of the core substances measured with Module A. The reported increases in substance use are statistically significant for past 30-day use of cigarettes and marijuana. Table 18 captures the reported substance use prevalence at pretest and posttest for program participants.

**Table 18: Past 30-day ATOD use<sup>a</sup> differences from pretest to posttest for K-6 program participants**

Substance (pre n, post n)	% Pretest	% Posttest	McNemar's Test <sup>b</sup>
Cigarettes (n=265/263)	3.4	7.6	0.027*
Chewing Tobacco (n=281/278)	3.2	5.0	0.302
Alcohol (n=256/254)	2.7	5.5	0.118
Binge Drinking (n=257/255)	1.2	3.1	0.063
Marijuana (n=275/275)	2.2	7.6	0.001***
Inhalant ever use (n=281/279)	6.8	7.5	0.832

<sup>a</sup> Dichotomous substance use variable (yes or no).

<sup>b</sup> Binomial distribution used, exact significance tests provided.

\* $p \leq .05$ , \*\* $p \leq .01$ , \*\*\* $p \leq .001$ .

Reported prescription drug use is very low overall (see Table 19). The prevalence of any prescription drug use at baseline does not change at posttest (2.6%) and program participants report no use for pain pills, Ritalin, Adderal or Prozac, and sleep aids or tranquilizers. The increase observed between pretest and posttest for “any other prescription medications not prescribed” should be interpreted with caution because previous findings demonstrated that participants’ understanding of the question varies and the number of students reporting any use is very small and not significant. Examination of the actual data reveal that for “any other medications not prescribed,” the number of program participants reporting use increased from 2 at pretest to 7 at posttest.

**Table 19:** Past 30-day prescription drug use<sup>a</sup>, differences from pretest to posttest for K-6 program

Substance (pre n, post n)	% Pretest	% Posttest	McNemar’s Test <sup>b</sup>
Any prescription medication not prescribed (n=272/270)	2.6	2.6	1.000
Any R <sub>x</sub> pain pills not prescribed (n=272/269)	0.0	0.7	0.500
Any Ritalin, Adderal, or Prozac not prescribed (n=272/269)	0.0	0.0	NA <sup>c</sup>
Any R <sub>x</sub> sleep aids or tranquilizers not prescribed (n=272/268)	0.0	0.0	NA <sup>c</sup>
Any other medications not prescribed (n=272/269)	1.5	2.6	0.375

<sup>a</sup> Dichotomous substance use variable (yes or no).

<sup>b</sup> Binomial distribution used, exact significance tests provided.

<sup>c</sup> McNemar’s test not conducted because the prevalence is 0.0% at both pretest and posttest.

As is frequently the case in reporting substance use among adolescents, floor and ceiling effects are observed. For example, among adolescents, most do not report past 30 day substance use at pretest. As a result of maturation, over the course of the prevention programming, many adolescents may try substances. Because at pretest so few report use, it is frequently possible at posttest for more students to report ATOD use. This is referred to as a floor effect, meaning that if most students do not report use at pretest the posttest estimate is more likely to increase because it cannot possibly decrease. Alternatively, students may report very strong and positive relationships with their parents, a known protective factor against ATOD use. Because the relationships are typically very strong at pretest, over the course of the prevention program, there may be an apparent decrease in this level of closeness. This is called a ceiling affect, essentially implying that the highest level has been reached at pretest and the only room for movement is to decrease. Whether these effects are an artifact of the program or the result of maturation is unclear in the cross-tabulations. In addition, the likelihood of increasing or decreasing from pre to posttest when most responses are at one extreme or the other is greater in general than if responses are evenly distributed and this is referred to as regression to the mean. When participants report very low substance use at pretest, it is difficult to demonstrate reductions in substance use at posttest. Alternatively, when respondents report high protective factors at pretest, it is difficult to demonstrate increases in these protective factors at posttest.

In order to get around the issue of floor effects, we also examined the self-reported substance use at posttest among *only those program participants reporting any ATOD use at pretest*. Among K-6 program participants who reported any ATOD use at pretest, we found that the percentage reporting substance use at posttest increased by nearly 50% for binge drinking and marijuana and

by less (10%) for cigarettes. On the other hand, decreases for chewing tobacco (32%), inhalant ever use (26%) and alcohol (14%) were also observed. Table 20 provides the percent use at pretest and posttest and the percent change from pretest to posttest among students who reported use any ATOD use at pretest. Figure 2 then graphs the changes from pretest to posttest for K-6 program participants.

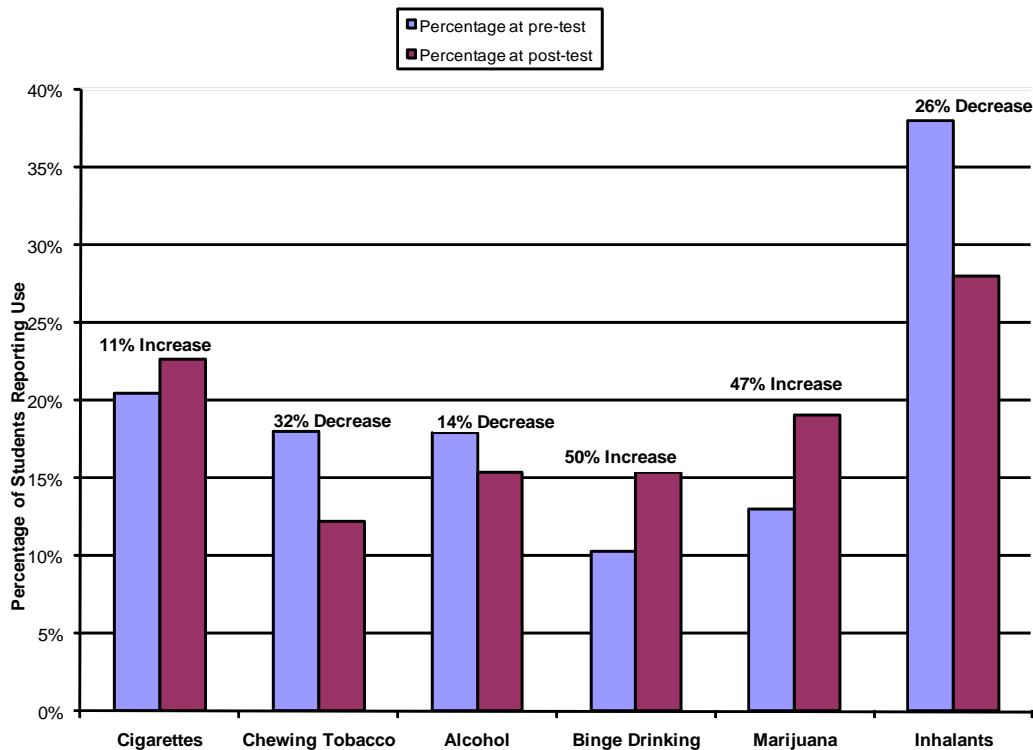
**Table 20:** Past 30-day ATOD use<sup>a</sup> at posttest among 5<sup>th</sup> and 6<sup>th</sup> grade youth program participants reporting ATOD use at pretest

Substance	% Pretest	% Posttest	% Change
Cigarettes (n=44/44)	20.5	22.7	11.0
Chewing Tobacco (n=50/49)	18.0	12.2	-32.0
Alcohol (n=39/39)	17.9	15.4	-14.0
Binge Drinking (n=39/39)	10.3	15.4	50.0
Marijuana (n=46/47)	13.0	19.1	47.0
Inhalant ever use (n=50/50)	38.0	28.0	-26.0

<sup>a</sup> Dichotomous substance use variable (yes or no).

\*p<sub>≤</sub>.05, \*\*p<sub>≤</sub>.01, \*\*\*p<sub>≤</sub>.001.

**Figure 2:** The percentage of K-6 program participants reporting substance use at posttest among only program participants reporting substance use at pretest



In unadjusted GLM analyses, we observed an increase in scores on the youth self-reported substance use measures for past 30-day use between pretest and posttest for chewing tobacco, alcohol, binge drinking, and marijuana, and a decrease in score for cigarette smoking (see Table 21). Scores for any prescription medication not prescribed remained the same between baseline and post-test. During FY 2010, the trends were statistically significant for cigarettes and marijuana but these differences were no longer significant after adjusting for biological sex, grade, race/ethnicity, and English as the primary language spoken at home.

**Table 21:** Examining the effect of pretest substance use on the posttest substance use for K-6 program participants, unadjusted and adjusted model results

Substance	Unadjusted				Adjusted				Desired Outcome
	Base-line Mean	Post-test Mean	F-test & sig. <sup>a</sup>	effect size <sup>b</sup>	Base-line Mean	Post-test Mean	F-test & sig. <sup>a</sup>	effect size <sup>b</sup>	
Cigarettes (n=263/251 )	0.06	0.04	4.608*	0.017	0.06	0.14	0.000	0.000	☹
Chewing Tobacco (n=278/266)	0.08	0.11	0.561	0.002	0.08	0.11	0.011	0.000	☹
Alcohol (n=244/244 )	0.05	0.08	1.393	0.005	0.05	0.08	0.092	0.000	☹
Binge Drinking (n=254/245 )	0.04	0.06	2.261	0.009	0.04	0.07	2.230	0.009	☹
Marijuana (n=273/261 )	0.03	0.12	8.982**	0.032	0.03	0.11	3.234	0.013	☹
Any Rx Medication Not Prescribed (n=270/258 )	0.03	0.03	0.000	0.000	0.02	0.02	0.529	0.002	☹

<sup>a</sup>Exact statistic provided.

<sup>b</sup>partial eta squared where effects are: small = .01, medium = .06, large = .14 or larger.

\*p ≤ .05, \*\*p ≤ .01, \*\*\*p ≤ .001.

In both unadjusted and adjusted models, a slight increase in the Perceived Risk of Harm Scale score between pretest and posttest was accompanied by statistically significant decreases in two of the intentions to smoke measures (see Table 22), suggesting a positive impact of prevention programming on 5<sup>th</sup> and 6<sup>th</sup> grade participants. Interestingly, parental attitudes toward alcohol use remain stable despite youth behavior change around cigarettes and a decrease in respondent (youth) attitude toward alcohol use.

**Table 22:** Examining the effect of pretest scores for perception of harm, parental approval, respondent approval and intentions to smoke on posttest scores for K-6 program participants, unadjusted and adjusted model results

Measure	Unadjusted				Adjusted				Desired Outcome
	Base-line Mean	Post-Test Mean	F-test & sig.	effect size <sup>a</sup>	Base-line Mean	Post-Test Mean	F-test & sig.	effect size <sup>a</sup>	
Risk of Harm Scale (n=278/267)	1.97	2.02	0.472	0.002	1.96	2.02	1.131	0.004	↻
Parental Attitudes toward Alcohol Use (n=278/267)	2.85	2.84	0.045	0.000	2.84	2.85	1.441	0.005	↻
Respondent Attitudes toward Alcohol Use (n=277/267)	2.80	2.73	3.007	0.011	2.79	2.74	1.078	0.004	↻
Intention to smoke a cigarette soon (n=224/213)	0.05	0.06	1.191	0.005	0.05	0.06	0.500	0.002	⬇
Intention to smoke a cigarette during the next year (n=245/235)	1.50	0.23	200.453***	0.450	1.44	0.23	11.469***	0.048	⬇
Intention to smoke a cigarette if offered by best friend (n=241/231)	1.49	0.27	175.226***	0.421	1.42	0.27	11.463***	0.048	⬇

<sup>a</sup>Exact statistic provided.

<sup>b</sup>partial eta squared where effects are: small = .01, medium = .06, large = .14 or larger.

\*p ≤ .05, \*\*p ≤ .01, \*\*\*p ≤ .001.

### Parent Survey

All but three of the 629 surveys were completed by the child’s parents. Female parents were more likely to complete the Parent Survey (88%) compared to males (12%). More than half of the respondent were married at the time of pretest (54%), 18% were single, 15% indicated they were either separated, divorced, or widowed, and 11% were co-habiting. Less than 10% of the surveys were completed by respondents not born in the United States, with approximately 40% of respondents reporting that they spoke a language other than English in the home. Half of the respondents had full-time employment, while 13% were employed part-time and approximately 11% were unemployed and looking for work, 15% were unemployed and not looking, 3% indicated that they were unemployed and disabled, less than 1% had already retired, and 10% had other extenuating circumstances. The average household size reported was 4.6 individuals and the average age of the survey respondent was 34.6 years old. The average number of children at home was three.

All six scales measuring aspects of the program participant’s behavior captured movement in the undesired direction between pretest and posttest scores (see Table 23). However, the reliability statistics for most of the measures were below the acceptable level of 0.800; this was especially

notable for the baseline reliability statistics for the Psychosomatic Scale and the Anxiety Scale which were 0.573 and 0.632 respectively. Less than optimal performance of the scales at measuring associated constructs should be considered when interpreting these findings. Nonetheless, findings were statistically significant for four of the scales (Conduct Problem, Learning Problem, Psychosomatic Problem and Hyperactivity) but these results were not sustained after controlling for students' sex, age and race/ethnicity during the GLM analyses (see Table 24).

**Table 23:** K-6<sup>th</sup> grade program findings- Parent Survey respondents

Sub-Scale	Range		Cron-bach's $\alpha$	Base-line Mean	Cron-bach's $\alpha$	Post-Test Mean	Paired T-Test	Desired Outcome
	Min	Max						
CRS <sup>4</sup> : Conduct Problem (n=368)	0-24		0.829	2.81	0.852	3.24	-2.733**	👉 Is better
CRS: Learning Problem (n=368)	0-12		0.765	2.00	0.794	2.27	-2.529*	👉 Is better
CRS: Psychosomatic (n=367)	0-12		0.573	0.56	0.811	0.90	-4.486*	👉 Is better
CRS: Impulsive-Hyperactive (n=366)	0-12		0.758	2.95	0.728	3.17	-1.638	👉 Is better
CRS: Anxiety (n=368)	0-12		0.632	2.22	0.695	2.29	-0.727	👉 Is better
CRS: Hyperactivity Index (n=368)	0-30		0.848	4.97	0.858	5.68	-3.190**	👉 Is better

<sup>4</sup> CRS = Conner's Rating Scales

**Table 24:** Examining the effect of time on parent’s rating posttest CRS scores controlling for pretest scores

Measure	Unadjusted				Adjusted				Desired Outcome
	Base-line Mean	Post-Test Mean	F-test & sig. <sup>a</sup>	effect size <sup>b</sup>	Base-line Mean	Post-Test Mean	F-test & sig. <sup>a</sup>	effect size <sup>b</sup>	
CRS <sup>5</sup> : Conduct Problem (n=368/361)	2.81	3.24	7.472**	0.020	2.71	3.17	0.037	0.000	⤵
CRS: Learning Problem (n=368/361)	2.00	2.27	6.394*	0.017	1.99	2.26	0.852	0.002	⤵
CRS: Psychosomatic (n=367/360)	0.56	0.90	20.123***	0.052	0.55	0.89	0.365	0.001	⤵
CRS: Impulsive-Hyperactive (n=366/359)	2.95	3.17	2.683	0.007	2.93	3.16	0.181	0.001	⤵
CRS: Anxiety (n=368/361)	2.22	2.29	0.528	0.001	2.20	2.28	0.277	0.001	⤵
CRS: Hyperactivity Index (n=368/361)	4.97	5.68	10.173**	0.027	4.89	5.63	0.167	0.000	⤵

<sup>a</sup>Exact statistic provided.

<sup>b</sup>partial eta squared where effects are: small = .01, medium = .06, large = .14 or larger.

\*p ≤ .05, \*\*p ≤ .01, \*\*\*p ≤ .001.

### Teacher Survey

Teachers (473) completed more reports for females (237) than males (229). The youngest student was 5 years old and the oldest was 11 years old with a mean age of 7.35 years old. Teachers identified less than one-third of children living in homes where a language other than English was spoken, but teachers identified 41% of students coming from homes where the primary language was not English.

Teachers rated students on four areas: Conduct Problems, Hyperactivity, Inattentive-Passive Behavior, and a Hyperactivity Index. Reliability statistics for both pretest and posttest measures indicated strong agreement (>0.800) among the scale items used to measure each construct (see Table 25). For the group as a whole, the scores moved in the undesired direction for all four of the measures and the findings for the Conduct Problems scale and the Hyperactivity Index were statistically significant (p<.05). These findings were supported with the conclusions from the unadjusted GLM analyses but the differences were non-significant after model adjustment for child’s sex, age, and race (see Table 26).

<sup>5</sup> CRS = Conner’s Rating Scales

**Table 25:** K-6<sup>th</sup> grade program findings- Teacher survey respondents

Sub-Scale	Range		Cron-bach's $\alpha$	Base-line Mean	Cron-bach's $\alpha$	Post-Test Mean	Paired T-Test	Desired Outcome
	Min	Max						
CRS <sup>6</sup> : Conduct Problem (n=461)	0-24		0.899	1.79	0.938	2.62	-3.697***	🕒 Is better
CRS: Hyperactivity (n=460)	0-12		0.921	3.41	0.938	3.69	-1.264	🕒 Is better
CRS: Inattentive-Passive (n=461)	0-12		0.885	4.20	0.909	4.36	-0.628	🕒 Is better
CRS: Hyperactivity Index (n=461)	0-12		0.901	4.51	0.925	5.16	-2.190*	🕒 Is better

**Table 26:** Examining the effect of time on teacher's rating posttest CRS scores controlling for pretest scores

Measure	Unadjusted				Adjusted				Desired Outcome
	Base-line Mean	Post-Test Mean	F-test & sig. <sup>a</sup>	effect size <sup>b</sup>	Base-line Mean	Post-Test Mean	F-test & sig. <sup>a</sup>	effect size <sup>b</sup>	
CRS <sup>7</sup> : Conduct Problem (n=461/410)	1.79	2.62	13.668***	0.029	1.77	2.45	0.054	0.000	🕒
CRS: Hyperactivity (n=460/409)	3.41	3.69	1.599	0.003	3.37	3.49	0.011	0.000	🕒
CRS: Inattentive-Passive (n=461/410)	4.20	4.36	0.394	0.001	4.08	4.05	0.993	0.002	🕒
CRS: Hyperactivity Index (n=461/410)	4.51	5.16	4.794*	0.010	4.42	4.84	0.043	0.000	🕒

<sup>a</sup>Exact statistic provided.

<sup>b</sup>partial eta squared where effects are: small = .01, medium = .06, large = .14 or larger.

\*p ≤ .05, \*\*p ≤ .01, \*\*\*p ≤ .001.

## Discussion

Youth enrolled in prevention programming are generally more at-risk for substance use than their non-participating peers. When this is considered with the documented pattern in the literature of increased substance use at each progressive age for all youth, the undesirable trends capturing slight increases in substance use at posttest from pretest are expected. These data

<sup>6</sup> CRS = Conner's Rating Scales

<sup>7</sup> CRS = Conner's Rating Scales

indicate increasing cigarette and marijuana use among all 5<sup>th</sup> and 6<sup>th</sup> grade youth. Yet when examining only those youth who reported ATOD at pre-test, we observed considerable decreases in the use of chewing tobacco, alcohol and inhalants. Those youth who report ATOD use report a frequency of one to two times which would indicate that most are experimenting, a typical activity at this age. Despite the relative infrequency of use and the relatively few youth engaging in ATOD, these findings are concerning. Specifically, 6.8% at pre-test indicated having used inhalants during their lifetime, more than any other substance asked about. And marijuana use more than tripled from 6 respondents at pre-test to 21 respondents at post-test. Prevention programs need to seriously consider if their current programming is meeting the needs of the youth receiving their services.

Both parents and teachers reported more hyperactivity and conduct problems between pre-test and post-test. This suggests that program participants were more likely to talk back, behave destructively, deny mistakes, quarrel, bully, fight, or behave as if they had a chip on their shoulder or were unhappy. However, it is possible that program participation causes caregivers and teachers to become more aware of a child's deficits as they try and improve their own coping skills and their relationships with the children.

## *Strategies for Success (SFS) 12-17*

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### **Background**

In FY 10, there were 15 prevention programs addressing substance use with 12-17 year olds in New Mexico. Programs typically seek to build drug resistance skills which enable young people to recognize and challenge common misconceptions about tobacco, alcohol and other drug use. In addition, they try to improve personal self-management skills by teaching students how to examine their self-image and its effects on behavior, set goals and keep track of personal progress, identify everyday decisions and how they may be influenced by others, analyze problem situations, consider the consequences, reduce stress and anxiety, and look at personal challenges in a positive light. General social skills might also be emphasized, and students are taught the necessary skills to overcome shyness, communicate effectively and avoid misunderstandings, initiate and carry out conversations, handle social requests, utilize both verbal and nonverbal assertiveness skills to make or refuse requests, and recognize that they have choices other than aggression or passivity when faced with tough situations. Curriculums target a variety of risk factors for substance initiation and use (inadequate life skills, poor self management skills, poor social skills including refusal skills, mental health, early age of initiation of ATOD use, perceptions of use by peers, and perception of harm), as well as protective factors (life skills, especially stress and anger management, media literacy and bonding to school and other adults).

A standardized instrument, the Strategies for Success (SFS) survey, which was developed for use with youth in New Mexico, was used to collect self-reported measures of substance use and related behaviors among the 12 to 17 year olds participating in these programs. This questionnaire was revised and piloted in FY 08 and used for the first time across all 12 to 17 prevention programs in FY 09. Slight revisions were made to the 2010 survey instrument based on feedback from local evaluators. The instrument consists of a core survey that asks about ATOD use and was required of all programs receiving funding. Four additional modules were available to measure outcomes around violence perpetration, violence victimization, internal resiliency, and external resiliency based on the California Healthy Kids Survey. Programs that focused particularly on building the resiliency of youth to resist ATOD used the resiliency measures because it was felt that these were better measures of the work they do. Additional programs also addressed social skills and life skills that would affect dealings with others. These programs used the violence modules as part of their evaluation.

There are two versions of the ATOD Core survey: one for middle school students (6<sup>th</sup> through 8<sup>th</sup> graders) and another for high school students (9<sup>th</sup> through 12<sup>th</sup> graders). Both surveys measure perceptions of harm around substance use, parent approval of alcohol use, peer approval of alcohol use, and experience with cigarettes, smokeless tobacco, alcohol, binge drinking, marijuana and prescription drug use. The middle school survey probes students about their future intentions to smoke cigarettes while high school students who report smoking are asked about their frequency of smoking. In addition, high school students are asked about their past month experience riding in a car driven by someone who had been drinking alcohol, driving a

car after drinking alcohol, and past 30-day use of cocaine, heroin, methamphetamines and ecstasy. The substance use questions are identical to ATOD questions used in the NM Youth Risk and Resiliency Survey (YRRS) survey in middle and high school. This was done deliberately so that we could compare the SFS data to YRRS data, which reflects the typical New Mexico student.

Changes to the 2010 middle school and high school instruments include rearranging the format so that the demographics information is collected first instead of at the end of the instrument, and removing the question about the use of prescription cough medicine in the drug use section. Findings from the previous year revealed that the cough medicine question was unreliable indicating that youth were likely misinterpreting the question and the data were not helpful in understanding the patterns of prescription drug use.

## **Methods**

Local evaluators for the 12-17 programs assessed participants at program entry and at program exit. Concerted effort on the part of local program providers and evaluators produced a large sample size of matching pretest and posttest data. The sample size for middle school students was 2,070. Among high school students the sample size was 853. These large sample sizes provided the opportunity to conduct sub-group analyses by biological sex and Hispanic ethnicity for both middle and high school program participants and Native American ethnicity for middle school program participants. Prior to analysis, aggregate datasets were cleaned so that only participants who completed both a pretest and a posttest would be included in the final analyses.

Analyses were conducted in SPSS on youth who have both complete pretest and posttest data. Data were cleaned by running frequencies and cross-tabulations to check for missing data and outlier values. Flags were created to identify inconsistent data between pretest and posttest for substance use measures and filters were applied during each step of the analyses to exclude flagged data. The ethnicity data were recoded to ensure consistency across all sites and to correspond to categories used by New Mexico's Department of Health. Other variables were recoded, including reverse-coded when appropriate, so that sum scales and mean scales could be created to measure violence and resiliency constructs. Scale reliability analyses were conducted to examine internal validity before running sample demographics and descriptive statistics. A series of McNemar's tests were conducted on pre and posttest measures to assess significant changes over the course of the program. McNemar's test assesses the significance of the difference between two correlated proportions, such as might be found in the case where the two proportions are based on the same sample of subjects or on matched-pair samples. It is applied to  $2 \times 2$  contingency tables with a dichotomous outcomes (e.g., yes/no, ever/never) with matched pairs of subjects. The alpha criterion set was .05 ( $\alpha = <.05$ ). In analyses where the cell size did not meet the criteria for McNemar's tests, the binomial distribution was used with exact methods to measure significance values. T-tests were used in lieu of McNemar's tests during cross-tabulations of frequency variables because they were categorical as opposed to measures of proportions. Finally, to confirm the results of the McNemar tests using a more conservative approach, we used the GLM procedure in SPSS. The pretest and posttest means and frequencies were compared through Repeated Measures MANOVA with one within factor of time (pre and post). Separate analyses were conducted to examine the sample by biological sex, Hispanic

ethnicity, and Native American ethnicity. The GLM tests were first run without controlling for covariates and then repeated on the sample by biological sex controlling for grade, ethnicity and English as the primary language spoken in the home. Similarly, covariates for biological sex, grade, and English as the primary language spoken in the home were included for the Hispanic and Native American subgroup analyses. To examine the effect size of the program between pre & post test a partial Eta squared was calculated ( $\eta_p^2$ ). The partial Eta squared is the proportion of the effect + error variance that is attributable to the time.

### *Comparing SFS findings with YRRS Comparison Data*

Finally, we graphed the pre- and posttest frequencies against the equivalent measures in the YRRS to visually examine how the average SFS respondent in each grade compared with the average YRRS respondent. The YRRS survey is conducted during the fall of odd years. Data from 2007 were analyzed using Stata controlling for survey design effects. The total N for middle school respondents was 7,849 and for high school students, 11,075. When weighted to reflect the population, middle school data reflects almost 43,000 middle school respondents and high school data reflects almost 90,000 high school respondents. The YRRS data is considered a representative sample of New Mexico students, and weighted results are reported, meaning they are representative of NM students within the grade and ethnic culture designated. In other words, results reported for each question on the YRRS can be considered to reflect the average New Mexico student's answer for the question, which provides us the opportunity to compare the average SFS participant with the average New Mexico student for each grade level. Although we did not test for significant differences between the two data sets, the YRRS does provide an excellent comparison group for assessing general differences between an average SFS student and the average New Mexico student not involved in SFS activities.

Where graphs with YRRS and SFS data are compared, the YRRS comparison sample reflects the same demographics as in the SFS sample. For example, when examining SFS Hispanic males, the YRRS comparison group includes only Hispanic males. It is important to note that YRRS data are collected only once per grade level (in this case, Fall 2007) whereas SFS data are collected at the beginning and end of each program, on average a span of 9 months which captures the academic year. Therefore, to create an equivalent time frame estimate, YRRS data from the grade level collected was identified as "pretest" comparison data, and a 9 month posttest comparison estimate was created based on the difference between the current year and the following year prevalence estimates, divided by 12 (for 12 month increments) and multiplied by 9 to represent 9 months. For example, 7<sup>th</sup> grade *pretest* SFS data are compared to 7<sup>th</sup> grade YRRS data and 7<sup>th</sup> grade *posttest* SFS data are compared to 8<sup>th</sup> grade YRRS data less approximately 3 months of increase). In the body of this report we have chosen to include graphs that show significant differences or are of particular interest, however all graphs are available upon request.

### **Results of Middle School Analyses**

Data from the 12-17 programs were collected at 15 sites utilizing the Strategies for Success survey instrument. The distribution of SFS program participants by site is captured in Table 27 below. Programs varied as to the number of participants based on the type of program and how

students were identified to participate. Some programs were school-based programs whereas others were after school programs. This section includes all of the findings presented in tabular format and selected findings of the SFS and YRRS comparisons.

**Table 27:** Distribution of SFS middle school program participants by site

Site	Curriculum Provided	Number of Participants	Percent of Total Participants*
Counseling Associates	Botvin’s Life Skills Training	442	21.4%
Five Sandoval Pueblos	Project Venture	21	1.0%
Hands Across Cultures	Dare to Be You	96	4.6%
Mescalero	Life Skills Training	47	2.3%
National Indian Youth Leadership (NIYL)	Project Venture	191	9.2%
Native American Community Academy	Run to the Sun (Project Venture-based program)	118	5.7%
North Central Community Based Services	Natural Helpers, Too Good for Drugs	248	12.0%
Quay County	Project Northland, Project Towards No Drug Abuse	184	8.9%
San Juan County Partnership	All Stars	276	13.3%
Santa Fe Community College	Connecting to Courage	144	7.0%
Santa Fe Public Schools	Project SUCCESS	33	1.6%
Santa Fe Mountain Center	Project Venture	62	3.0%
Southern New Mexico Human Development	Strengthening Families Program, Reconnecting Youth	26	1.3%
Sandoval County SAP	Dare to Be You, Reconnecting Youth	164	7.9%
University of New Mexico ACL Teen Center	Life Skills Training	18	0.9%
Total		2,070	

\*Due to rounding, the percentage total is not exactly 100%

Most respondents were in 6<sup>th</sup> – 8<sup>th</sup> grade the ideal age range for which the survey was created. The mean age for males was 12.47 and the mean age for females was 12.29 (see Table 28). The sample was approximately evenly distribution between males (50.2%) and females (49.8%). SFS program participants were predominantly Hispanic for both males (53.4%) and females (53.2%), followed by white (approximately 25% for both) and Native American (approximately 19% for both). Slightly over half of males (50.5%) and females (51.4%) indicated that at home, they most often spoke a language other than English.

**Table 28:** Demographics for middle school SFS program participants by gender (n= 2,048)

Demographic	% SFS Program Participants Male (n=1,028)	% SFS Program Participants Female (n=1,020)
<b>Grade<sup>a</sup></b>		
5 <sup>th</sup> grade	3.6	3.2
6 <sup>th</sup> grade	27.3	31.4
7 <sup>th</sup> grade	40.3	38.1
8 <sup>th</sup> grade	26.4	25.3
9 <sup>th</sup> grade	2.4	1.9
<b>Race/Ethnicity<sup>b</sup></b>		
White	25.7	26.5
Hispanic	53.4	53.2
Native American	18.9	18.5
Other	2.0	1.8
<b>Language Other than English Spoken Most Often<sup>c,d</sup></b>		
Yes	50.5	51.4

<sup>a</sup>Missing data for grade by gender: male=63 and female=73.

<sup>b</sup>Missing data for race/ethnicity by gender: male=21 and female=18.

<sup>c</sup> Dichotomous variable (yes or no) capturing the percentage of youth living in homes where English is not the primary language.

<sup>d</sup>Missing data for language other than English: male=29 and female=19.

### *Prevalence of Substance Use among Middle School Respondents*

Among male middle schools students, we find that there are slight increases in reported substance use from pre to posttest with the exception of inhalant ever use which appears to have decreased at posttest although the decrease is not statistically significant. The reported increases in substance use for males are statistically significant for past 30-day use of smokeless tobacco, alcohol and marijuana. Similarly, large increases are reported for all substances among females with statistically significant findings for past 30-day use of alcohol, binge drinking and marijuana. Table 29 captures the reported substance use prevalence at pretest and posttest for males and females. Although prevalence increased from pre- to posttest, when compared to YRRS respondents, the trends for reported past 30-day substance use and ever use of inhalants are well below corresponding middle school YRRS respondents. This provides some reassurance that while increases in use are normal, participants in prevention programming ATOD use did not increase as much as the average New Mexico student in the same grade. Furthermore, the slope of increase for SFS program participants was generally less steep than the slope for the average student, indicating that increases were more gradual and of less magnitude among the SFS program participants compared to their peers.

**Table 29:** Past 30-day ATOD use<sup>a</sup> prevalence, differences from pretest to posttest for middle school SFS program participants

Substance (Total sample pretest n & posttest n)	% Pretest	% Posttest	McNemar Test	% Pretest	% Posttest	McNemar Test	Desired Outcome
	<i>Male</i>			<i>Female</i>			
Cigarettes (1,942/1,870)	8.4	10.1	2.347	7.6	8.8	1.016	⓪
Chewing Tobacco (2,041/1,973)	2.9	5.5	11.021***	1.7	2.4	1.091	⓪
Alcohol (1,890/1,817)	10.9	13.7	7.267**	8.9	15.1	31.050***	⓪
Binge Drinking (2,007/1,938)	6.0	7.4	2.914	4.0	8.7	25.681***	⓪
Marijuana (1,984/1,918)	9.3	13.1	15.754***	6.5	11.6	32.554***	⓪
Inhalant ever use (2,039/1,970)	8.2	7.6	1.266	8.4	10.7	6.485*	⓪

<sup>a</sup> Dichotomous substance use variable (yes or no).

\* $p \leq .05$ , \*\* $p \leq .01$ , \*\*\* $p \leq .001$ .

Reported prescription drug use decreases or increases depending on the substance; however, none of these slight changes are statistically significant (see Table 30 below). The actual number of respondents reporting use of specific types of prescription drugs at either pretest or posttests was generally negligible and as a result, the binomial distribution, rather than the McNemar test, was used to measure changes from pretest to posttest. Furthermore, the fluctuations between pretest and posttest prevalence of prescription drug use were likely due to only a small number of respondents actually changing their behavior around prescription drug use between the two time points.

**Table 30:** Past 30-day prescription drug use<sup>a</sup> prevalence, differences from pretest to posttest for middle school SFS program participants

Substance (Total sample pretest n & posttest n)	% Pretest	% Posttest	McNemar Test	% Pretest	% Posttest	McNemar Test	Desired Outcome
	Male			Female			
Any R <sub>x</sub> medication not prescribed (1,917/1,854)	3.8	3.9	0.021	3.7	3.9	0.000	⬇
Any R <sub>x</sub> pain pills not prescribed (1,918/1,851)	1.7	1.4	0.824 <sup>b</sup>	1.3	1.1	0.754 <sup>b</sup>	⬇
Any Ritalin, Adderal, or Prozac not prescribed (1,918/1,850)	0.7	0.4	0.453 <sup>b</sup>	0.5	0.4	1.000 <sup>b</sup>	⬇
Any R <sub>x</sub> sleep aids or tranquilizers not prescribed (1,914/1,851)	0.7	1.0	0.774 <sup>b</sup>	0.7	1.3	0.267 <sup>b</sup>	⬇
Any other medications not prescribed (1,911/1,851)	1.7	2.2	0.346 <sup>c</sup>	2.2	2.5	0.832 <sup>b</sup>	⬇

<sup>a</sup> Dichotomous substance use variable (yes or no).

<sup>b</sup> Binomial distribution used, exact significance tests provided.

<sup>c</sup> Continuity corrected.

As is frequently the case in reporting substance use among adolescents, floor and ceiling effects are observed. For example, among adolescents, most do not report past 30 day substance use at pretest. As a result of maturation over the course of the prevention programming, many adolescents, who at pretest reported no use, may have tried substances by posttest. Because at pretest so few report use, it is frequently possible at posttest for more students to report ATOD use. This is referred to as a floor effect, meaning that if most students do not report use at pretest the posttest estimate is more likely to increase because it cannot decrease. Alternatively, students may report very strong and positive relationships with their parents, a known protective factor against ATOD use. Since the relationships are typically very strong at pretest, over the course of the prevention program, there may be an apparent decrease in this level of closeness. This is called a ceiling affect, essentially implying that the highest level has been reached at pretest and the only room for movement is to decrease. Whether these effects are an artifact of the program or the result of maturation is unclear in the cross-tabulations. In addition, the likelihood of increasing or decreasing from pre-to posttest when most responses are at one extreme or the other is greater in general than if responses are evenly distributed and this is referred to as regression to the mean. When participants report very low substance use at pretest, it is difficult to demonstrate reductions in substance use at posttest. Alternatively, when respondents report high protective factors at pretest, it is difficult to demonstrate increases in these protective factors at posttest.

Table 31 captures the average number of times core drugs were used in the past 30 days among middle school SFS program participants by gender. Both males and females reported

statistically significant decreases across all substances with one exception. The frequency of marijuana use in the past 30 days increased slightly for males and females and while not statistically significant, this is unusual compared to the previous year.

**Table 31:** Frequency of ATOD use<sup>a</sup>, differences from pretest to posttest among middle school SFS program participants reporting use in each individual category at baseline (n)

Substance (Respondents reporting use at baseline, male n & female n)	Pre-test Mean	Post-test Mean	t-value	Pre-test Mean	Post-test Mean	t-value	Desired Outcome
	Male			Female			
Cigarettes (79/73)	2.19	1.67	3.244**	1.77	1.32	3.124**	⬇️
Chewing tobacco (30/17)	2.77	1.70	2.804**	1.82	0.24	3.497**	⬇️
Alcohol (99/80)	1.78	1.35	3.323***	1.56	1.26	2.531*	⬇️
Binge drinking (59/40)	2.17	1.51	3.325***	1.93	1.50	2.208*	⬇️
Marijuana (90/64)	2.28	2.36	-0.492	1.77	1.95	-1.097	⬆️
Inhalant ever use (84/82)	1.00	0.56	8.083***	1.00	0.72	5.619***	⬇️

<sup>a</sup>0=0 times, 1=1 or 2 times, 2=3 to 9 times, 3=10 to 19 times, 4=20 to 39 times, 5=40 or more times.

\*p ≤ .05, \*\*p ≤ .01, \*\*\*p ≤ .001.

In order to get around the issue of floor effects, we also examined the self-reported substance use at posttest among *only those program participants reporting any ATOD use at pretest*. Among male program participants who reported any ATOD use at pretest, we found that the percentage reporting substance use at posttest experienced larger decreases (2.3% to 30.5% for four substances) than increases (8.1% or 11%) (see Table 32). Figure 3 graphs the changes from pretest to posttest for males. This pattern is reversed for female SFS program participants who reported an equal number of increases and decreases by substance with greater magnitude (13.5% to 55.9%) in increases than decreases (4.4% or 12.3%). Figure 4 graphs the changes from pretest to posttest for females. The 50% increase for binge drinking among females is especially concerning since binge drinking is very dangerous in and of itself but can lead to additional dangers due to poor judgment while intoxicated.

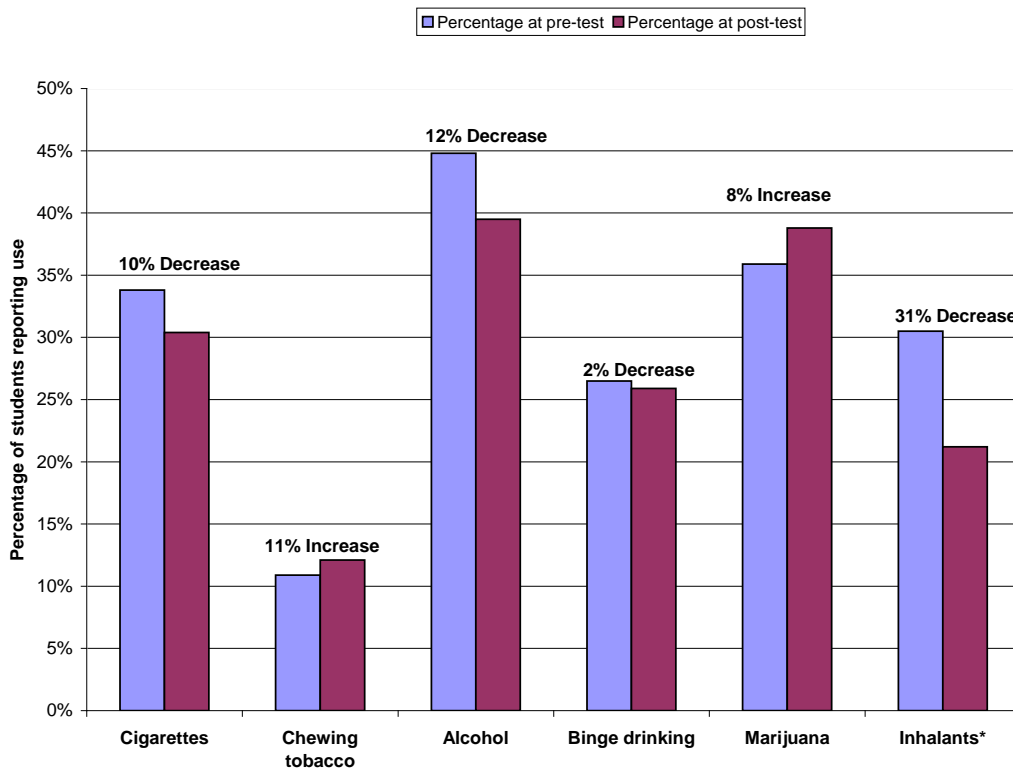
**Table 32:** Past 30-day ATOD use<sup>a</sup> prevalence at posttest among those program participants reporting ATOD use at pretest

Substance (Respondents reporting use at baseline, pretest n & posttest n)	%	%	%	%	%	%
	Pretest	Posttest	Change	Pretest	Posttest	Change
	Male			Female		
Cigarettes (470/453)	33.8	30.4	-10.1	32.2	29.1	-12.3
Chewing Tobacco (527/510)	10.9	12.1	11.0	6.8	6.5	-4.4
Alcohol (443/426)	44.8	39.5	-11.8	39.4	44.7	13.5
Binge Drinking (443/425)	26.5	25.9	-2.3	18.8	29.3	55.9
Marijuana (490/471)	35.9	38.8	8.1	27.4	37.2	35.8
Inhalant ever use (n=528/510)	30.5	21.2	-30.5	33.6	30.5	-9.2

<sup>a</sup> Dichotomous substance use variable (yes or no).

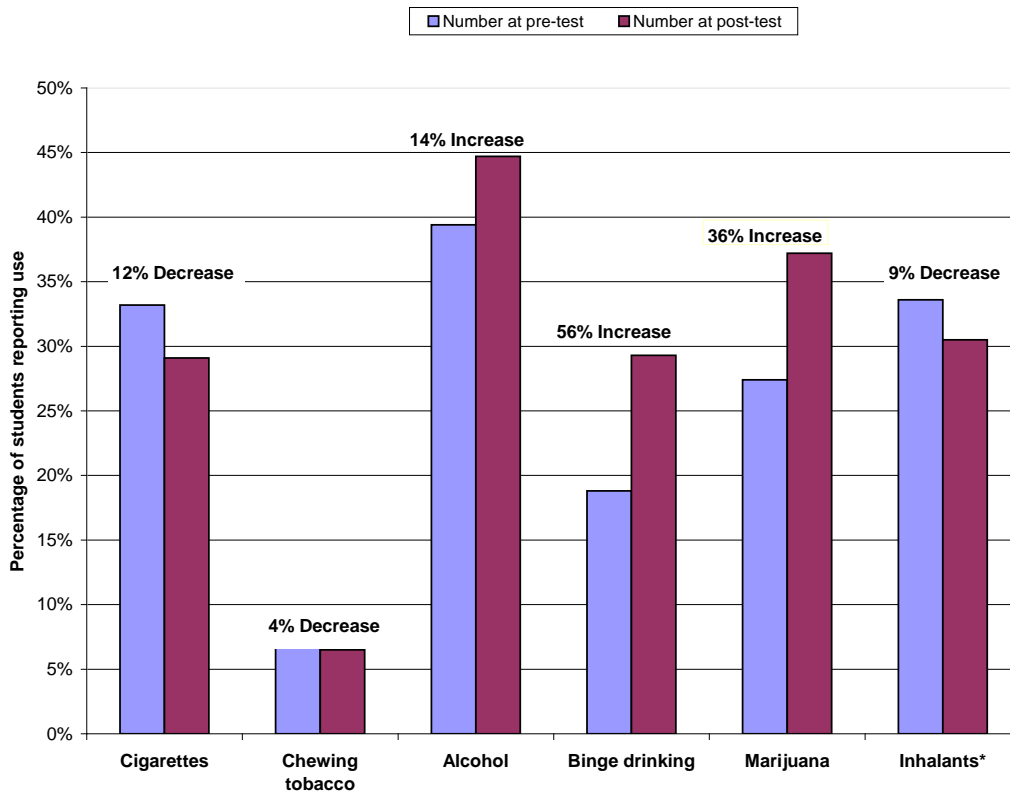
\*p<.05, \*\*p<.01, \*\*\*p<.001.

**Figure 3:** The percentage of male middle school SFS program participants reporting past 30-day substance use at posttest among only program participants reporting substance use at pretest



\*Inhalant lifetime use.

**Figure 4:** The percentage of female middle school SFS program participants reporting past 30-day substance use at posttest among only program participants reporting substance use at pretest



\*Inhalant lifetime use.

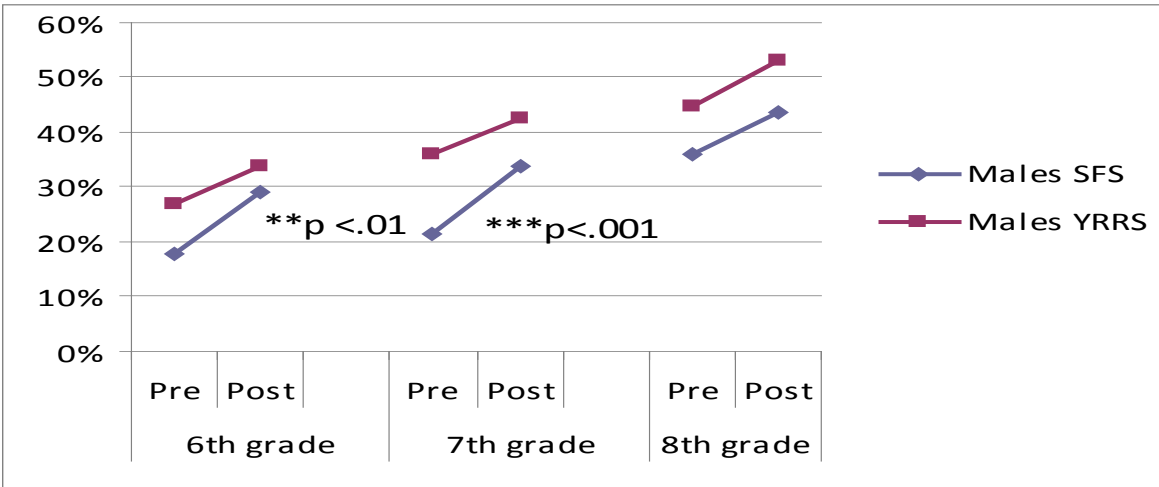
### *Comparing SFS Respondents to YRRS Respondents<sup>8</sup>*

#### Tobacco use (all male and female students, grades 6-8)

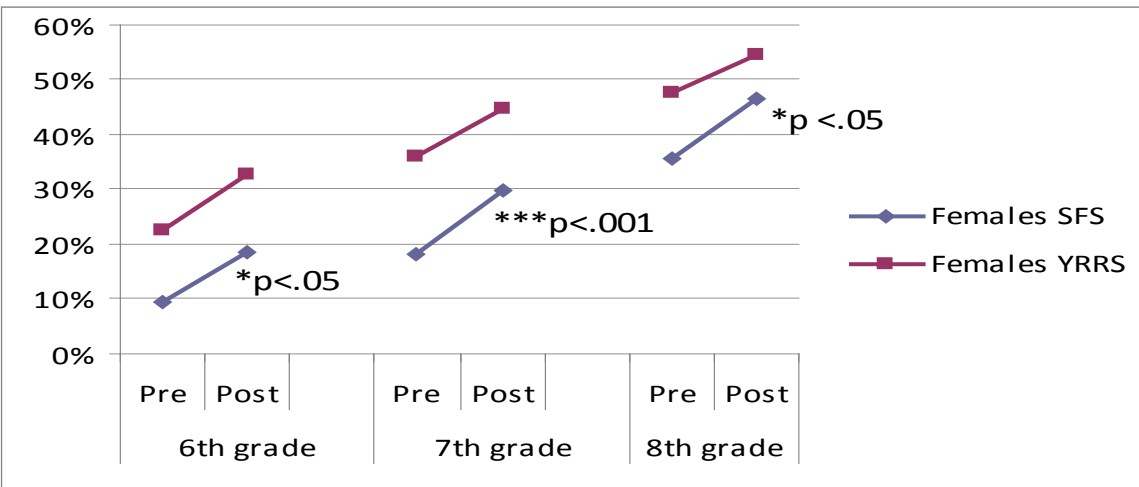
Overall, SFS students reported a steady increase in lifetime and past 30-day tobacco use across grades. Nonetheless, the prevalence of tobacco use among male and female SFS program participants is considerably lower than the average New Mexico student as reported by the YRRS (See Figures 5 and 6). This data suggests SFS students are less likely to have *ever* used tobacco than non-intervention students, as well as less likely to have currently used tobacco products. On the other hand, the slope for SFS participants is often steeper which suggests more rapid increases over time than the average student despite lower overall ever use.

<sup>8</sup> Graphs not shown in text are available upon request.

**Figure 5:** Percent of 6<sup>th</sup>-8<sup>th</sup> grade males who report *ever* trying cigarettes

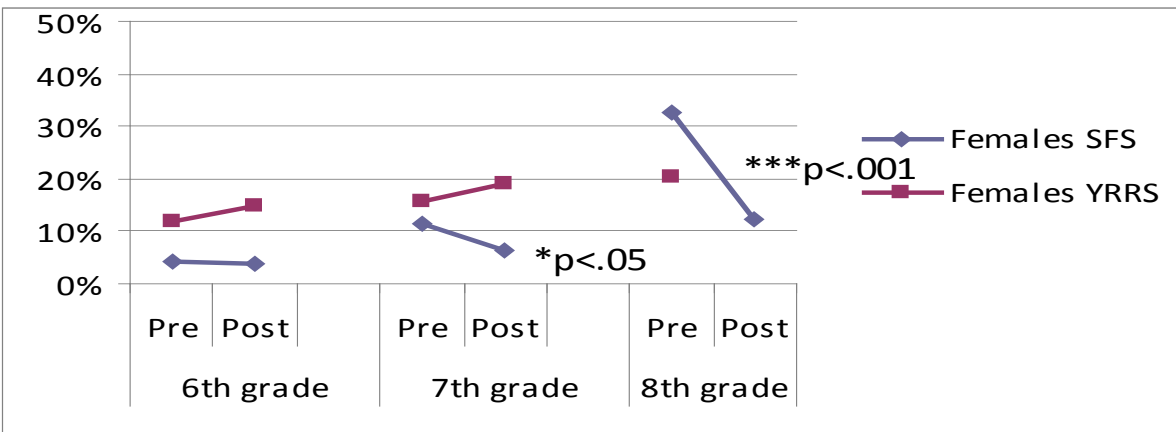


**Figure 6:** Percent of 6<sup>th</sup>-8<sup>th</sup> grade females who report *ever* trying cigarettes



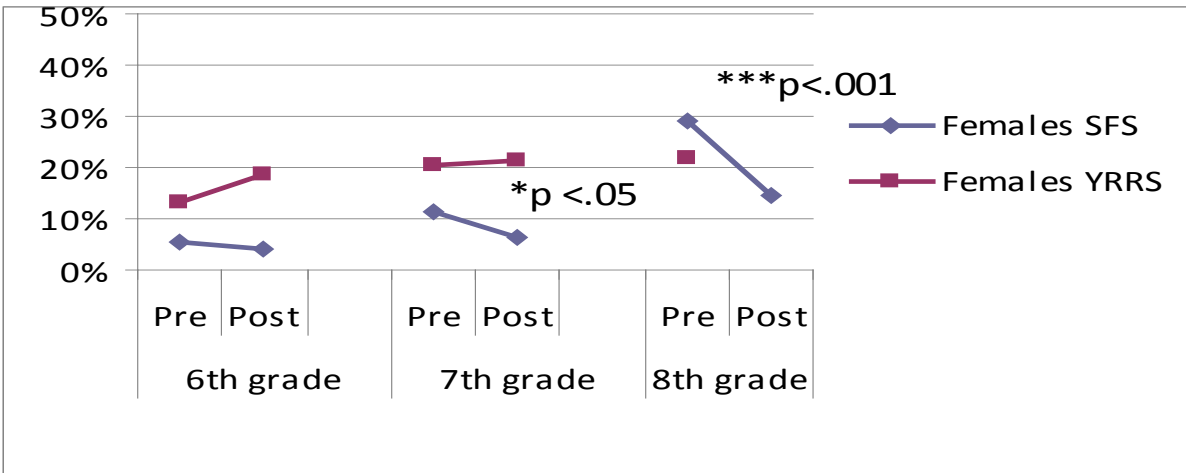
Both male and female SFS program participants reported similar behavior patterns as their YRRS peers in regards to their intentions to “try smoking cigarettes soon” after excluding respondents who had already tried smoking. When asked about their intentions to smoke a cigarette “at anytime during the next year,” SFS program participants’ intentions decreased between pretest and posttest in all grades, but especially for females in eighth grade (see Figure 7). Less than 2% of male and female respondents who reported that they would “definitely not smoke a cigarette at anytime during the next year” at pretest reported past 30-day cigarette use at posttest.

**Figure 7:** Percent of 6<sup>th</sup>-8<sup>th</sup> grade females who report that they will probably or definitely smoke a cigarette at any time during the next year



In addition, females in seventh and eighth grade reported a significant decrease in their intentions to smoke if their best friend offered a cigarette. Overall, the data suggest that both male and female middle school SFS students are demonstrating an intention to resist peer pressure for smoking. (See Figure 8.)

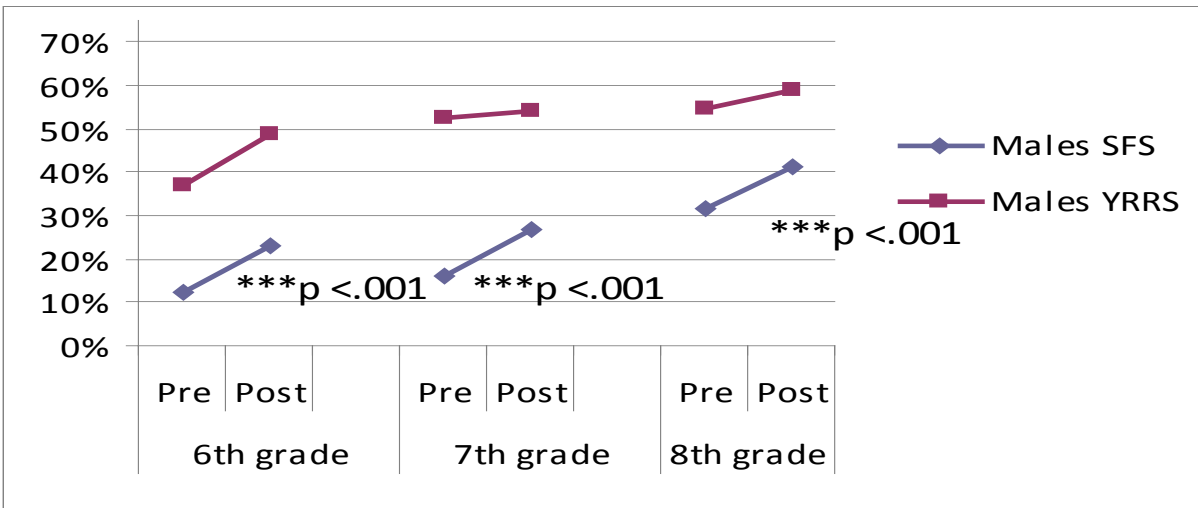
**Figure 8:** Percent of 6<sup>th</sup>-8<sup>th</sup> grade females who report that they would probably or definitely smoke a cigarette if one of their best friends offered it



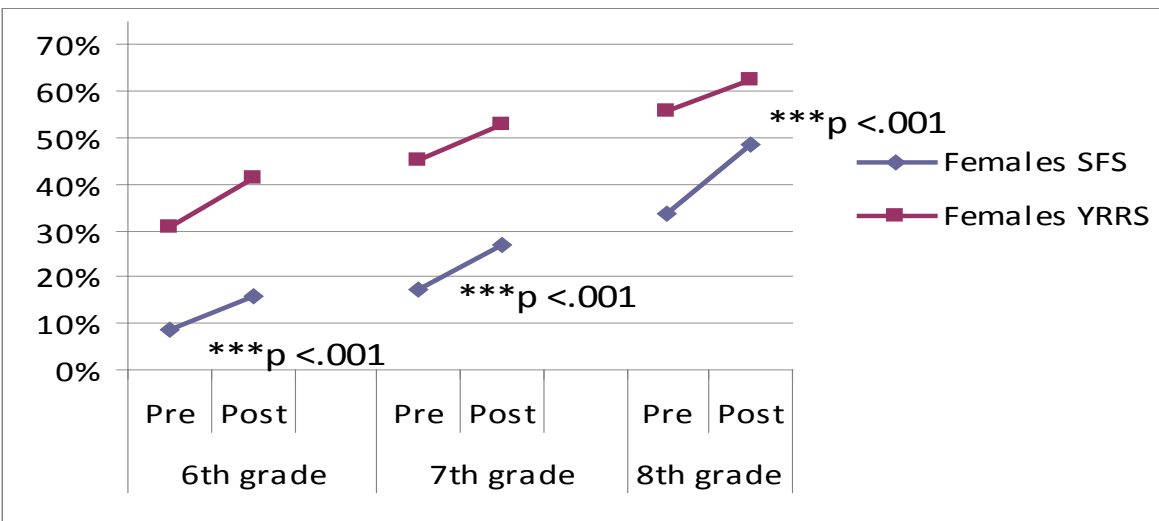
Alcohol use (all male and female students, grades 6-8)

The data show significant increases in SFS students' reports of *ever* drinking alcohol across all grades and for both genders (see Figures 9 and 10). The trends are characterized by strong, positive slopes with prevalence of ever drinking at baseline progressively higher for each grade. However, SFS students report considerably lower prevalence of alcohol ever use compared to YRRS students.

**Figure 9:** Percentage of 6<sup>th</sup>-8<sup>th</sup> grade males who report *ever* drinking alcohol

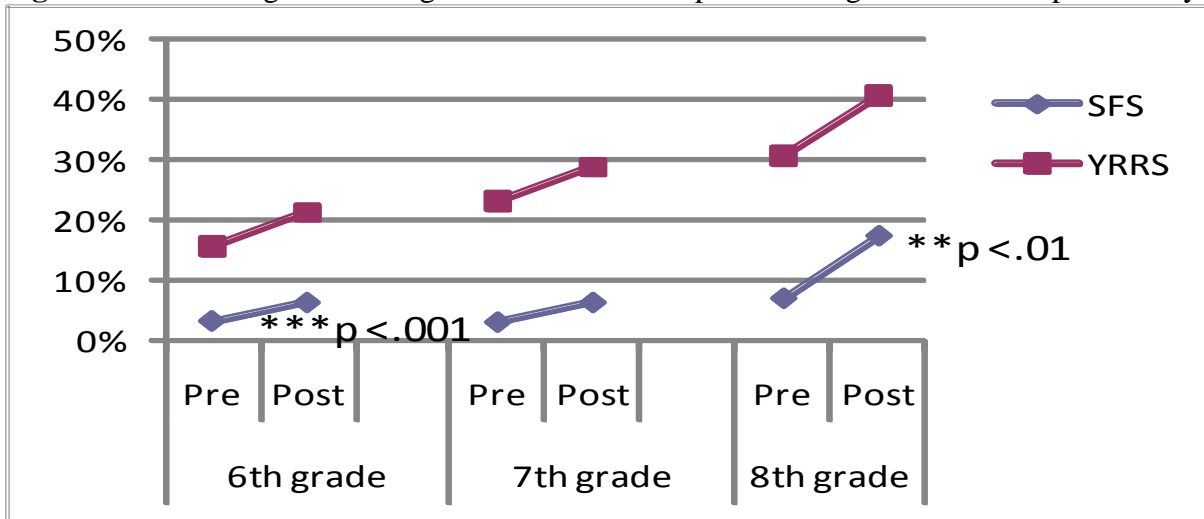


**Figure 10:** Percentage of 6<sup>th</sup>-8<sup>th</sup> grade females who report *ever* drinking alcohol



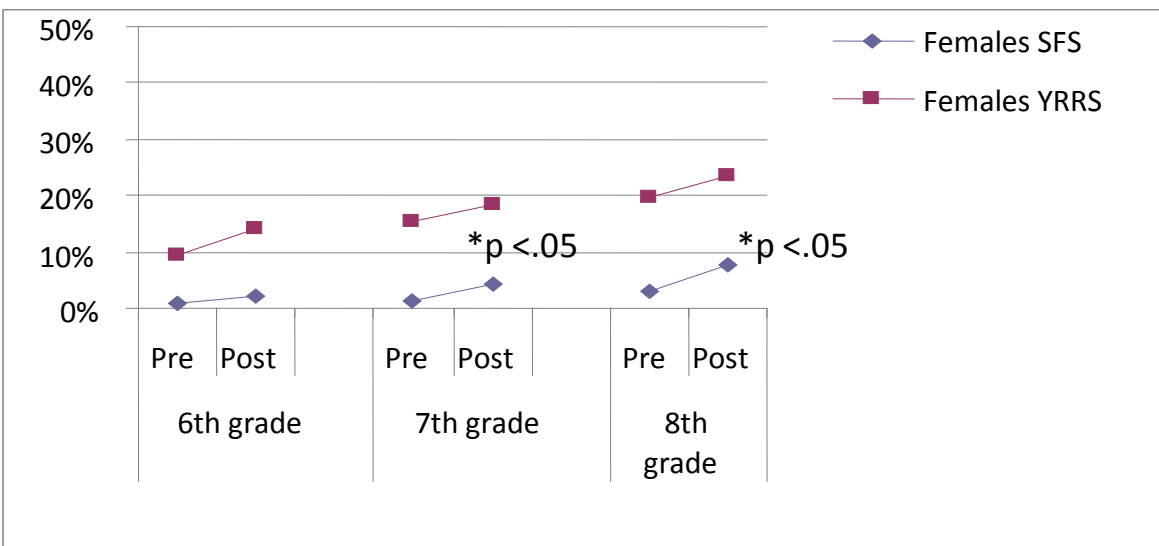
Both males and females report an increase in past 30-day alcohol use between pretest and post-test, but the patterns show less increase when compared to YRRS data. Although the trends for both males and females are similar, the increases for females in sixth and eighth grade achieve statistical significance (see Figure 11).

**Figure 11:** Percentage of 6<sup>th</sup>-8<sup>th</sup> grade females who report drinking alcohol in the past 30 days



Binge drinking also increases gradually for both males and females across every grade with steeper increases for females in seventh and eighth grade compared to sixth grade (see Figure 12). Overall, SFS program participants report lower prevalence of binge drinking than YRRS respondents. Nonetheless, statistically significant findings for females in seventh and eighth grade indicate a need for additional prevention programming targeted to older female middle school students.

**Figure 12:** Percentage of 6<sup>th</sup>-8<sup>th</sup> grade females who report binge drinking in the past 30 days

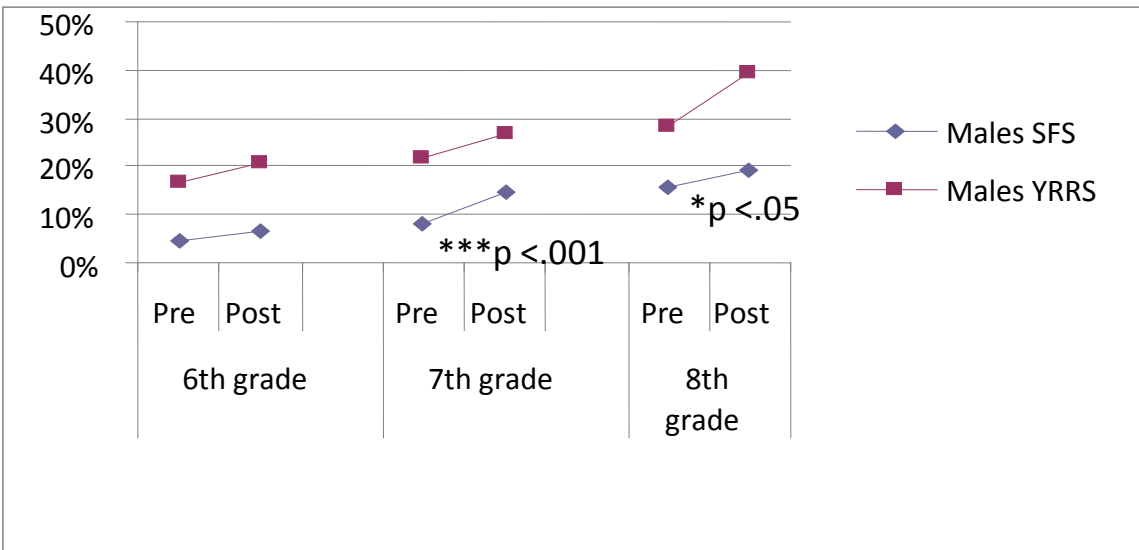


Overall, SFS students have less current alcohol use than their YRRS counterparts although increases between baseline and posttest are of similar magnitude for both populations.

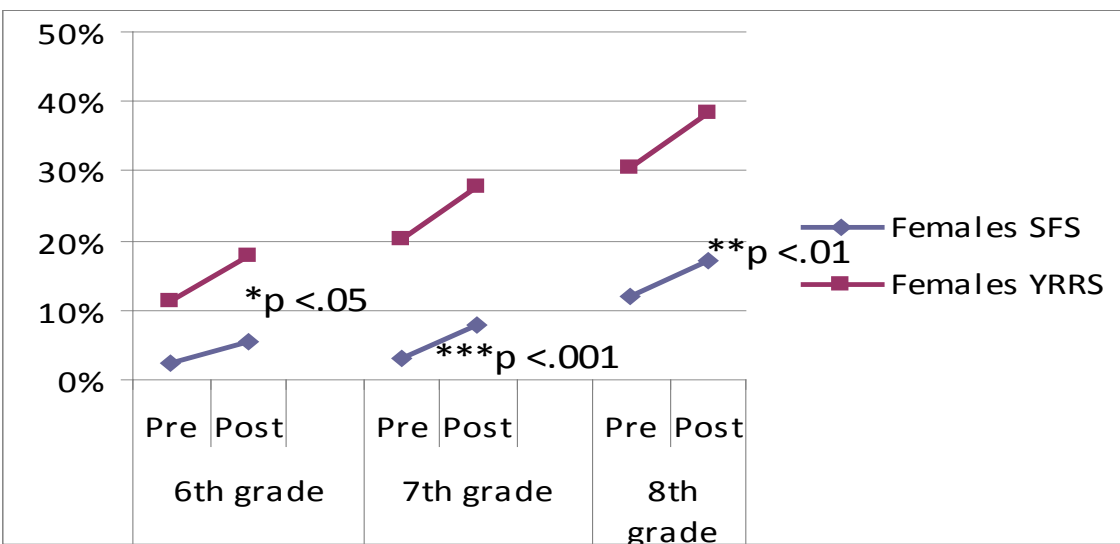
Other Drug use (all male and female students, grades 6-8)

The number of SFS students reporting *ever* using marijuana increased significantly for both males and females over each grade with the exception of sixth grade males (see Figures 13 and 14). However, SFS student rates for *ever* using marijuana as well as use in the *past 30 days* were below the reported rates for YRRS students. Additionally, changes in *past 30 day use* were not significant by 8<sup>th</sup> grade. Why marijuana use has increased is unclear. This may indicate the need for middle school SFS programs to target marijuana use as part of future interventions.

**Figure 13:** Percentage of 6<sup>th</sup>-8<sup>th</sup> grade males who reported *ever* using marijuana



**Figure 14:** Percentage of 6<sup>th</sup>-8<sup>th</sup> grade females who reported *ever* using marijuana

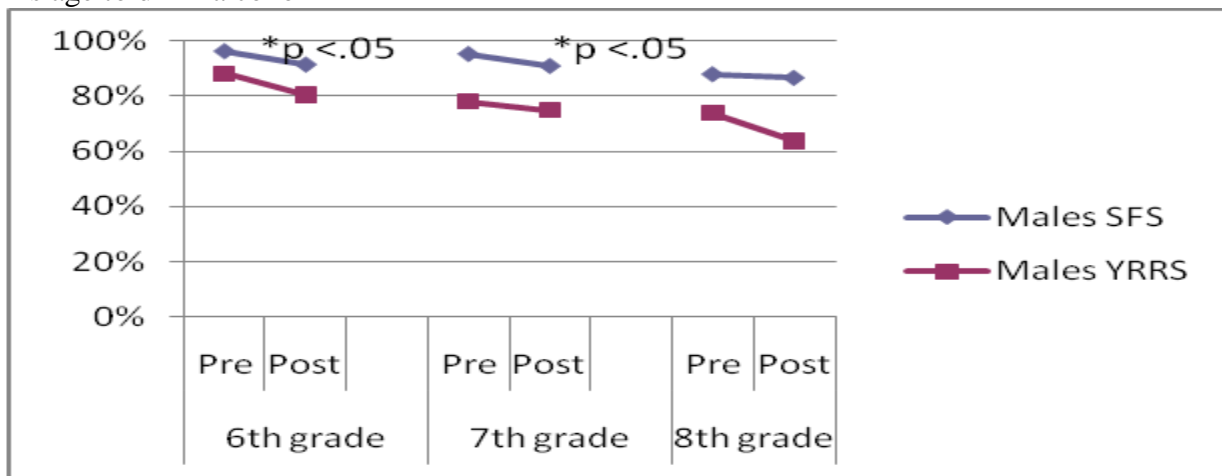


Inhalant use was relatively low for males across all grades with steady prevalence reported at baseline and posttest. On the other hand, females reported a statistically significant increase in eighth grade that should be addressed in future programming.

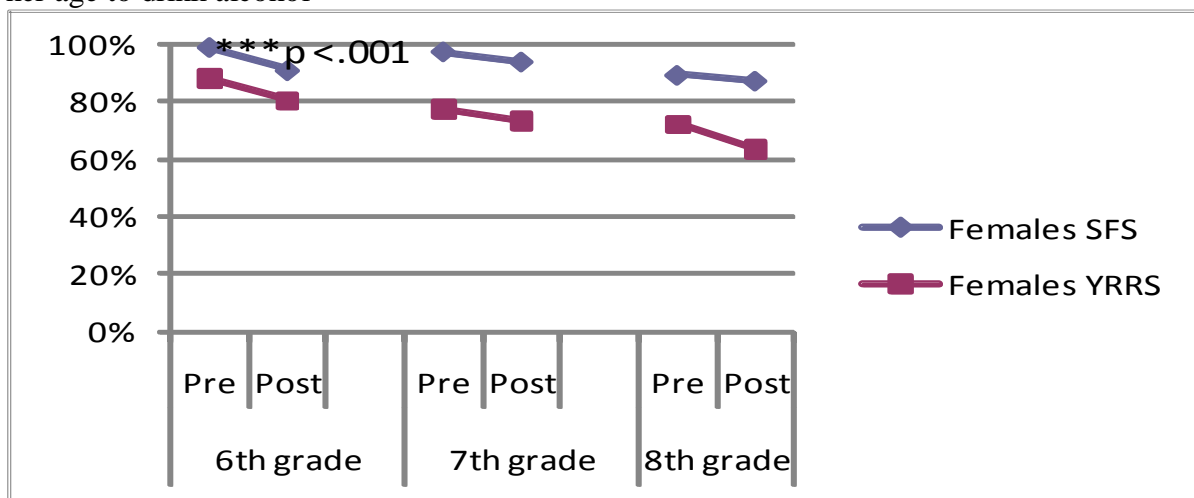
Attitudes and Norms towards ATOD use (all male and female students, grades 6-8)

Disapproval for peer alcohol use decreased for both males and females across every grade. These unintended findings were statistically significant for 6<sup>th</sup> and 7<sup>th</sup> grade males and 6<sup>th</sup> grade females (see Figures 15 and 16 below). These results are consistent with the increase in alcohol use and binge drinking reported on the survey. Although decreasing over time, more than 80% of SFS students across all grades report they, themselves, feel it is wrong for someone their age to drink and these percentages are above those reported by YRRS students, indicating a greater belief by SFS students in positive social norms related to teen alcohol use.

**Figure 15:** Percentage of 6<sup>th</sup>-8<sup>th</sup> grade males who report it is wrong or very wrong for someone his age to drink alcohol



**Figure 16:** Percentage of 6<sup>th</sup>-8<sup>th</sup> grade females who report it is wrong or very wrong for someone her age to drink alcohol



*Results from General Linear Models*

Findings from the GLM analyses generally support the results obtained from the McNemar tests for both males and females, although several measures failed to achieve statistical significance using GLM. Among males, only marijuana achieved statistical significance but that subsequently disappeared when the model was adjusted to control for grade, ethnicity and primary language spoken at home (see Table 33). For females, alcohol, binge drinking and marijuana use were statistically significant with an unadjusted model but inhalant ever use was not (see Table 34). After adjusting the model to control for covariates, binge drinking was the only measure that continued to achieve statistical significance. Effect sizes were negligible overall, but small effect sizes were observed for male marijuana use and alcohol use, binge drinking and marijuana use among females in the unadjusted models (see Tables 33 and 34).

**Table 33:** Examining the effect of time from pretest substance use to the posttest substance use for middle school males, unadjusted and adjusted<sup>a</sup> model results

Substance (unadjusted/adjusted)	Unadjusted				Adjusted				Desired Outcome
	Base-line Mean	Post-Test Mean	F-test & sig. <sup>b</sup>	effect size <sup>c</sup>	Base-line Mean	Post-test Mean	F-test & sig. <sup>b</sup>	effect size <sup>c</sup>	
Cigarettes (930/851)	0.19	0.22	3.206	0.003	0.19	0.23	0.042	0.000	☹
Chewing Tobacco (987/896)	0.08	0.12	3.036	0.003	0.08	0.11	0.804	0.001	☹
Alcohol (904/824)	0.19	0.24	4.616*	0.005	0.20	0.25	1.224	0.001	☹
Binge Drinking (905/825)	0.14	0.17	1.695	0.002	0.15	0.18	0.572	0.001	☹
Marijuana (955/871)	0.21	0.31	20.676***	0.021	0.23	0.32	0.445	0.001	☹
Any Prescription Medication Not Prescribed (932/849)	0.04	0.04	0.083	0.000	0.04	0.04	0.465	0.001	☹

<sup>a</sup>Model adjusted for grade, ethnicity, and English as a primary language at home.

<sup>b</sup>Exact statistic.

<sup>c</sup>Partial eta squared where effects are: small = .01, medium = .06, large = .14 or larger.

\*p ≤ .05, \*\*p ≤ .01, \*\*\*p ≤ .001.

**Table 34:** Examining the effect of time from pretest substance use to the posttest substance use for middle school females, unadjusted and adjusted<sup>a</sup> model results

Substance (unadjusted/adjusted)	Unadjusted				Adjusted				Desired Outcome
	Base-line Mean	Post-test Mean	F-test & sig.	effect size <sup>a</sup>	Base-line Mean	Post-test Mean	F-test & sig.	effect size <sup>a</sup>	
Cigarettes (934/850)	0.14	0.16	1.911 <sup>b</sup>	0.002	0.14	0.16	0.456 <sup>b</sup>	0.001	☹
Chewing Tobacco (979/889)	0.03	0.04	0.202 <sup>b</sup>	0.000	0.03	0.04	2.914 <sup>b</sup>	0.003	☹
Alcohol (903/821)	0.14	0.22	24.187 <sup>b</sup> ***	0.026	0.15	0.24	1.816 <sup>b</sup>	0.002	☹
Binge Drinking (900/818)	0.09	0.16	20.568 <sup>b</sup> ***	0.022	0.09	0.17	0.964 <sup>b</sup>	0.001	☹
Marijuana (950/863)	0.12	0.23	33.435***	0.034	0.12	0.24	0.533 <sup>b</sup>	0.001	☹
Any Prescription Medication Not Prescribed (912/824)	0.04	0.04	0.027 <sup>b</sup>	0.000	0.04	0.04	1.842 <sup>b</sup>	0.002	☹

<sup>a</sup>Model adjusted for grade, ethnicity, and English as a primary language at home.

<sup>b</sup>Exact statistic.

<sup>c</sup>Partial eta squared where effects are: small = .01, medium = .06, large = .14 or larger.

\*p ≤ .05, \*\*p ≤ .01, \*\*\*p ≤ .001.

Despite slight increases in perceptions around risks associated with substance use between pretest and posttest for both males and females, more accepting parental and respondent attitudes about alcohol use seem to be contributing to the increase in substance use captured among program participants. There were small program effect sizes on intentions to smoke a cigarette during the next year for both males and females, but these effect sizes disappeared with the adjusted model (see Tables 35 and 36). Similarly, a small program effect size was observed among female respondents' disapproval of alcohol use, but the effect again disappeared under the adjusted model.

**Table 35:** Examining the effect of time from pretest scores for perception of harm, parental approval, respondent approval and intentions to smoke to posttest scores for middle school males, unadjusted and adjusted<sup>a</sup> model results

Measure (unadjusted n/ adjusted n)	Unadjusted				Adjusted				Desired Outcome
	Base- line Mean	Post- Test Mean	F-test & sig.	effect size <sup>c</sup>	Base- line Mean	Post- Test Mean	F-test & sig.	effect size <sup>c</sup>	
Risk of Harm Scale (968/879)	1.87	1.89	0.361	0.000	1.88	1.89	0.831 <sup>b</sup>	0.001	➔
Parental Attitudes toward Alcohol Use (980/890)	2.65	2.63	0.713	0.001	2.67	2.64	1.639 <sup>b</sup>	0.002	➔
Respondent Attitudes toward Alcohol Use (977/888)	2.54	2.47	8.379***	0.009	2.55	2.48	0.827 <sup>b</sup>	0.001	➔
Intention to smoke a cigarette soon (829/754)	6.24	9.03	12.140***	0.014	6.51	9.23	0.501 <sup>b</sup>	0.001	➔
Intention to smoke a cigarette during the next year (829/756)	0.49	0.34	24.845***	0.029	0.50	0.34	0.008 <sup>b</sup>	0.000	➔
Intention to smoke a cigarette if offered by best friend (824/752)	0.46	0.04	11.451***	0.014	0.46	0.36	0.018 <sup>b</sup>	0.000	➔

<sup>a</sup>Model adjusted for grade, ethnicity, and English as a primary language at home.

<sup>b</sup>Exact statistic.

<sup>c</sup>Partial eta squared where effects are: small = .01, medium = .06, large = .14 or larger.

\*p ≤ .05, \*\*p ≤ .01, \*\*\*p ≤ .001.

**Table 36:** Examining the effect of time from pretest scores for perception of harm, parental approval, respondent approval and intentions to smoke to posttest scores for middle school females, unadjusted and adjusted<sup>a</sup> model results

Measure (unadjusted n/ adjusted n)	Unadjusted				Adjusted				Desired Outcome
	Base- line Mean	Post- test Mean	F-test & sig.	effect size <sup>c</sup>	Base- line Mean	Post- test Mean	F-test & sig.	effect size <sup>c</sup>	
Risk of Harm Scale (971/881)	2.04	2.06	0.205	0.000	2.07	2.07	0.147 <sup>b</sup>	0.000	➔
Parental Attitudes toward Alcohol Use (975/885)	2.75	2.73	1.629	0.002	2.76	2.73	0.144 <sup>b</sup>	0.000	➔
Respondent Attitudes toward Alcohol Use (976/886)	2.63	2.52	19.748***	0.020	2.65	2.52	7.036 <sup>b**</sup>	0.008	➔
Intention to smoke a cigarette soon (846/763)	6.04	8.45	9.799**	0.011	6.26	8.51	0.715 <sup>b</sup>	0.001	➔
Intention to smoke a cigarette during the next year (847/765)	0.53	0.38	21.032***	0.024	0.53	0.38	1.543 <sup>b</sup>	0.002	➔
Intention to smoke a cigarette if offered by best friend (846/763)	0.54	0.43	9.039**	0.011	0.53	0.43	2.871 <sup>b</sup>	0.004	➔

<sup>a</sup>Model adjusted for grade, ethnicity, and English as a primary language at home.

<sup>b</sup>Exact statistic.

<sup>c</sup>Partial eta squared where effects are: small = .01, medium = .06, large = .14 or larger.

\*p ≤ .05, \*\*p ≤ .01, \*\*\*p ≤ .001.

## Discussion

In the middle school sample, most students were in 6<sup>th</sup>, 7<sup>th</sup>, or 8<sup>th</sup> grade. Over 50% identified as Hispanic/Latino. Among middle school males there was an increased prevalence for past 30 day chewing tobacco, alcohol, and marijuana. Among middle school females there were significant increases in alcohol use, binge drinking, marijuana use, and lifetime inhalant use. Prescription drug use was relatively minimal for males and females despite slight increases, however, middle

school students are most often reporting prescription medications that are not the most identifiable. It would make sense for prevention programs to collect information from participants about what “other” prescription drugs they may be taking. When looking only at respondents who reported each ATOD use at pretest, there were significant decreases for both males and females with one exception. Females significantly increased the frequency of their inhalant use, although it remained infrequent overall. However, overall those who reported use at pretest do appear to be decreasing the frequency of their use at post test. It also seems that at least among the middle school boys, if they report using any substance at pretest then they are most likely not to pick up additional substances over the course of the prevention program. On the other hand, the overall prevalence of use among girls who reported any use at pretest increased for alcohol, binge drinking and marijuana use. The increasing use of marijuana is concerning and may represent a subgroup of youth who are exposed to older youth using marijuana. Programs should share these findings with the participating schools and consider whether there might be environmental changes that could be made to decrease exposure and/or if additional attention needs to be given to addressing marijuana use. On a positive note, the decreases in the likelihood of smoking from pre to posttest are encouraging even though they do not correspond to reported use. Also encouraging is that in the adjusted GLM models, what were significant increases in ATOD use for males and females in the unadjusted models are no longer significant meaning that time spent in the prevention program was not the reason for the increase and that increases seem related to other factors. Although SFS respondents generally report less use ATOD use than YRRS youth, it is the comparison of slopes between the two samples that is most important to compare. Comparison with YRRS data indicates relatively similar patterns of increases across grades between the two different samples. This implies that these increases are developmentally normal for middle school youth in N.M. More often the slopes are less steep for the SFS sample indicating that they are increasing at a slower rate than the average N.M. student.

It appears that middle school is a prime time for youth to begin experimenting in ATOD use. There are likely many reasons for this only some of which can be addressed through a prevention program. However, delaying the age of onset leads to long term benefits, such as lower lifetime use and lower likelihood of addiction. As previously mentioned, it makes a lot of sense for local prevention providers to begin to examine the environment in which middle school students live, work and play. Access to substances at this age indicates that there are either people selling or giving youth (intentionally or unintentionally) cigarettes, alcohol, and marijuana. Even with prevention programming, if there is relatively widespread use and easy access, it becomes difficult to say no over time.

## Results of High School Analyses

Twelve prevention programs across the state provided ATOD prevention programming to 853 youth in grades 9 through 12. A total of 17 different prevention programs were used. The number of participants varied depending on whether the programs were school based or indicated, as well as the type of program (see Table 37 below). This section includes all of the findings presented in tabular format and selected findings of the SFS and YRRS comparisons.

**Table 37:** Distribution of high school SFS program participants by site

Site	Curriculum Provided	Number of Participants	Percent of Total Participants*
Excel Educational Enterprises	Effective Black Parenting Program, Learning to Lead	6	0.7%
Five Sandoval Pueblos	Project Venture	9	1.1%
National Indian Youth Leadership	Project Venture	72	8.4%
Native American Community Academy	Experiential Education Program	21	2.5%
North Central Community Based Services	Natural Helpers, Too Good for Drugs	21	2.5%
Quay County	Project Northland, Project Towards No Drug Abuse	92	10.8%
Rocky Mountain Youth Corps	Tutoring	29	3.4%
Santa Fe Community College	Connecting to College	13	1.5%
Santa Fe Public Schools	Project SUCCESS	498	58.4%
Sandoval County SAP	Dare to Be You, Reconnecting Youth	35	4.1%
Southern New Mexico Human Development	Reconnecting Youth, Strengthening Families	10	1.2%
Tri-County Community Services	Dare to be You	47	5.5%
Total		853	100%

\*Due to rounding, the percentage total is not exactly 100%

There were slightly more males (52.5%) than females (47.5%) in the total sample (see Table 38). The mean age was higher for males (14.97 years) than females (14.81 years). The majority of respondents were in 9<sup>th</sup> grade (73.2% of males and 70.1% of females), followed by 10<sup>th</sup> grade (14.9% of males and 13.2% of females). The percentage of female students was higher for both 11<sup>th</sup> grade (8.0% compared to 4.3% for males) and 12<sup>th</sup> grade (8.5% compared to 7.4%). High school SFS program participants were predominantly Hispanic (64.7% for males and 71.8% for females) and approximately one-quarter of males (25.7%) and one-fifth (19.6%) of females were white. Unlike previous years, only a handful of Native American students were represented

among males (3.8%) and females (2.5%) during this academic year. More than one-third of males (33.6%) and females (35.0%) reported speaking a language other than English at home most of the time.

**Table 38:** Demographics for high school SFS program participants at pretest (N=853\*)

Demographic	% SFS Program Participants	% SFS Program Participants
Grade	Male (n=447)	Female (n=404)
8 <sup>th</sup> grade	0.2	0.2
9 <sup>th</sup> grade	73.2	70.1
10 <sup>th</sup> grade	14.9	13.2
11 <sup>th</sup> grade	4.3	8.0
12 <sup>th</sup> grade	7.4	8.5
Race/Ethnicity		
White	25.7	19.6
Hispanic	64.7	71.8
Native American	3.8	2.5
Other	5.8	6.2
Language Other than English Spoken Most Often <sup>a</sup>		
Yes	33.6	35.0

\* Students that did not provide biological sex were not included in the demographics (n =2).

### *Prevalence of Substance Use*

Among high school males, increases in substance use prevalence between pretest and posttest were statistically significant for cigarettes, chewing tobacco, alcohol, marijuana and inhalant use (see Table 39). Similar findings among females were limited to past 30-day marijuana use, despite a slightly larger proportion of females represented in the upper grades were observed substance use prevalence is typically higher.

**Table 39:** Past 30-day ATOD use differences from pretest to posttest for high school SFS program participants

Substances (pre n, post n)	% Pretest	% Posttest	McNemar Test	% Pretest	% Posttest	McNemar Test
	Male			Female		
Cigarettes (795/799)	22.9	28.3	5.654*	17.3	17.7	0.000
Chewing Tobacco (846/851)	4.3	9.4	10.023**	1.2	0.7	0.727 <sup>b</sup>
Alcohol (844/843)	28.8	33.1	3.883*	33.1	30.8	0.736 <sup>b</sup>
Binge Drinking (842/845)	16.7	19.1	1.408	15.0	14.5	0.016 <sup>b</sup>
Marijuana (847/849)	20.9	29.4	14.880***	24.1	31.4	10.125***
Inhalants (839/807)	3.6	7.1	5.939*	1.8	5.2	0.007 <sup>b</sup>

<sup>a</sup>Dichotomous substance use variable (yes or no).

<sup>b</sup> Binomial distribution used, exact significance test provided.

\*p ≤ .05, \*\*p ≤ .01, \*\*\*p ≤ .001.

Reported prescription drug use increases between pretest and posttest for males and females overall, although statistically significant changes are more common for males on the prescription drug use measures (see Table 40 below). Similar to the findings for middle school students, the number of respondents reporting use of specific types of prescription drugs was generally negligible and the binomial distribution was used to measure changes from pretest to posttest as a result. It is likely that the low prevalence of prescription drug use reported at baseline contributes to the fluctuations observed between pretest and posttest.

**Table 40:** Past 30-day prescription drug-use, differences from pretest to posttest for high school SFS program participants

Substances (pre n, post n)	% Pretest	% Posttest	McNemar Test	% Pretest	% Posttest	McNemar Test
	Male			Female		
Any R <sub>x</sub> medication not prescribed (770/723)	8.9	12.4	6.612**	8.8	10.8	1.306
Any R <sub>x</sub> pain pills not prescribed (767/735)	4.3	7.4	7.031**	2.9	5.3	0.013 <sup>b</sup>
Any Ritalin, Adderal, or Prozac not prescribed (765/738)	2.3	2.1	0.453 <sup>b</sup>	1.1	1.1	1.000 <sup>b</sup>
Any R <sub>x</sub> sleep aids or tranquilizers not prescribed (765/734)	3.3	4.8	0.049 <sup>b</sup>	2.9	4.2	0.263 <sup>b</sup>
Any other medications not prescribed (761/735)	5.2	7.5	4.364*	4.8	9.4	8.028**

<sup>a</sup> Dichotomous substance use variable (yes or no).

<sup>b</sup> Binomial distribution used, exact significance provided.

\*p ≤ .05, \*\*p ≤ .01, \*\*\*p ≤ .001.

Table 41 captures the average number of times the core substances were used in the past 30 days by high school SFS program participants who reported use at baseline. Cigarettes, binge drinking and marijuana were the most commonly reported drugs for males, and cigarettes, binge drinking and marijuana were the most commonly reported drugs for female. There was a significant decrease almost in every category across male and female. Reported use of chewing tobacco and inhalants was not as widespread among males and females. There is a significantly decreasing trend from pretest to posttest in most of drug categories across gender among the participants who had used ATOD at baseline. By comparison, the trend observed among all of the participants regardless of their ATOD use at baseline tends to be increasing (see Table 39).

**Table 41:** Frequency of ATOD use<sup>a</sup>, differences from pretest to posttest among high school SFS program participants reporting use in each individual category at baseline

Substance (baseline, male n & female n)	Pretest Mean	Posttest Mean	t-value	Pretest Mean	Posttest Mean	t-value
	<i>Male</i>			<i>Female</i>		
Cigarettes (96/65)	2.98	2.69	1.390	2.49	1.82	3.270***
Chewing tobacco (19/5)	2.32	1.47	1.637	1.00	0.00	NA <sup>b</sup>
Alcohol (126/132)	1.82	1.43	2.886**	1.59	1.07	5.487***
Binge drinking (74/60)	2.61	1.61	1.974*	2.02	0.97	6.415***
Marijuana (93/97)	2.83	2.14	3.355***	2.19	1.91	1.962*
Inhalant ever use (15/6)	1.40	0.60	3.055**	1.50	0.33	3.796**

<sup>a</sup>0=0 times, 1=1 or 2 times, 2=3 to 9 times, 3=10 to 19 times, 4=20 to 39 times, 5=40 or more times.

<sup>b</sup>T-test was not conducted because the standard error of the mean difference is zero.

\*p ≤ .05, \*\*p ≤ .01, \*\*\*p ≤ .001.

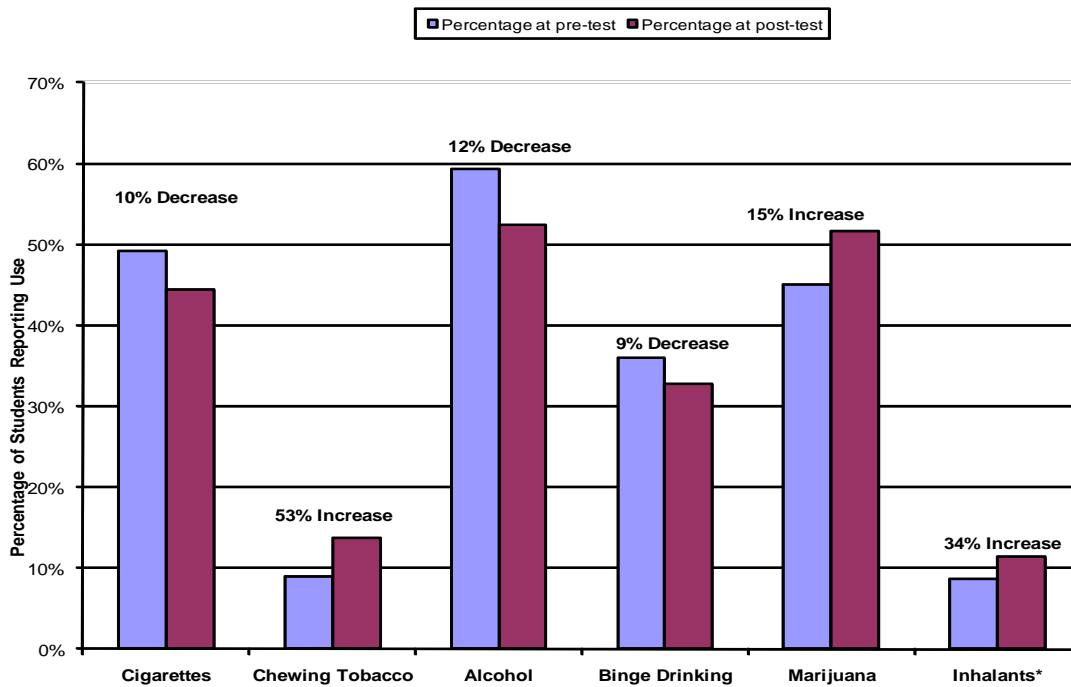
Floor effects are a common issue for most substance use prevention programs and have been described previously. In order to account for their impact, we again examined self-reported substance use at posttest among only those program participants reporting ATOD use at pretest. For both males and females, the percentage of program participants reporting substance use at posttest decreased for cigarettes, alcohol and binge drinking (see Table 42 and Figures 17 and 18). Among males, the percentage reporting chewing tobacco use at posttest doubled (53%) and an increase for inhalant use was noted for both males (34%) and females (322%), however the extremely low prevalence of inhalant use reported by females at pretest should be considered when interpreting the results. The trend for female reported use of marijuana suggests a slight decrease although the finding did not achieve statistical significance.

**Table 42:** Past 30-day ATOD use<sup>a</sup> prevalence at posttest among high school SFS program participants reporting any ATOD use at pretest

Substance (baseline, pretest n & posttest n)	%	%	%	%	%	%
	Pretest	Posttest	Change	Pretest	Posttest	Change
	Male			Female		
Cigarettes (357/358)	49.2	44.4	-9.8	38.1	32.5	-14.7
Chewing Tobacco (357/358)	9.0	13.8	53.3	1.8	1.8	0.0
Alcohol (358/356)	59.3	52.4	-11.6	73.4	52.1	-29.0
Binge Drinking (358/358)	36.0	32.8	-8.9	33.1	29.0	-12.4
Marijuana (358/357)	45.0	51.6	14.7	50.9	49.7	-2.4
Inhalant ever use (352/331)	8.6	11.5	33.7	1.8	7.6	322.2

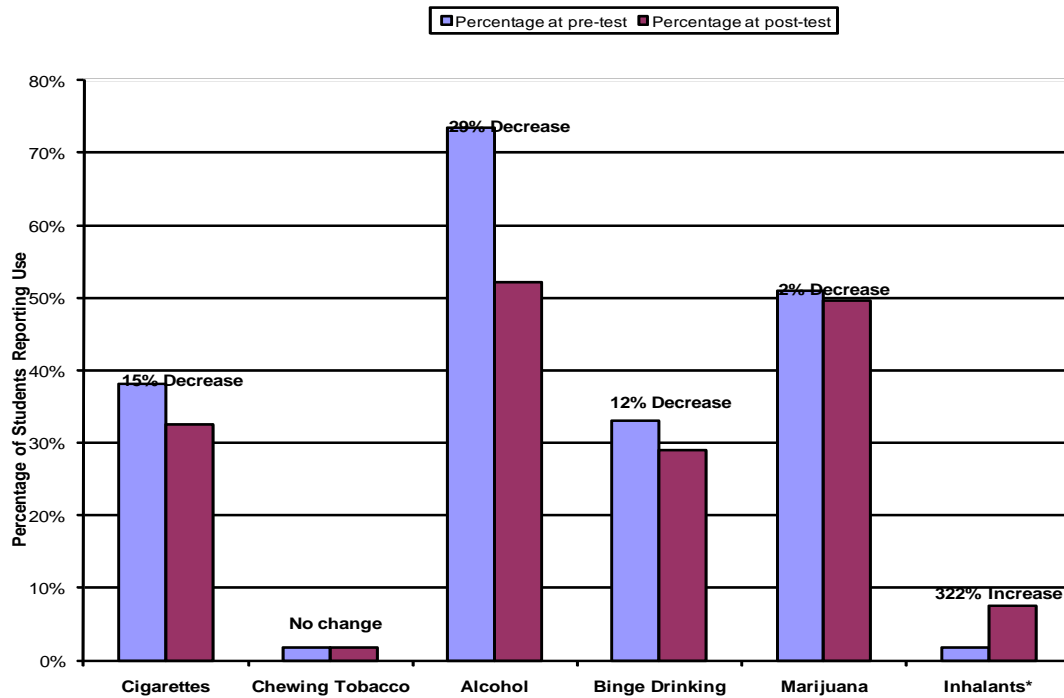
<sup>a</sup> Dichotomous substance use variable (yes or no).

**Figure 17:** The percentage of male high school SFS program participants reporting substance use at posttest among only program participants reporting substance use at pretest



\*Inhalant ever use.

**Figure 18:** The percentage of female high school SFS program participants reporting substance use at posttest among only program participants reporting substance use at pretest



\*Inhalant ever use.

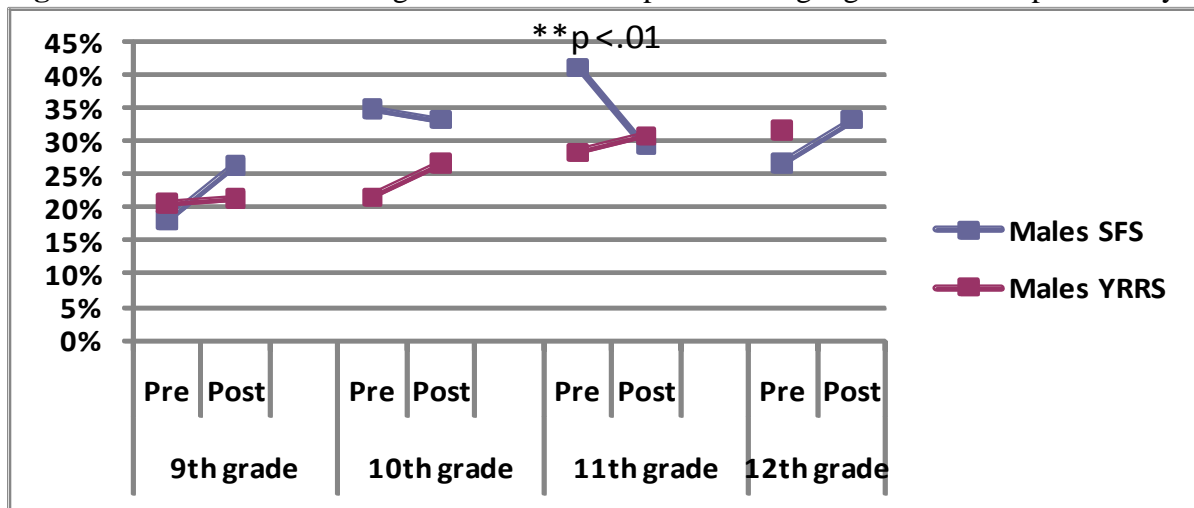
### *Comparing SFS Respondents to YRRS Respondents<sup>9</sup>*

#### Tobacco use (all male and female SFS high school students, grades 9-12)

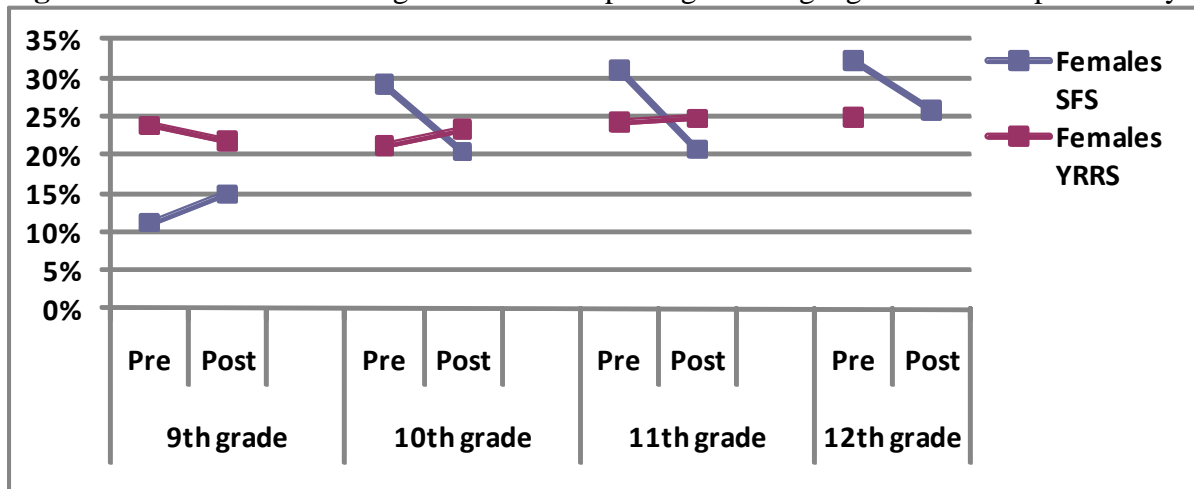
Reported prevalence of tobacco use *in the past 30 days* by male SFS program participants was higher in 9<sup>th</sup> and 10<sup>th</sup> grade compared to the prevalence reported among male YRRS respondents in the same grades (see Figure 19). Alternatively, the statistically significant decrease depicted in 11<sup>th</sup> grade for the SFS sample should be interpreted with caution as the actual number of positive respondents was very low (n= 7). Female SFS program participants reported decreased prevalence in 10<sup>th</sup>, 11<sup>th</sup> and 12<sup>th</sup> grade at posttest with each trend characterized by higher baseline prevalence than female YRRS respondents (see Figure 20). The inverse pattern is observed in 9<sup>th</sup> grade with a lower prevalence at baseline among SFS participants and an increase in prevalence reported at posttest compared to a higher prevalence at baseline for YRRS females and a decrease in prevalence at posttest.

<sup>9</sup> Graphs not shown in text are available upon request.

**Figure 19:** Percent of 9<sup>th</sup>-12<sup>th</sup> grade males who report smoking cigarettes in the past 30 days

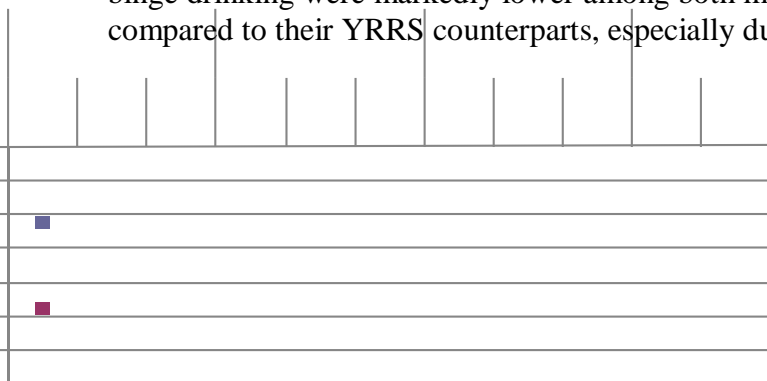


**Figure 20:** Percent of 9<sup>th</sup>-12<sup>th</sup> grade females reporting smoking cigarettes in the past 30 days

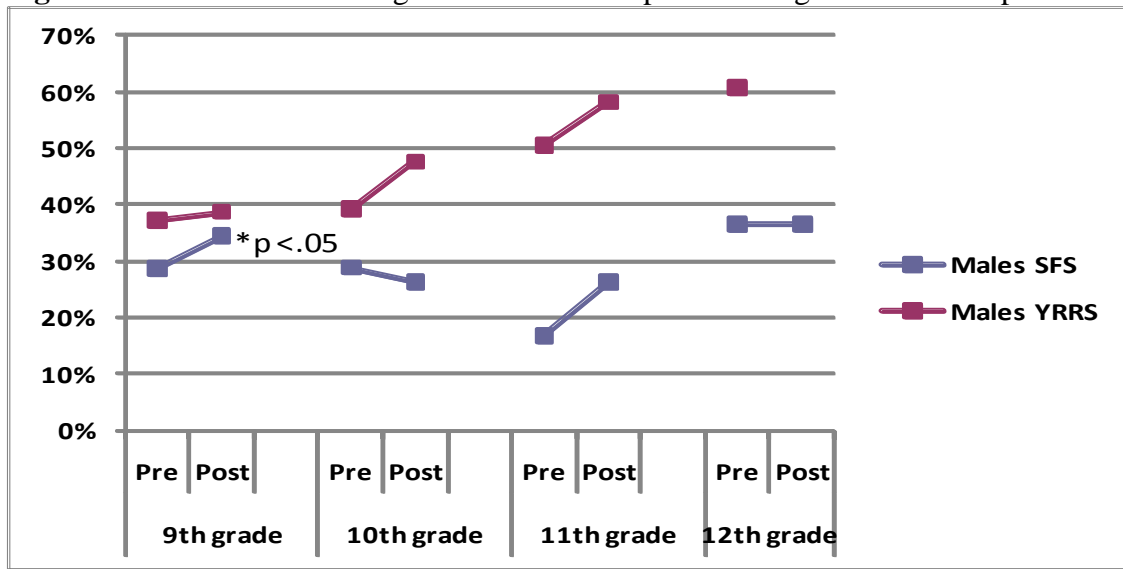


Alcohol use (All Male and Female SFS High School Students, grades 9-12)

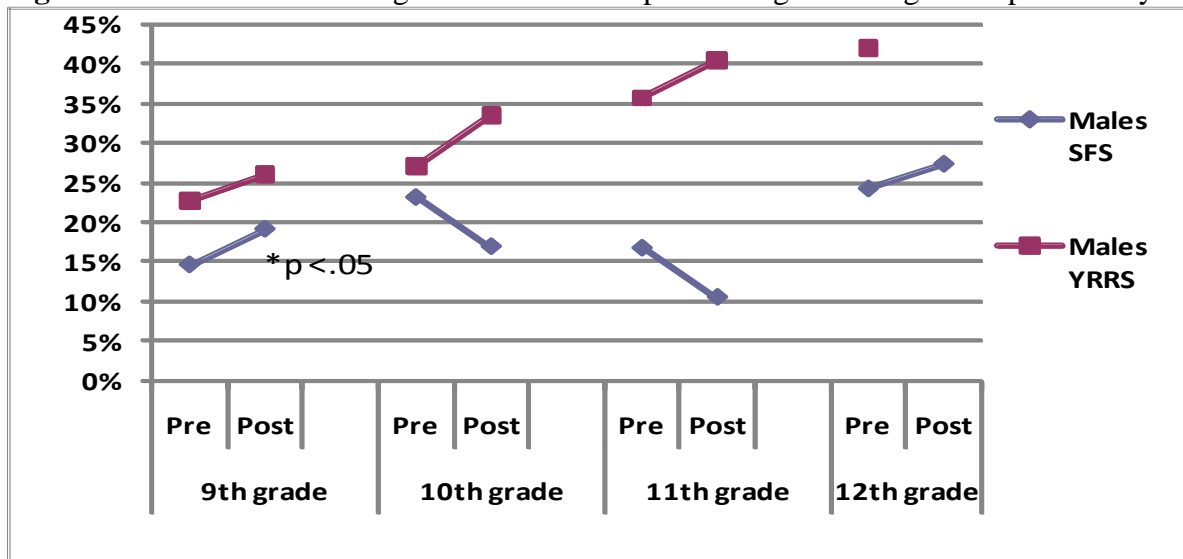
Overall, male SFS students' report of alcohol use and binge drinking *in the past 30 days* increased between 9<sup>th</sup> and 12<sup>th</sup> grade, with a statistically significant increase between baseline and posttest for 9<sup>th</sup> graders (see Figure 21 and Figure 22). The prevalence of alcohol use and binge drinking were markedly lower among both male and female SFS students for every grade compared to their YRRS counterparts, especially during the 12<sup>th</sup> grade.



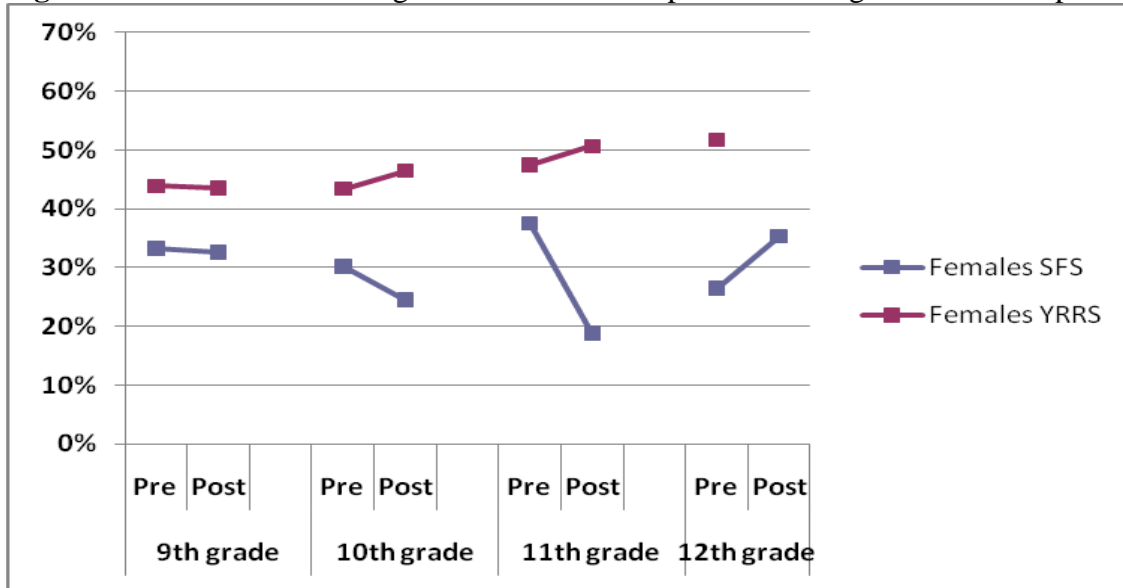
**Figure 21:** Percent of 9<sup>th</sup>-12<sup>th</sup> grade males who report drinking alcohol in the past 30 days



**Figure 22:** Percent of 9<sup>th</sup>-12<sup>th</sup> grade males who reported binge drinking in the past 30 days

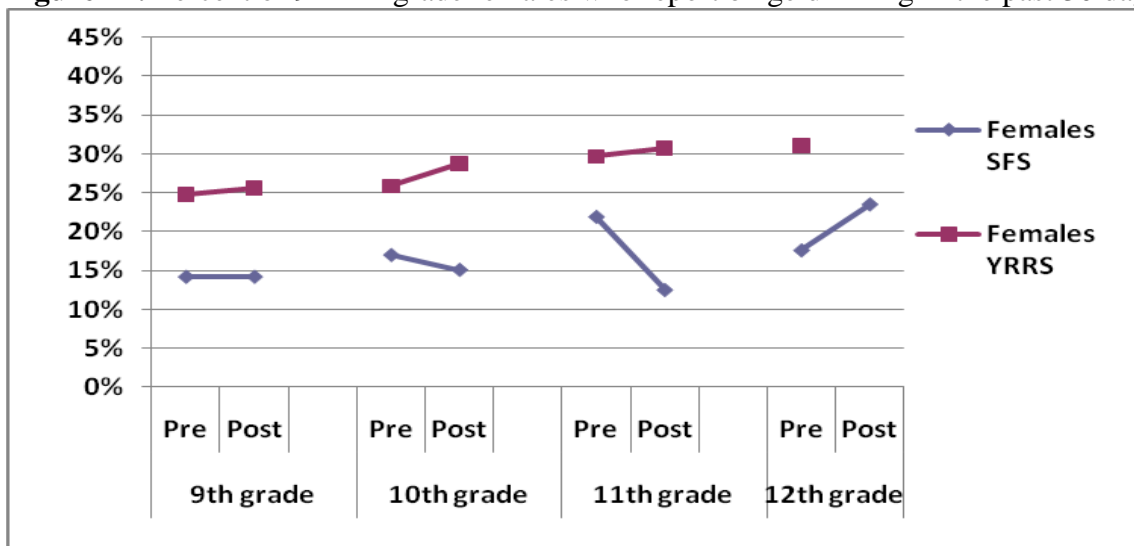


**Figure 23:** Percent of 9<sup>th</sup>-12<sup>th</sup> grade females who reported drinking alcohol in the past 30 days



Among females reporting drinking alcohol *in the past 30 days*, those in SFS programs reported lower rates of use from pre- to posttest in 9<sup>th</sup>, 10<sup>th</sup>, and 11<sup>th</sup> grades. Even though the decreases were not sustained between grades, this does suggest SFS programs may be influencing short-term alcohol use (see Figure 23) for these grades. This assessment is further supported by YRRS comparison data which, in this instance, reports either maintaining or increasing alcohol use for female students between these grades.

**Figure 24:** Percent of 9<sup>th</sup>-12<sup>th</sup> grade females who report binge drinking in the past 30 days

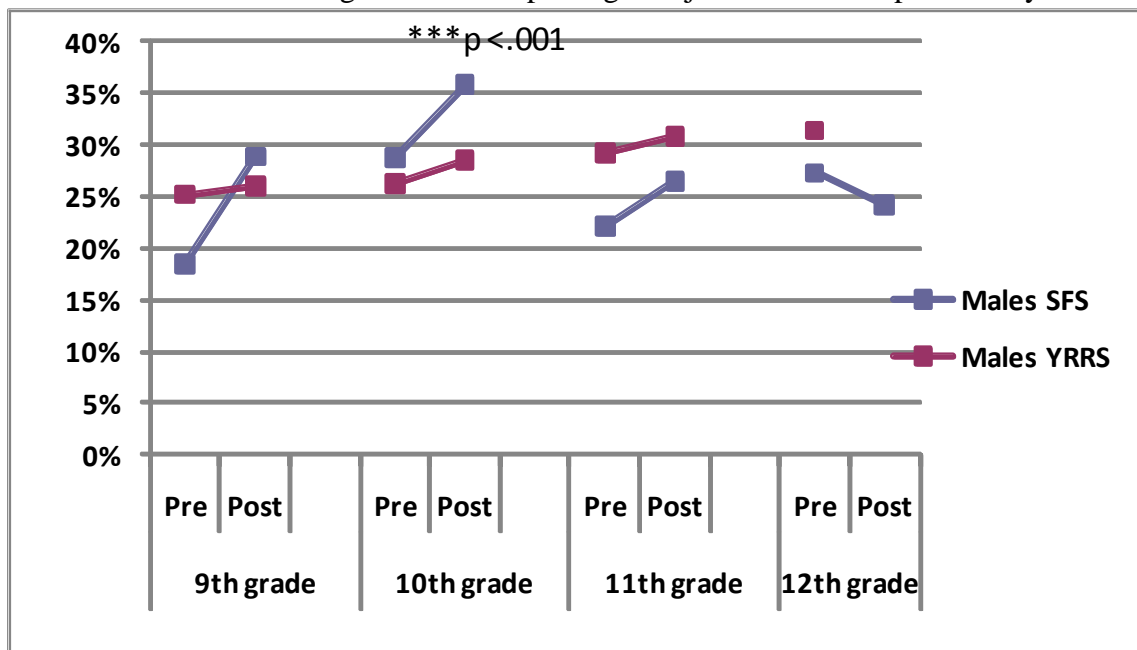


Drug use (All Male and Female SFS High School Students, grades 9-12)

In contrast to the alcohol results male SFS students reported increases in *past 30 day* marijuana use from 9<sup>th</sup> to 11<sup>th</sup> grade (see Figure 25). Interestingly, in FY 09, this same graphed showed decreases in marijuana use from pre to posttest.

Data showed increasing rates of marijuana use for 10<sup>th</sup>, 11<sup>th</sup>, and 12<sup>th</sup> grade females. Female use rates over all grades were almost equal when comparing baseline 9<sup>th</sup> grade data to posttest 12<sup>th</sup> grade data; the reason for a spike in use for 10<sup>th</sup> grade females and large decline in use at the beginning of 11<sup>th</sup> grade is unclear. Together, these findings may signal a need to increase SFS program activities addressing marijuana use, particularly for females (even though increases in marijuana use for females were non-significant).

**Figure 25:** Percent of 9<sup>th</sup>-12<sup>th</sup> grade males reporting marijuana use in the past 30 days

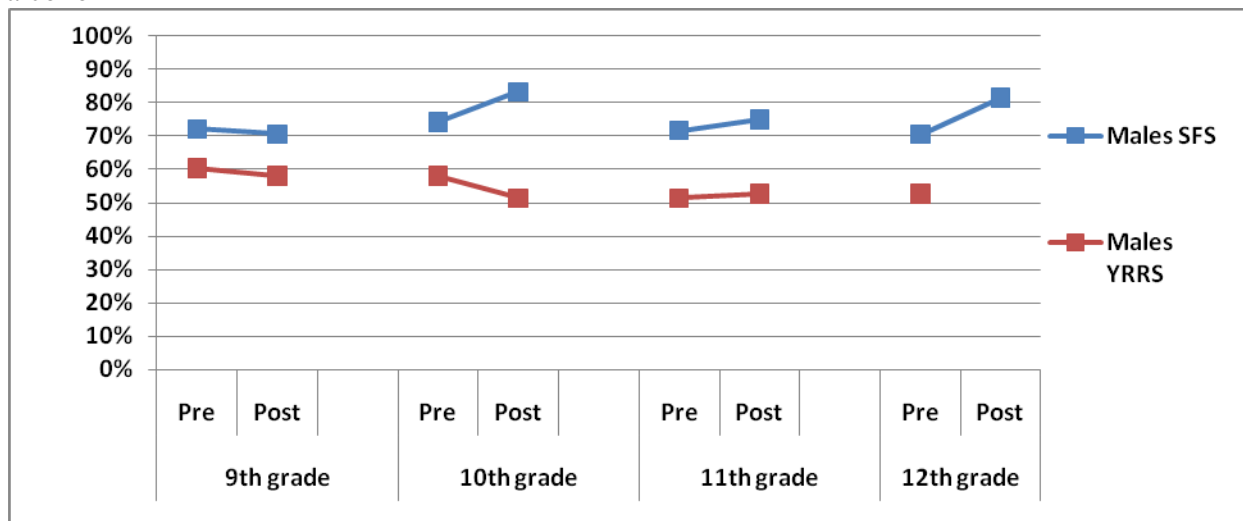


Because of the smaller number of responses, particularly for 11<sup>th</sup> and 12<sup>th</sup> grades, changes for a relatively few number of students could result in a false impression of dramatic change between pretest and posttest. This is particularly true in instances where overall report of a behavior is low, as is the case for many of the illicit drug use questions. In general, though, reports of illicit drug use for high school students participating in SFS programs were lower than reported use of YRRS students for both males and females. Thus, SFS programs may have had some impact on drug use behavior. A larger sample size would be desirable for a more definitive assessment.

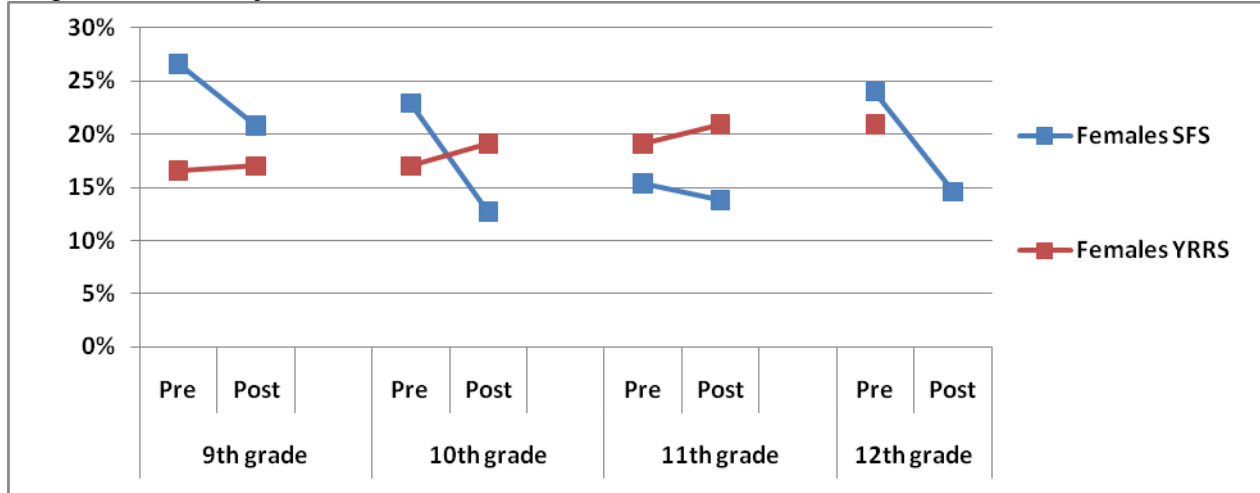
Attitudes and Norms toward ATOD use (All Male and Female High School Students, grades 9-12)

In general, both male and female SFS students are more likely to agree that it is wrong for someone his or her age to drink alcohol (see Figure 26 for males). Additionally, SFS male high school students are less likely to report peer use of alcohol or drug use as compared to YRRS male high school students. However, female SFS students overall report similar or higher rates of peer alcohol and drug use at pretest than YRRS students. Interestingly, at posttest female SFS students report a sharp drop in having peers that use alcohol or drugs (see Figure 27). This suggests that SFS programs are positively influencing skills for choosing pro-social friendships related to ATOD in the immediate context but this influence may not sustain over time.

**Figure 26:** Percent of 9<sup>th</sup>-12<sup>th</sup> grade males who think it is wrong for people their age to drink alcohol



**Figure 27:** Percent of 9<sup>th</sup>-12<sup>th</sup> grade females who report most or all of their friends have used drugs (such as marijuana or cocaine)



*Results from General Linear Models*

Findings from the GLM analyses generally support the results obtained from the McNemar tests for both males and females, however, several measures failed to achieve statistical significance after controlling for participants’ grade, ethnicity and whether or not English was the primary language spoken in the home. Among males, the statistically significant increase in reported cigarette use (see Table 43) is the only sustained finding for the core drug measures. Analyses were conducted with selected high risk drugs (cocaine, heroin, methamphetamines and ecstasy) but the results should be interpreted with caution due to the very small number of students reporting any use at either time point. For example, the statistically significant increase observed for methamphetamine use with the unadjusted model is driven by only a few participants reporting use at posttest. The small effect sizes for six of the substance use measure were limited to 0.01 or 0.02.

**Table 43:** Examining the effect of time from pretest substance use to posttest substance use for high school males, unadjusted and adjusted<sup>a</sup> model results

Substance (unadj n, adj n)	Unadjusted				Adjusted				Desired Outcome
	Base-line Mean	Post-test Mean	F-test & sig. <sup>a</sup>	effect size <sup>b</sup>	Base-line Mean	Post-test Mean	F-test & sig. <sup>a</sup>	effect size <sup>b</sup>	
Cigarettes (420/414)	0.68	0.87	8.527**	0.020	0.67	0.86	4.419*	0.011	☹
Chewing Tobacco (444/437)	0.10	0.20	7.239**	0.016	0.10	0.20	0.189	0.000	☹
Alcohol (442/435)	0.52	0.62	4.027*	0.009	0.52	0.62	0.155	0.000	☹
Binge Drinking (442/435)	0.35	0.44	2.397	0.005	0.35	0.44	0.541	0.001	☹
Marijuana (443/436)	0.59	0.74	5.795*	0.013	0.60	0.75	2.295	0.005	☹
Cocaine (443/436)	0.04	0.05	0.200	0.000	0.04	0.05	0.231	0.001	☹
Inhalants (420/413)	0.05	0.09	4.669*	0.011	0.05	0.09	2.334	0.006	☹
Heroin (421/414)	0.01	0.01	0.077	0.000	0.01	0.01	4.034	0.010	☹
Methamphetamines (420/413)	0.00	0.01	6.072*	0.014	0.00	0.01	0.882	0.002	☹
Ecstasy (421/414)	0.09	0.08	0.116	0.000	0.09	0.08	1.593	0.004	☹
Any Rx Medication Not Prescribed (411/405)	0.12	0.19	10.015**	0.024	0.12	0.19	3.051	0.008	☹

<sup>a</sup>Model adjusted for grade, ethnicity, and English as a primary language at home.

<sup>b</sup>Exact statistic.

<sup>c</sup>Partial eta squared where effects are: small = .01, medium = .06, large = .14 or larger.

\*p ≤ .05, \*\*p ≤ .01, \*\*\*p ≤ .001.

For females, the statistically significant increase reported for marijuana use at posttest persisted even after adjusting for several control variables. A small effect size was observed (0.02). (See Table 44.)

**Table 44:** Examining the effect of time from pretest substance use to posttest substance use for high school females, unadjusted and adjusted<sup>a</sup> model results

Substance (unadj n, adj n)	Unadjusted				Adjusted				Desired Outcome
	Base-line Mean	Post-test Mean	F-test & sig. <sup>b</sup>	effect size <sup>c</sup>	Base-line Mean	Post-test Mean	F-test & sig. <sup>b</sup>	effect size <sup>c</sup>	
Cigarettes (375/372)	0.43	0.45	0.141	0.000	0.42	0.45	2.154	0.006	☹
Chewing Tobacco (402/399)	0.01	0.01	0.499	0.001	0.01	0.01	0.852	0.002	☹
Alcohol (399/396)	0.53	0.48	1.067	0.003	0.53	0.49	0.150	0.000	☹
Binge Drinking (399/396)	0.30	0.26	1.171	0.003	0.31	0.26	0.144	0.000	☹
Marijuana (402/399)	0.53	0.65	7.254**	0.018	0.53	0.65	7.129**	0.018	☹
Cocaine (404/401)	0.06	0.04	1.256	0.004	0.06	0.04	0.431	0.001	☹
Inhalants (383/380)	0.02	0.06	5.509*	0.014	0.02	0.06	0.253	0.001	☹
Heroin (383/380)	0.02	0.02	0.000	0.000	0.02	0.02	0.036	0.000	☹
Meth-amphetamines (383/380)	0.02	0.01	0.499	0.001	0.02	0.01	0.470	0.001	☹
Ecstasy (381/378)	0.06	0.05	0.420	0.001	0.06	0.05	0.477	0.001	☹
Any Rx Medication Not Prescribed (365/362)	0.11	0.13	0.753	0.002	0.11	0.13	0.664	0.002	☹

<sup>a</sup>Model adjusted for grade, ethnicity, and English as a primary language at home.

<sup>b</sup>Exact statistic.

<sup>c</sup>Partial eta squared where effects are: small = .01, medium = .06, large = .14 or larger.

\*p ≤ .05, \*\*p ≤ .01, \*\*\*p ≤ .001.

The 2010 survey instrument for high school students included two scales: (1) the Risk of Harm Scale and (2) the Peer Use Scale. Both scales had high reliability ( $\alpha > 0.80$ ) but the unintended increase in the Risk of Harm Scale mean scores was only statistically significant for the unadjusted model among males. Conversely, the unintended increase on the Peer Use Scale remained after adjusting the model. One explanation for this result might be that program participants are part of a high-risk population and thus their peers are more likely to use substances to begin with. (See Table 45.)

**Table 45:** Examining the effect of time from pretest scores for perception of harm and peer use scales to posttest scores for high school males, unadjusted and adjusted<sup>a</sup> model results

Measure (unadj n, adj n)	Unadjusted							Desired Outcome
	Scale Range	Cronbach's $\alpha$	Base-line Mean	Cronbach's $\alpha$	Post-test Mean	F-test & sig.	effect size <sup>a</sup>	
Risk of Harm Scale (440/433)	0-3	0.872	1.9	0.892	1.7	14.313***	0.032	☞
Peer Use Scale (419/412)	0-3	0.841	0.9	0.854	1.1	12.043***	0.028	☹
Measure (unadj n, adj n)	Adjusted							Desired Outcome
	Scale Range	Cronbach's $\alpha$	Base-line Mean	Cronbach's $\alpha$	Post-test Mean	F-test & sig.	effect size <sup>a</sup>	
Risk of Harm Scale (440/433)	0-3	0.872	1.9	0.892	1.7	2.488	0.006	☞
Peer Use Scale (419/412)	0-3	0.841	0.9	0.854	1.1	15.465***	0.037	☹

<sup>a</sup>partial eta squared where effects are: small = .01, medium = .06, large = .14 or larger.  
\* $p \leq .05$ , \*\* $p \leq .01$ , \*\*\* $p \leq .001$ .

Both scales also had strong reliability with the female population ( $\alpha > 0.80$ ). Nonetheless, a slight decrease on the Risk of Harm Scale was observed and the finding was statistically significant for both models. The slight decrease for the Peer Use Scale was not statistically significant. (See Table 46.)

**Table 46:** Examining the effect of time from pretest scores for perception of harm and peer use scales to posttest scores for high school females, unadjusted and adjusted<sup>a</sup> model results

Unadjusted								
Measure (unadj n, adj n)	Scale Range	Cron- bach's $\alpha$	Base- line Mean	Cron- bach's $\alpha$	Post- test Mean	F-test & sig.	effect size <sup>a</sup>	Desired Outcome
Risk of Harm Scale (397/394)	0-3	0.852	2.1	0.877	2.0	6.300*	0.016	➔
Peer Use Scale (382/379)	0-3	0.849	1.2	0.776	1.0	7.402	0.019	➔
Adjusted								
Measure (unadj n, adj n)	Scale Range	Cron- bach's $\alpha$	Base- line Mean	Cron- bach's $\alpha$	Post- test Mean	F-test & sig.	effect size <sup>a</sup>	Desired Outcome
Risk of Harm Scale (397/394)	0-3	0.852	2.1	0.877	2.0	7.375**	0.019	➔
Peer Use Scale (382/379)	0-3	0.849	1.2	0.776	1.0	1.994	0.005	➔

<sup>a</sup>partial eta squared where effects are: small = .01, medium = .06, large = .14 or larger.

\* $p \leq .05$ , \*\* $p \leq .01$ , \*\*\* $p \leq .001$ .

Table 47 captures changes in male middle school students from pretest to posttest for riding in a car driven by someone who had been drinking alcohol, driving a car after drinking alcohol, parental attitudes toward alcohol use and respondent attitudes toward alcohol use. Table 48 shows the same changes in female students. After controlling for participants' grade, ethnicity and whether or not English was the primary language spoken in the home, the only statistically significant change from pretest to posttest is respondent attitudes toward alcohol use in male. However the change moved toward the undesirable direction.

**Table 47:** Examining the effect of time from pretest scores for riding in a car driven by someone who had been drinking alcohol, driving a car after drinking alcohol, parental attitudes toward alcohol use and respondent attitudes toward alcohol use to posttest scores for middle school males, unadjusted and adjusted model results

Measure (unadj n, adj n)	Unadjusted				Adjusted				Desired Outcome
	Base-line Mean	Post-test Mean	F-test & sig.	effect size <sup>a</sup>	Base-line Mean	Post-test Mean	F-test & sig.	effect size <sup>a</sup>	
Rode in car driven by someone who had been drinking alcohol (440/433)	0.45	0.37	2.826	0.006	0.45	0.36	1.105	0.003	⬇️
Drove car after drinking alcohol (441/434)	0.15	0.17	0.602	0.001	0.15	0.17	0.433	0.001	⬇️
Parental Attitudes toward Alcohol Use (439/434)	2.33	2.35	0.100	0.000	2.34	2.35	0.885	0.002	↔️
Respondent Attitudes toward Alcohol Use (441/435)	1.96	1.89	1.501	0.003	1.96	1.89	6.148*	0.014	↔️

<sup>a</sup> partial eta squared where effects are: small = .01, medium = .06, large = .14 or larger.

\*p ≤ .05, \*\*p ≤ .01, \*\*\*p ≤ .001.

**Table 48:** Examining the effect of pretest scores for riding in a car driven by someone who had been drinking alcohol, driving a car after drinking alcohol, parental attitudes toward alcohol use and respondent attitudes toward alcohol use on posttest scores for middle school females, unadjusted and adjusted model results

Measure (unadj n, adj n)	Unadjusted				Adjusted				Desired Outcome
	Base-line Mean	Post-test Mean	F-test & sig.	effect size <sup>a</sup>	Base-line Mean	Post-test Mean	F-test & sig.	effect size <sup>a</sup>	
Rode in car driven by someone who had been drinking alcohol (400/397)	0.42	0.36	1.809	0.005	0.42	0.36	0.019	0.000	⬇️
Drove car after drinking alcohol (403/400)	0.13	0.09	2.377	0.006	0.13	0.09	2.830	0.007	⬇️
Parental Attitudes toward Alcohol Use (398/395)	2.33	2.41	2.713	0.007	2.33	2.41	1.176	0.003	⬆️
Respondent Attitudes toward Alcohol Use (399/396)	1.93	2.04	4.059*	0.010	1.93	2.04	1.764	0.004	⬆️

<sup>a</sup>partial eta squared where effects are: small = .01, medium = .06, large = .14 or larger.

\*p ≤ .05, \*\*p ≤ .01, \*\*\*p ≤ .001.

## Discussion

During FY 10, changes in ATOD use were generally less desirable than anticipated although decreases for both alcohol use measures for females suggest that young women may be applying the knowledge they've learned about alcohol use and binge drinking. Findings among high school male participants were similar to patterns observed among middle school male participants for five of the six core substance use measures (cigarettes, chewing tobacco, alcohol, binge drinking and marijuana), but inhalant use appears to increase among middle school males and decreases among high school males. When examining results stratified by sex, it's important to keep in mind that the overall actual number of respondents in 11<sup>th</sup> and 12<sup>th</sup> grades begins to decrease, which means that findings in those grades are less precise than we might prefer. Although confidence intervals are not reported, keep in mind that a small n may influence the findings in 11<sup>th</sup> and 12<sup>th</sup> grade.

By contrast, middle school males and females reported more than double the prevalence of inhalant use at pretest, although the prevalence for males in both middle and high school was similar at posttest.

The trends are less homogenous between middle and high school females as the former report statistically significant increases, nearly doubling the prevalence of alcohol use and binge

drinking between pretest and posttest, and the latter report statistically significant decreases of less magnitude for the same measures. Conversely, the trend for inhalant use is elevated for both populations, but it does not achieve statistical significance among high school females.

Reported prevalence of ATOD use among high school students was at least twice the prevalence reported for middle school students among both males and females for past 30-day cigarette, alcohol and marijuana use, as well as binge drinking. The comparison of inhalant use prevalence between the two groups should be interpreted with caution because middle school students report ever use of inhalants and high school students report past 30-day use of inhalants.

## **Results from Hispanic & Native American Middle School Participants**

### **Background**

The diverse population of New Mexico is reflected in the demographics of the SFS program participants. At the local level, there is a particular interest in examining the outcomes of two subgroups: Native Americans and Hispanic adolescents. These separate analyses are important since there are few studies focusing on drug prevention for minority and rural youth.

### **Methods**

The middle school SFS dataset was sufficiently large enough to examine unique differences in two subgroups: Hispanic and Native American youth. Demographic information was collected as part of the SFS survey instrument; respondents were allowed to choose more than one race/ethnicity when completing the survey, although PIRE ultimately developed a hierarchy to code the race/ethnicity data so that it would be meaningful at the state and local level. First, a filter was applied to the dataset to pull out all respondents coded as Hispanic (subcategories included Mexican/Mexican American/Chicano, Spanish, Central American, South American, Puerto Rican, Cuban, and Other) and analyses were run on that subgroup. The analyses were analogous to the total sample analyses and included univariate statistics, demographic frequencies, descriptive statistics, paired t-test analysis, and GLM. Similarly, a filter was applied to pull out all respondents coded as Native American (subcategories included Pueblo, Navajo, Apache, and Other) and the analyses were replicated.

## Results for Hispanic Middle School Students

Surveys were completed by 1,092 middle school program participants who self-identified as Hispanic, including the subcategories of Mexican/Mexican American/Chicano, Spanish, Central American, South American, Puerto Rican, Cuban, and Other. Of the Hispanic participants, 50.3% were male and 49.7% were female. The average age for male participants was 12.3 years old and the average age for female participants was 12.17 years old. More than half of both males (57.4%) and females (59.2%) lived in homes where a language other than English was spoken. Table 49 provides the breakdown of the sample by demographics.

Overall, substance use among both male and female Middle School Hispanic SFS Program participants increased from pretest to posttest. The largest increases were observed among females. Past 30 day alcohol use increased from 9.3% to 17.1%, a 46% increase and past 30 day binge drinking increased from 3.9% to 9.8%, a 61% increase. Although female use at pretest is typically lower than or similar to males, by posttest females were often higher than males on reported ATOD use. Significant increases among females for past 30 day marijuana use and ever having used inhalants were found. For males, significant increases were found for past 30 day smoking cigarettes, chewing tobacco, alcohol use, binge drinking and marijuana use. See Table 50 for details. Fortunately very few Hispanic middle school youth reported abusing prescription medications and no significant increases in use were found at posttest. (See Table 51.)

**Table 49:** Demographics for middle school Hispanic SFS program participants (n=1,092)

Demographic	% SFS Program Participants	% SFS Program Participants
Grade <sup>a</sup>	Male (n=549)	Female (n=543)
5 <sup>th</sup> grade	2.9	1.9
6 <sup>th</sup> grade	34.4	37.9
7 <sup>th</sup> grade	34.1	33.8
8 <sup>th</sup> grade	28.2	25.7
9 <sup>th</sup> grade	<1.0	<1.0
Language Other than English Spoken Most Often <sup>b</sup>	57.4	59.2

<sup>a</sup> Add footnote about who was removed for missing data.

<sup>b</sup> Dichotomous variable (yes or no) capturing the percentage of youth living in homes where English is not the primary language.

**Table 50:** Past 30-day ATOD use<sup>a</sup> differences from pretest to posttest for middle school Hispanic SFS program participants

Substance (pre n, post n)	% Pretest	% Posttest	McNemar Test	% Pretest	% Posttest	McNemar Test
	Male			Female		
Cigarettes (1044/996)	7.3	10.2	4.364*	6.2	8.7	3.030
Chewing Tobacco (1087/1041)	1.1	5.2	12.893***	1.3	2.3	0.332 <sup>b</sup>
Alcohol (1001/950)	13.1	16.6	4.018*	9.3	17.1	21.391***
Binge Drinking (1067/1019)	6.0	8.7	4.971*	3.9	9.8	19.122***
Marijuana (1058/1011)	7.1	11.4	9.818**	5.9	10.9	16.531***
Inhalant lifetime use (1088/1038)	8.0	7.7	0.250 <sup>c</sup>	8.5	12.4	8.757**

<sup>a</sup> Dichotomous substance use variable (yes or no).

<sup>b</sup> Binomial distribution used, exact significance provided.

<sup>c</sup> Continuity corrected.

\* $p \leq .05$ , \*\* $p \leq .01$ , \*\*\* $p \leq .001$ .

**Table 51:** Past 30-day prescription drug use<sup>a</sup>, differences from pretest to posttest for middle school Hispanic SFS program participants

Substance (pre n, post n)	% Pretest	% Posttest	McNemar Test	% Pretest	% Posttest	McNemar Test
	Male			Female		
Any prescription medication not prescribed (1024/978)	3.1	3.6	0.664 <sup>b</sup>	4.2	4.5	0.832 <sup>b</sup>
Any prescription pain pills not prescribed (1024/976)	1.3	1.0	1.000 <sup>b</sup>	1.2	1.2	1.000 <sup>b</sup>
Any Ritalin, Adderal, or Prozac not prescribed (1024/975)	0.2	0.2	1.000 <sup>b</sup>	0.2	0.4	1.000 <sup>b</sup>
Any pres sleep aids or tranquilizers not prescribed (1021/977)	0.2	1.0	0.219 <sup>b</sup>	0.6	1.4	0.289 <sup>b</sup>
Any other medications not prescribed (1020/977)	0.8	1.8	0.344 <sup>b</sup>	2.6	3.3	0.549 <sup>b</sup>

<sup>a</sup> Dichotomous substance use variable (yes or no).

<sup>b</sup> Binomial distribution used.

\* $p \leq .05$ , \*\* $p \leq .01$ , \*\*\* $p \leq .001$ .

When only those participants who report baseline ATOD use are examined, we find some significant decreases in the frequency of use. Among middle school Hispanic males who reported use at baseline, the frequency of past 30 day alcohol use decreased significantly as well as past 30 day binge drinking and lifetime inhalant use. Among females, the reported frequency of chewing tobacco use decreased significantly as did lifetime inhalant use. Non-significant decreases were found for males in the frequency of cigarette and chewing tobacco use, however, there was non-significant increase in the frequency of past 30 marijuana use. Among females, there were non-significant decreases in the frequency of smoking, past 30 day drinking and binge drinking, but like males there was a non-significant increase in the frequency of past 30 day marijuana use. (See Table 52 for details.)

**Table 52:** Frequency of ATOD use<sup>a</sup>, differences from pretest to posttest among middle school Hispanic SFS program participants reporting use in each individual category at baseline

Substance (Respondents reporting use at baseline, male n & female n)	Pre-test Mean	Post-test Mean	t-value	Pre-test Mean	Post-test Mean	t-value	Desired Outcome
	Male			Female			
Cigarettes (37/32)	2.11	1.81	1.605	1.75	1.25	2.430	⓪
Chewing tobacco (6/7)	1.67	1.00	1.581	2.86	0.14	2.801*	⓪
Alcohol (62/44)	1.63	1.32	1.996*	1.59	1.34	1.425	⓪
Binge drinking (31/21)	2.48	1.61	2.907**	2.19	1.76	1.404	⓪
Marijuana (37/31)	2.22	2.24	-0.136	1.61	2.00	-1.378	⓪
Inhalant lifetime use (44/44)	1.00	0.55	5.986**	1.00	0.80	3.325*	⓪

<sup>a</sup>0=0 times, 1=1 or 2 times, 2=3 to 9 times, 3=10 to 19 times, 4=20 to 39 times, 5=40 or more times.

\*p ≤ .05, \*\*p ≤ .01.

Table 53 presents the change in the prevalence of ATOD use among those who report any ATOD use at pretest. We find that both male and female ATOD users at pretest increase their self-reported past 30 day cigarette use, chewing tobacco, binge drinking and marijuana use. Only males decrease their prevalence of use for past 30 day alcohol use and lifetime inhalant use, whereas females increase on both those measures. Keep in mind for both Tables 52 & 53, that the actual number of respondents who answered a particular question is often quite small. Therefore, small changes in the actual number of people who report use or non-use at posttest can have large effects on the percentage increase or decrease. For example, for male marijuana use, the estimated number of respondents at pretest who reported use was 11 and at posttest the estimated number of respondents who reported use was still 11. However, because the number of respondents who answered the question at posttest decreased, 11 respondents indicating use became a larger percentage of the total. Figures 28 and 29 below visually represent the data in Table 53.

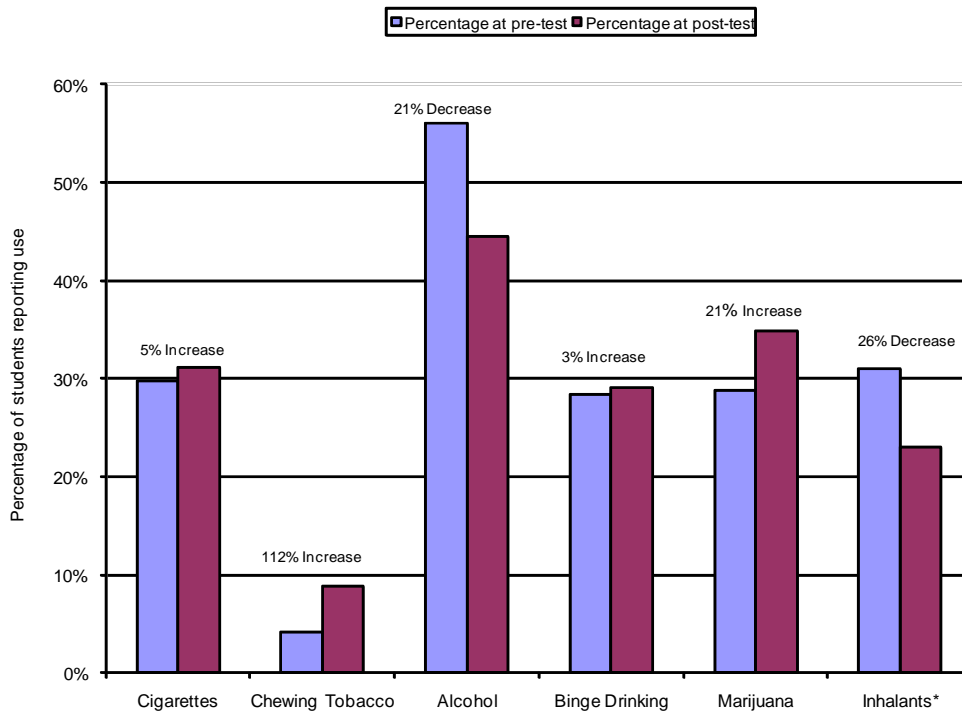
**Table 53:** Past 30-day ATOD use<sup>a</sup> at posttest among those program participants reporting ATOD use at pretest

Substance (Respondents reporting use at baseline, male n & female n)	% Pretest	% Posttest	% Change	% Pretest	% Posttest	% Change
	Male			Female		
Cigarettes (38/32)	29.7	31.1	4.7	24.4	25.2	3.3
Chewing Tobacco (6/7)	4.2	8.9	111.9	5.0	6.6	32.0
Alcohol (65/47)	56.0	44.5	-20.5	39.5	45.6	15.4
Binge Drinking (33/21)	28.4	29.1	2.5	17.6	31.9	81.3
Marijuana (38/31)	28.8	34.9	21.2	23.5	34.1	45.1
Inhalant lifetime use (44/46)	31.0	23.0	-25.8	32.6	33.1	1.5

<sup>a</sup> Dichotomous substance use variable (yes or no).

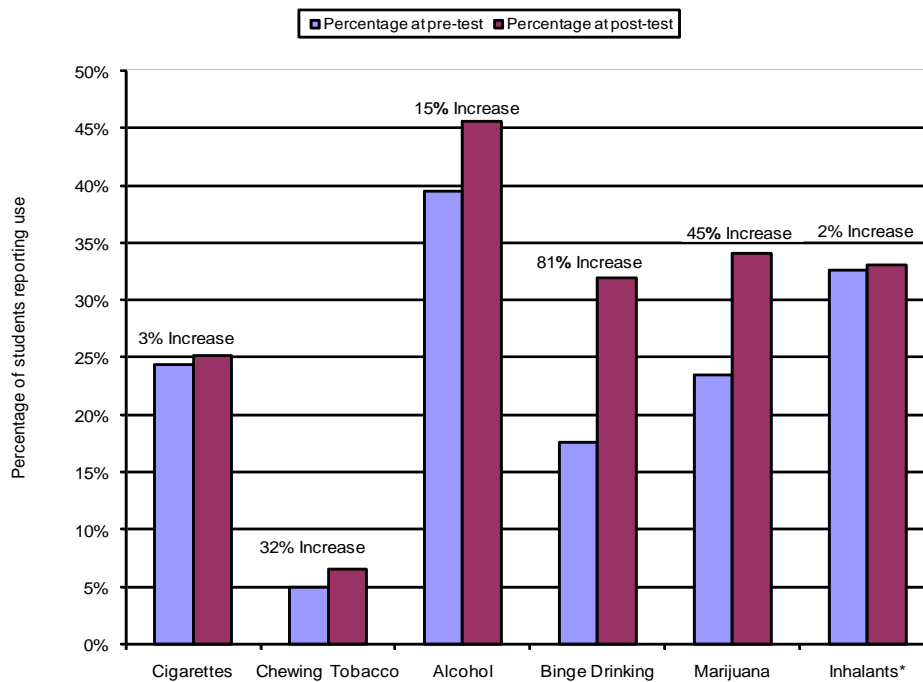
\*p<.05, \*\*p<.01, \*\*\*p<.001.

**Figure 28:** Percent of male middle school Hispanic SFS program participants reporting substance use at posttest among only program participants reporting substance use at pretest



\*Inhalant lifetime use.

**Figure 29:** Percent of female middle school Hispanic SFS program participants reporting substance use at posttest among only program participants reporting substance use at pretest



\*Inhalant lifetime use.

*Middle School SFS Hispanic Subpopulation Compared with Middle School YRRS Hispanic Subpopulation*

Tobacco use (Hispanic students, grades 6<sup>th</sup>-8<sup>th</sup>)

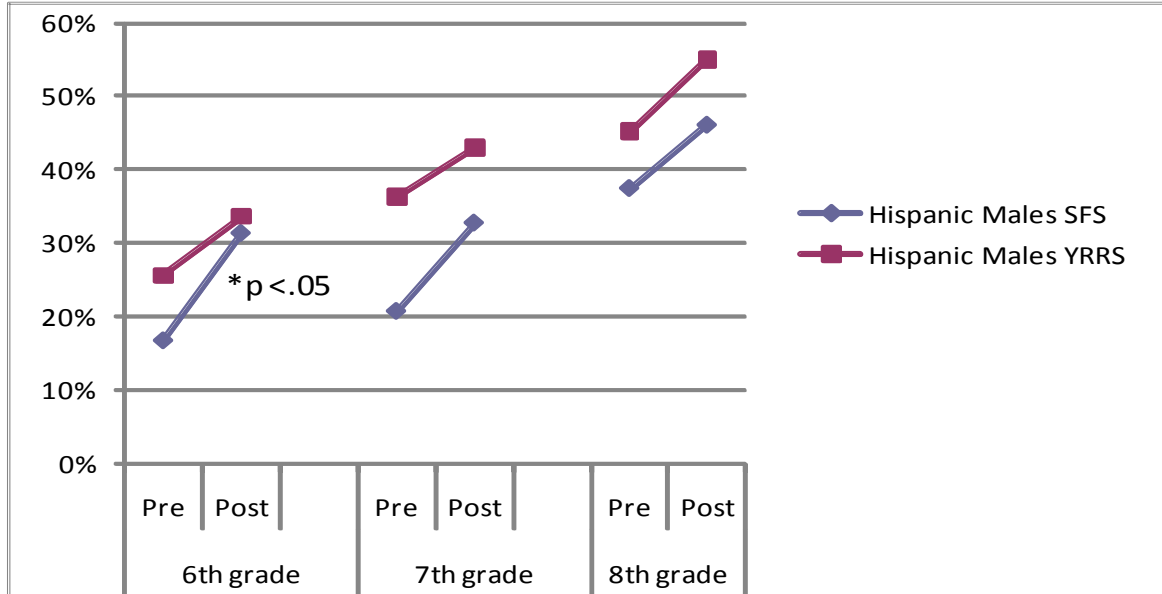
In this section, we compare the prevalence of ATOD use among male and female Hispanic Middle school students in OSAP funded prevention programming and male and female Hispanic middle school students in the NM YRRS sample, which is weighted to reflect the typical student Hispanic middle school student. As we know from the results presented above, both males and females generally increased their ATOD use. Yet, it helps to see if these increases are also occurring among a representative sample of Hispanic middle school students and if the increases are relatively similar or differ in how steep the increase is.<sup>10</sup>

In Figure 30 below we can see that among 6<sup>th</sup> & 7<sup>th</sup> grade males, reporting having ever smoked is increasing more steeply than those in the YRRS sample. Among females, it is 7<sup>th</sup> & 8<sup>th</sup> grade girls who appear to increase their lifetime use more from pre- to posttest than the YRRS sample. (See Figure 31.) Although SFS participants in general report lower use overall than the average

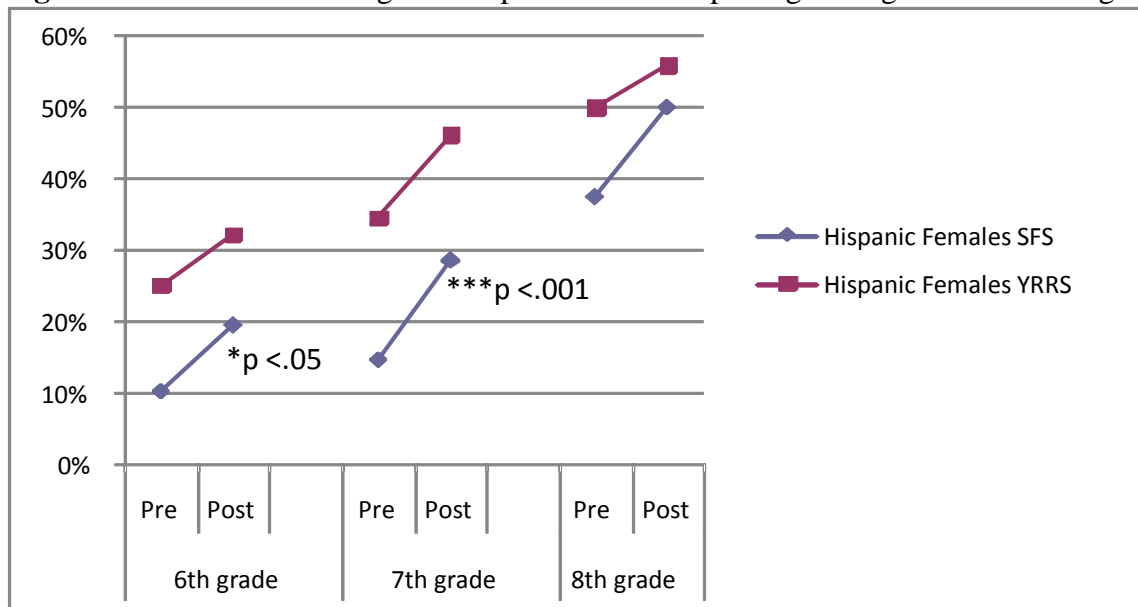
<sup>10</sup> Graphs not shown in text are available upon request.

NM student, the most important consideration in these graphs is the overall slope. Ideally, those students in prevention programming will not increase use as rapidly as the typical student.

**Figure 30:** Percent of 6<sup>th</sup>-8<sup>th</sup> grade Hispanic males reporting having ever smoked cigarettes



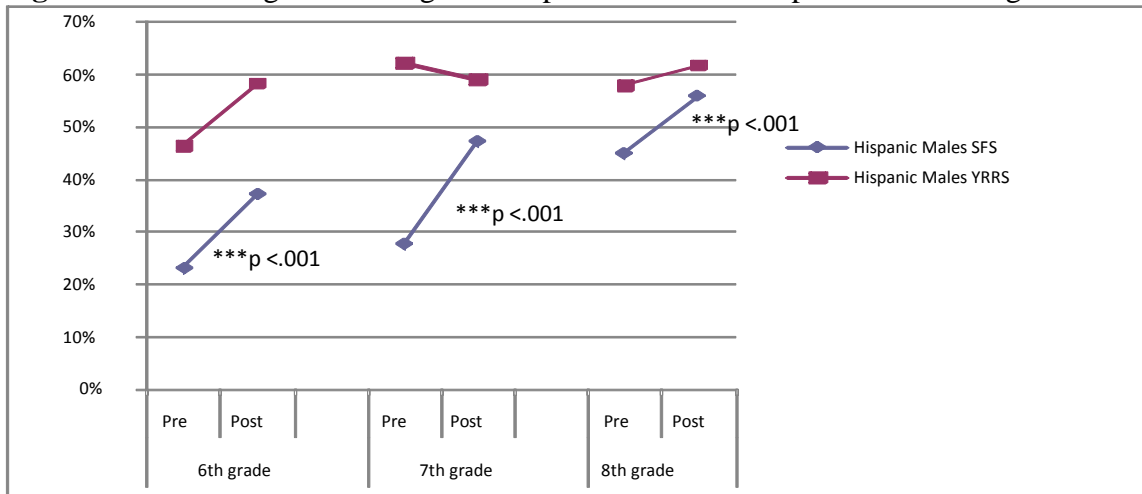
**Figure 31:** Percent of 6<sup>th</sup>-8<sup>th</sup> grade Hispanic females reporting having ever smoked cigarettes



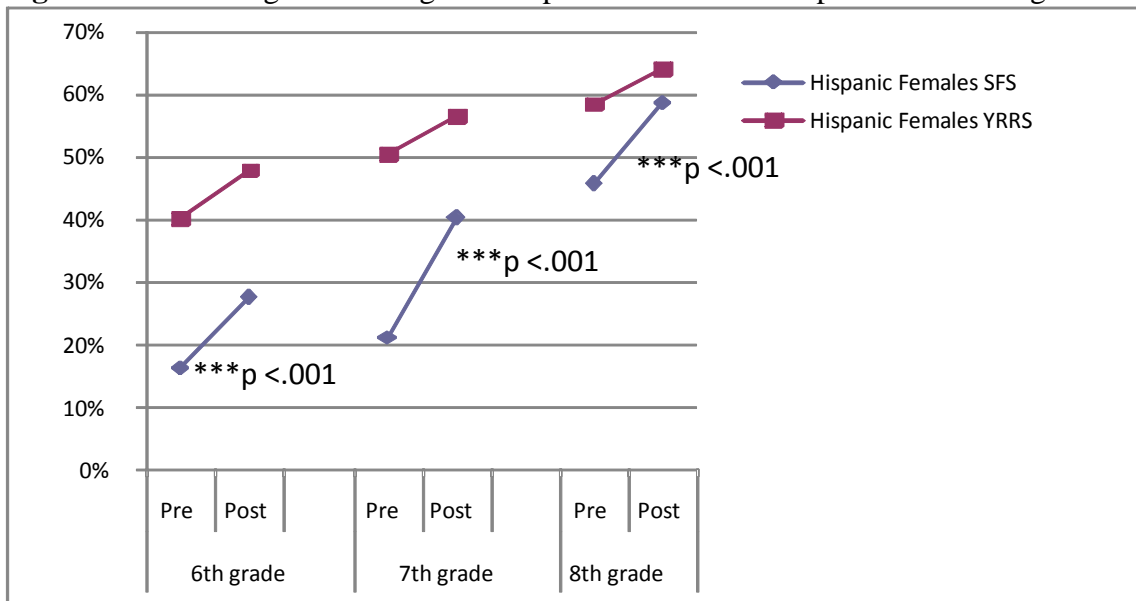
Alcohol use (Hispanic students, grades 6<sup>th</sup>-8<sup>th</sup>)

When we compare the SFS sample to the YRRS sample on ever having drunk alcohol, we can easily see that the prevalence of ever having drunk alcohol increases much more rapidly among both the male and female Hispanic SFS samples. (See Figures 32 & 33.)

**Figure 32:** Percentage of 6<sup>th</sup>-8<sup>th</sup> grade Hispanic males who report ever drinking alcohol



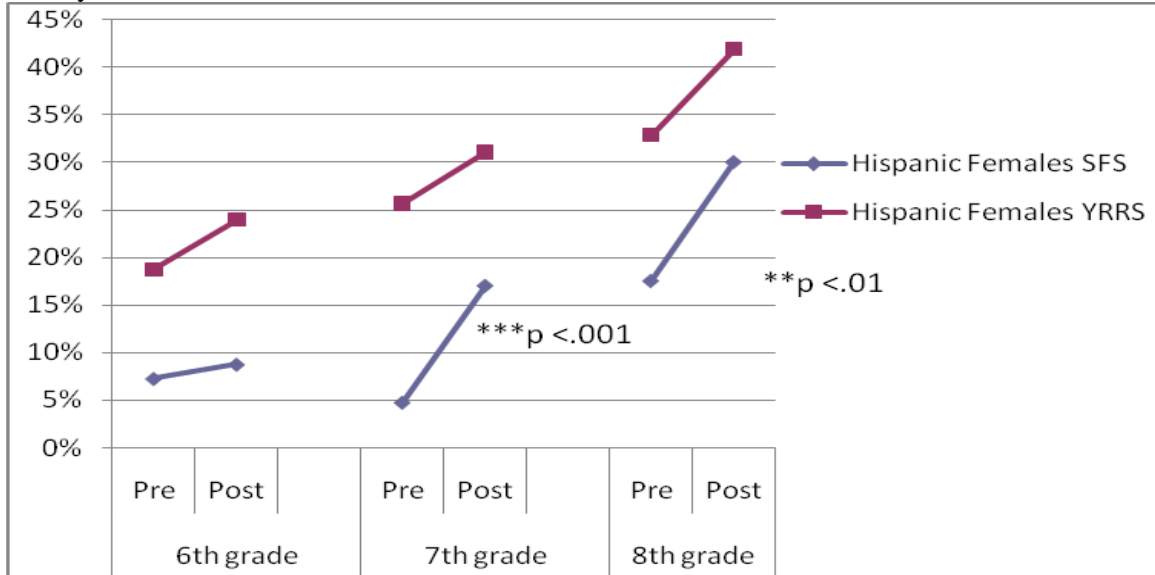
**Figure 33:** Percentage of 6<sup>th</sup>-8<sup>th</sup> grade Hispanic females who report ever drinking alcohol



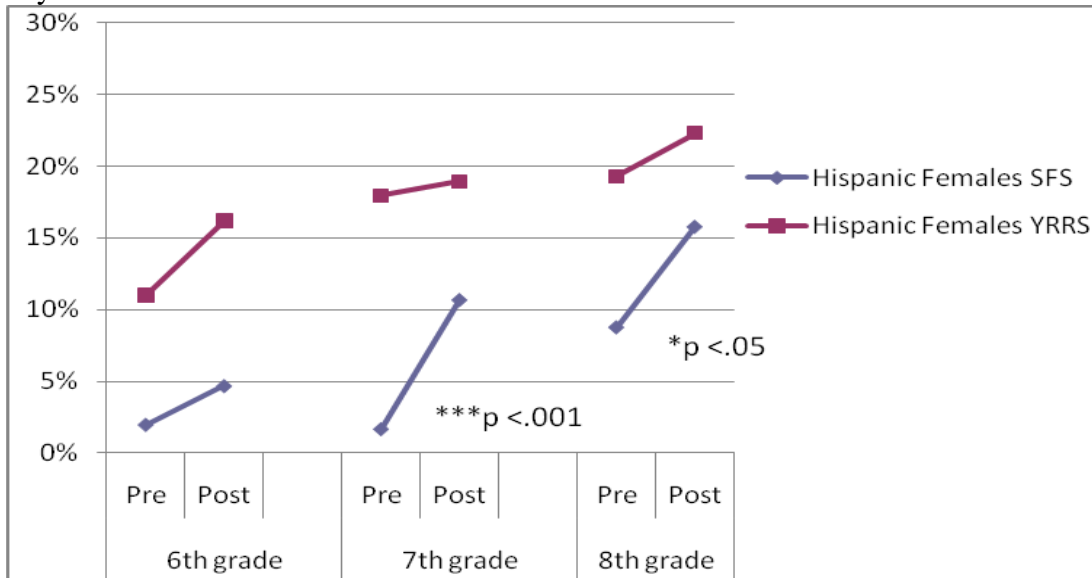
Among females, there are significant increases from pretest to posttest for past 30 day drinking and past 30 day binge drinking, but generally the increase is as steep as compared to the YRRS sample of Hispanic Middle School females. (See Figures 34 & 35.) This implies that female

Hispanic 6<sup>th</sup> & 7<sup>th</sup> grade students in the SFS prevention programs may increase their use of alcohol & binge drinking as much over the course of 9 months as the average Hispanic female middle school student.

**Figure 34:** Percentage of 6<sup>th</sup>-8<sup>th</sup> grade Hispanic females who report drinking alcohol in the past 30 days



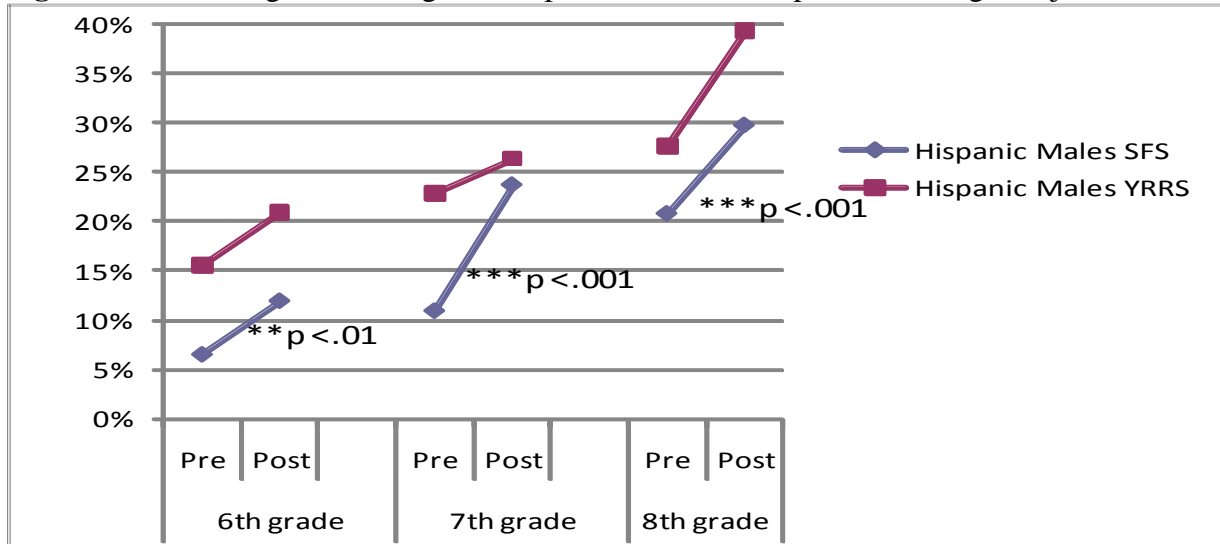
**Figure 35:** Percentage of 6<sup>th</sup>-8<sup>th</sup> grade Hispanic females who report binge drinking in the past 30 days



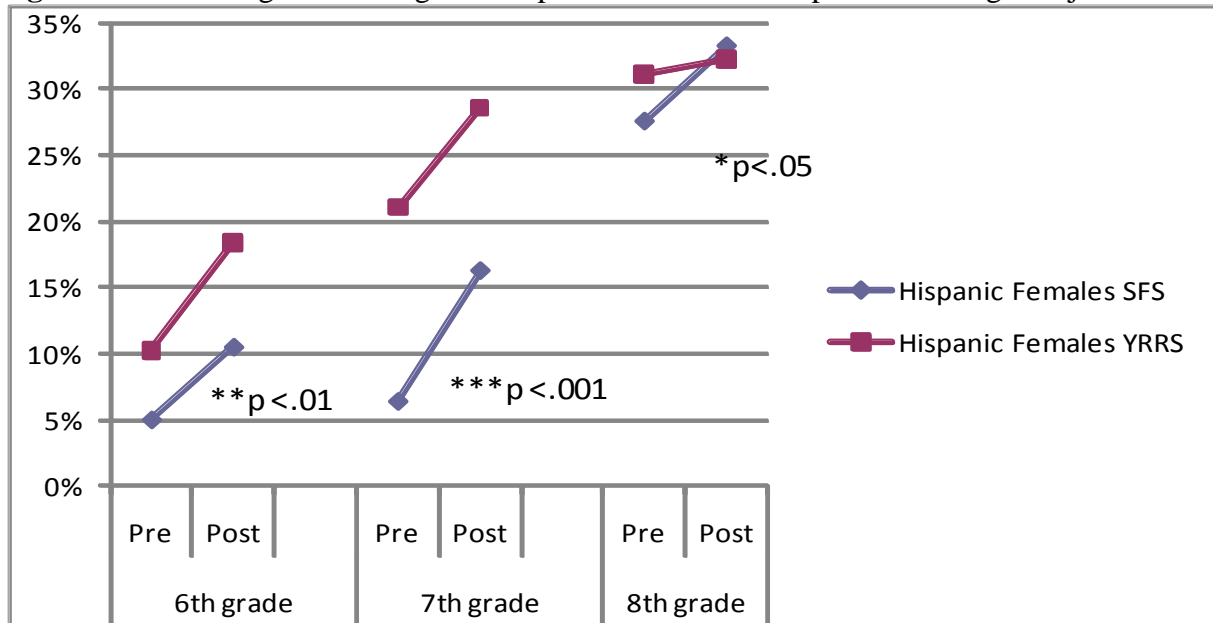
Drug use (Hispanic students, grades 6<sup>th</sup>-8<sup>th</sup>)

Among Hispanic Middle School males there are sharp increases, all statistically significant in self-reporting lifetime marijuana use. The increase among 7<sup>th</sup> graders is particularly steep when compared with the YRRS sample. The same is true for females where there are significant increases in reported lifetime marijuana use in every grade level and in 7<sup>th</sup> grade the increase among the SFS sample is greater than in the YRRS sample. (See Figures 36 & 37.)

**Figure 36:** Percentage of 6<sup>th</sup>-8<sup>th</sup> grade Hispanic males who report ever using marijuana

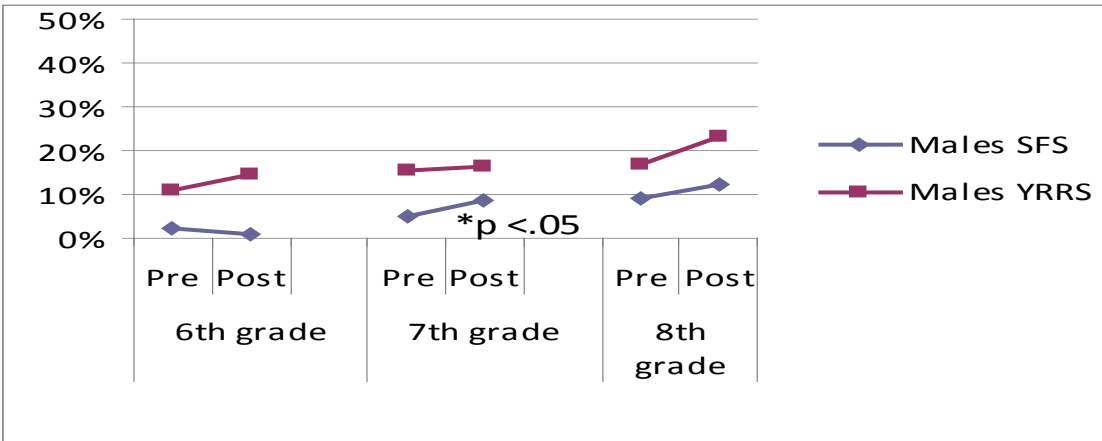


**Figure 37:** Percentage of 6<sup>th</sup>-8<sup>th</sup> grade Hispanic females who report ever using marijuana



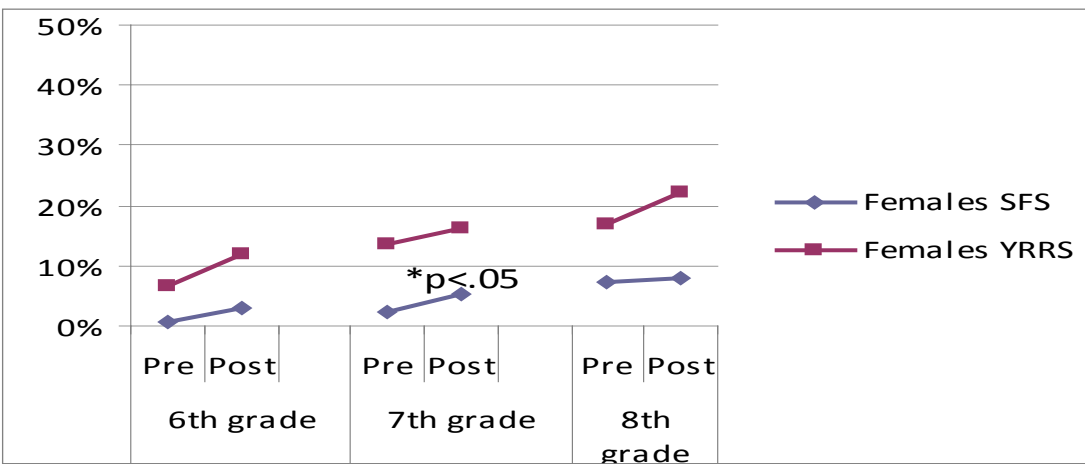
There are again increases in self-reported past 30 day marijuana use in 7<sup>th</sup> & 8<sup>th</sup> grade for males and in 6<sup>th</sup> through 8<sup>th</sup> grades for females. However, not all these increases are statistically significant nor are they generally as steep as increases among the YRRS sample. (See Figures 38 & 39.)

**Figure 38:** Percentage of 6<sup>th</sup>-8<sup>th</sup> grade Hispanic males who report using marijuana in the past 30 days



Among female Hispanic middle school students in SFS programs, 7<sup>th</sup> grade is again the grade where marijuana use increases most rapidly. (See Figure 39.)

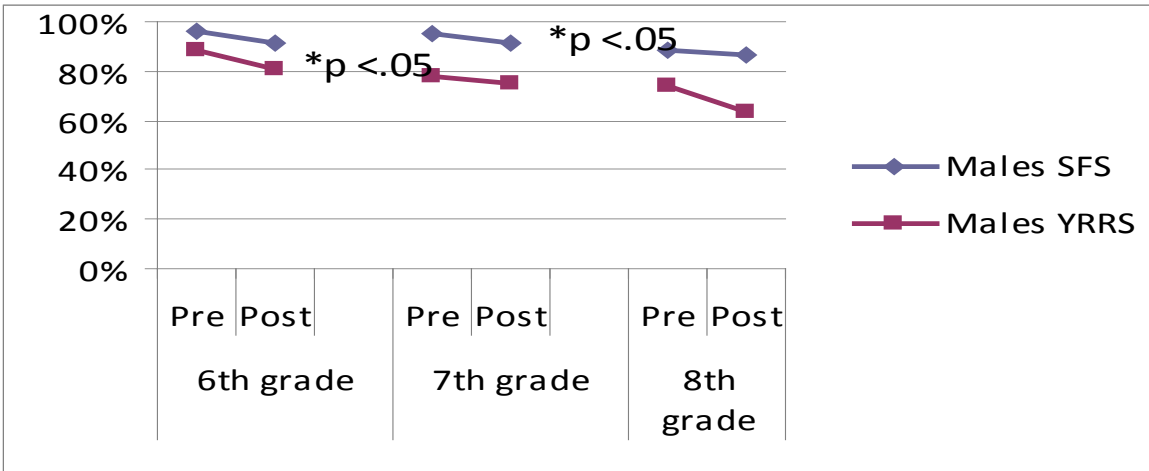
**Figure 39:** Percentage of 6<sup>th</sup>-8<sup>th</sup> grade Hispanic females who report using marijuana in the past 30 days



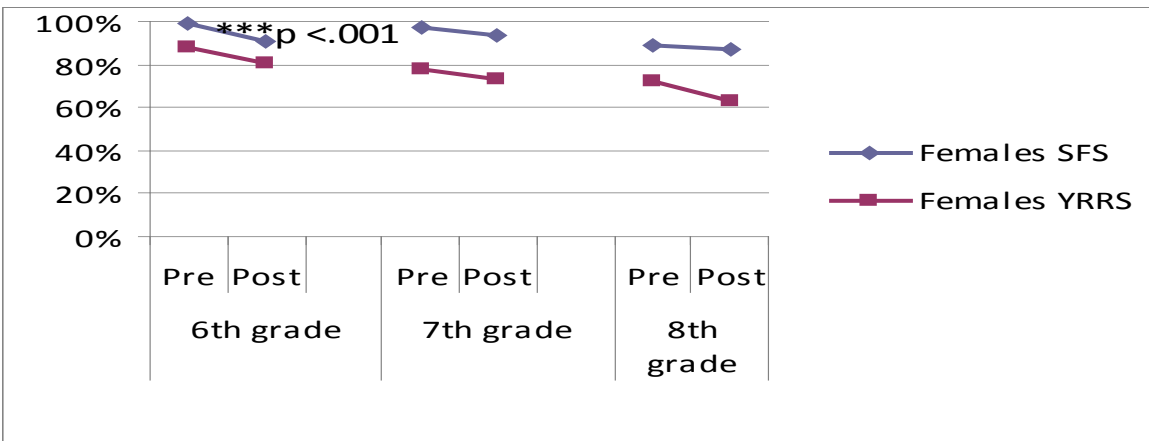
Attitudes and Norms towards ATOD use (Hispanic students, grades 6-8)

In 6<sup>th</sup> grade, almost all students believe that it is wrong or very wrong for someone his age to drink alcohol. This is true both for the SFS sample and the YRRS sample and while over time there are decreases in percentage of youth who hold this belief, by the end of 8<sup>th</sup> grade almost 90% of male and female Hispanic SFS participants still hold this belief. (See Figures 40 & 41).

**Figure 40:** Percentage of 6<sup>th</sup>-8<sup>th</sup> grade Hispanic males who report it is wrong or very wrong for someone his age to drink alcohol



**Figure 41:** Percentage of 6<sup>th</sup>-8<sup>th</sup> grade Hispanic females who report it is wrong or very wrong for someone her age to drink alcohol



*General Linear Models*

The unadjusted GLMs on Hispanic males support results obtained from the McNemar tests and the paired t-test analysis. Significant increases were found in the unadjusted model for past 30 day cigarette use, chewing tobacco use, alcohol, and marijuana use. However, in the model adjusted for the influences of grade and language spoken at home, only increases in past 30 day chewing tobacco remained statistically significant among males. (See Table 54.)

**Table 54:** Examining the effect of time from pretest substance use to the posttest substance use for male middle school Hispanic students, unadjusted and adjusted<sup>§</sup> model results

Substance (unadj n, adj n)	Unadjusted				Adjusted				Desired Outcome
	Base-line Mean	Post-test Mean	F-test & sig.	effect size <sup>a</sup>	Base-line Mean	Post-test Mean	F-test & sig.	effect size <sup>a</sup>	
Cigarettes (497/481)	0.16	0.23	6.2819*	0.013	0.16	0.23	1.926	0.004	☹
Chewing Tobacco (519/501)	0.02	0.09	12.160***	0.023	0.02	0.09	7.807**	0.015	☹
Alcohol (467/452)	0.22	0.28	4.932*	0.010	0.21	0.29	0.024	0.000	☹
Binge Drinking (468/453)	0.16	0.18	0.415	0.001	0.17	0.19	0.914	0.002	☹
Marijuana (504/488)	0.16	0.25	13.287***	0.026	0.16	0.25	1.674	0.003	☹
Any Prescription Medication Not Prescribed (492/476)	0.03	0.03	0.428	0.001	0.03	0.04	0.656	0.001	☹

<sup>§</sup> Adjusted for grade and language spoken at home.

<sup>a</sup> partial eta squared where effects are: small = .01, medium = .06, large = .14 or larger.

\*p ≤ .05, \*\*p ≤ .01, \*\*\*p ≤ .001.

Among Hispanic females in middle school, significant increases in the unadjusted model were seen for past 30 day alcohol use, binge drinking and marijuana use. After adjusting for the

effects of grade and language spoken at home, there were not significant increases in use from to post-test. (See Table 55).

**Table 55:** Examining the effect of time from pretest substance use to the posttest substance use for female middle school Hispanic students, unadjusted and adjusted model results

Substance (unadj n, adj n)	Unadjusted				Adjusted				Desired Outcome
	Base- line Mean	Post- test Mean	F-test & sig.	effect size <sup>a</sup>	Base- line Mean	Post- test Mean	F-test & sig.	effect size <sup>a</sup>	
Cigarettes (495/486)	0.11	0.16	3.3331	0.007	0.12	0.16	0.078	0.000	☹
Chewing Tobacco (517/508)	0.04	0.04	0.058	0.000	0.04	0.05	3.160	0.006	☹
Alcohol (477/469)	0.15	0.16	18.789***	0.038	0.15	0.26	1.419	0.003	☹
Binge Drinking (474/467)	0.10	0.19	12.917***	0.027	0.10	0.18	0.105	0.000	☹
Marijuana (499/490)	0.10	0.23	19.702***	0.038	0.10	0.23	1.044	0.002	☹
Any Prescription Medication Not Prescribed (481/472)	0.04	0.05	0.182	0.000	0.04	0.04	1.756	0.004	☹

<sup>§</sup> Adjusted for grade and language spoken at home.

<sup>a</sup> partial eta squared where effects are: small = .01, medium = .06, large = .14 or larger.

\*p ≤ .05, \*\*p ≤ .01, \*\*\*p ≤ .001.

Among Hispanic males, most of the measures of resiliency in the core module showed little significant change from pretest to posttest. In the unadjusted model, two measures worsened over time. Male respondents' attitudes toward alcohol use became more tolerant over time and their intention to smoke soon also increased. Luckily neither of these increased significantly after adjusting for the influence of grade and language spoken at home. (See Table 56.)

**Table 56:** Examining the effect of time from pretest scores for perception of harm, parental approval, respondent approval and intentions to smoke to posttest scores for male middle school Hispanic students, unadjusted and adjusted model results

Measure	Unadjusted				Adjusted <sup>§</sup>				Desired Outcome
	Base-line Mean	Post-test Mean	F-test & sig.	effect size <sup>a</sup>	Base-line Mean	Post-test Mean	F-test & sig.	effect size <sup>a</sup>	
Risk of Harm Scale (506/490)	2.00	1.96	0.881	0.002	2.00	1.96	3.021	0.006	➔
Parental Attitudes toward Alcohol Use (516/498)	2.62	2.57	2.047	0.004	2.64	2.59	0.527	0.001	➔
Respondent Attitudes toward Alcohol Use (515/498)	2.53	2.40	13.483***	0.026	2.54	2.41	1.397	0.003	➔
Intention to smoke a cigarette soon (446/432)	5.80	10.24	15.535***	0.034	5.99	10.27	1.797	0.004	➔
Intention to smoke a cigarette during the next year (448/434)	0.38	0.34	1.152	0.003	0.38	0.35	1.274	0.003	➔
Intention to smoke a cigarette if offered by best friend (446/432)	0.32	0.33	0.068	0.000	0.32	0.34	1.550	0.004	➔

<sup>§</sup> Adjusted for grade and language spoken at home.

<sup>a</sup> partial eta squared where effects are: small = .01, medium = .06, large = .14 or larger.

\*p ≤ .05, \*\*p ≤ .01, \*\*\*p ≤ .001.

Alternatively, the unadjusted model with Hispanic middle school females showed significant changes in undesired directions for their perception of parental attitudes towards alcohol use, their own attitude toward alcohol use, and their intention to smoke soon. In the GLM model adjusting for the effects of grade and language spoken at home on the measures, the respondent's attitude to alcohol remained significant. Respondent attitudes became more tolerant over all of youth their age drinking alcohol. However, in the adjust model, the perception of the harm associated with ATOD use increased significantly in the desired direction. (See Table 57.)

**Table 57:** Examining the effect of time from pretest scores for perception of harm, parental approval, respondent approval and intentions to smoke to posttest scores for female middle school Hispanic students, unadjusted and adjusted model results

Measure	Unadjusted				Adjusted				Desired Outcome
	Base-line Mean	Post-test Mean	F-test & sig.	effect size <sup>a</sup>	Base-line Mean	Post-test Mean	F-test & sig.	effect size <sup>a</sup>	
Risk of Harm Scale (509/499)	2.04	2.08	1.119	0.002	2.05	2.09	4.802*	0.010	↻
Parental Attitudes toward Alcohol Use (514/504)	2.72	2.68	4.139*	0.008	2.73	2.68	0.050	0.000	↻
Respondent Attitudes toward Alcohol Use (514/504)	2.61	2.43	30.450***	0.056	2.62	2.43	14.621***	0.028	↻
Intention to smoke a cigarette soon (452/443)	6.61	9.08	5.306*	0.012	6.59	9.12	0.692	0.002	↻
Intention to smoke a cigarette during the next year (453/444)	0.43	0.41	0.496	0.001	0.43	0.41	0.458	0.001	↻
Intention to smoke a cigarette if offered by best friend (452/443)	0.41	0.44	0.476	0.001	0.41	0.44	0.131	0.000	↻

<sup>§</sup> Adjusted for grade and language spoken at home.

<sup>a</sup> partial eta squared where effects are: small = .01, medium = .06, large = .14 or larger.

\*p ≤ .05, \*\*p ≤ .01, \*\*\*p ≤ .001.

## Discussion

There appears to be a large amount of experimentation occurring in the middle school Hispanic subsample both among boys and girls. This is indicated by the sharp increases in the prevalence of having ever used alcohol, tobacco and other drugs. When examining bivariate analyses, females in particular seem to be at considerable risk. Why this is the case we cannot say for sure. It may indicate that a subgroup of these young girls are spending time with older girls or boys, increasing the likelihood of their being exposed and using ATOD. Indeed, the 7<sup>th</sup> graders in this sample seem to be somewhat unique in that they seem to increase their ATOD use more rapidly than the average NM 7<sup>th</sup> grader based on comparisons with comparable YRRS samples. When the influence of grade is controlled for in the GLM models, many increases are no longer significant indicating that the grade in which a respondent is in seems to account for much of the reason for the increase.

While these results are rather alarming when taken at face value, it is very important to keep in mind that ATOD use still occurs only among a minority of students. Furthermore, when examining the GLM results for past 30 day ATOD use, keep in mind that the means should range only between 0 and 1, 0 representing those who did not report use, and 1 for those who did. A value of .5 would indicate half of the sample answered positively. Most means however, fall well below .5 and none are greater than .30. For the models examining the protective factors, average responses also fall very near to the most desired response. Although it's been discussed before in this report, it is important to acknowledge once again that we are most likely seeing the result of floor and ceiling effects. Certainly that is not always the case, but it should be kept in mind. In addition the large sample size lends increased power to detect small changes. These changes, although statistically significant, may not necessarily be meaningful changes from a behavioral point of view.

Local programs should give serious thought to whether there is a unique characteristic among their sample (7<sup>th</sup> graders, now 8<sup>th</sup> graders, in particular). Furthermore, thought should be given as to why the females seem to show such strong increases in the prevalence of drinking, binge drinking, marijuana use, and inhalant use. Examining what is going on these girls lives and who they are spending time with will be important in attempting to understand what is influencing their behavior.

## Results for Hispanic High School Participants

Program participation among Hispanic high school students was a little more than half that of middle school- aged participants with 581 survey respondents. The average age of male respondents was 14.9 years and the average age of female respondents was 14.8 years. Distribution by gender was nearly equal at 50%. Approximately 80% of male respondents were in ninth grade compared to 72% of their female peers. For both males and females, about 10% of program participants were in the 10<sup>th</sup> grade, but there were fewer males in both the 11<sup>th</sup> and 12<sup>th</sup> grade. A primary language other than English was spoken in 37.6% of male homes and 41.0% of female homes. (See Table 58.)

**Table 58:** Demographics for high school Hispanic SFS program participants (n=581)

Demographic	% SFS Program Participants	% SFS Program Participants
Grade <sup>a</sup>	Male (289)	Female (290)
9 <sup>th</sup> grade	79.1	72.0
10 <sup>th</sup> grade	10.1	10.4
11 <sup>th</sup> grade	3.8	6.9
12 <sup>th</sup> grade	7.0	10.4
Language Other than English Spoken Most Often <sup>b</sup>	37.6	41.0

<sup>a</sup> Two Hispanic SFS program participants were missing data for biological sex.

<sup>b</sup> Dichotomous variable (yes or no) capturing the percentage of youth living in homes where English is not the primary language.

Hispanic high school males and females generally increased their ATOD use from pretest to posttest, although none of the increases were statistically significant. (See Table 59.) A couple of exceptions were that females decreased their tobacco use slightly and their alcohol use and binge drinking very slightly. Moreover, while these decreases are minimal, there were two large increases in the prevalence for females for past 30 day marijuana use and lifetime inhalant use. Again, none were statistically significant meaning these differences are could be attributed to chance.

When prescription drug use was examined, both males and females demonstrated significant increases. For males, the reported use of prescription pain pills not prescribed doubled from 6.4% to 12.8%. The measure of general prescription medicine question also increased significantly among Hispanic high school males. Females increased their “other” prescription medication use significantly, again essentially doubling the prevalence. We do not know that other medications these young women may be referring to and it would make sense to collection some additional qualitative interviews with high school women about their interpretation of the question and meaning of their responses. If there is indeed another drug of choice for young women, it would be important to be aware of that. (See Table 60.)

**Table 59:** Past 30-day ATOD use<sup>a</sup> differences from pretest to posttest for high school Hispanic SFS program participants

Substance (pre n, post n)	% Pretest	% Posttest	McNemar's Test	% Pretest	% Posttest	McNemar's Test
	Male			Female		
Cigarettes (539/542)	23.8	27.8	1.620 <sup>c</sup>	18.2	17.4	0.214 <sup>b</sup>
Chewing Tobacco (575/579)	3.8	10.4	8.500	1.0	0.7	1.000 <sup>b</sup>
Alcohol (576/576)	28.9	31.4	1.049 <sup>c</sup>	33.7	33.0	0.015 <sup>c</sup>
Binge Drinking (572/574)	18.1	20.8	1.167 <sup>c</sup>	15.4	15.1	0.000
Marijuana (575/578)	23.0	29.2	4.817	21.9	29.3	7.521 <sup>c</sup>
Inhalant lifetime use (569/553)	4.9	9.1	3.704 <sup>c</sup>	1.0	6.8	0.001 <sup>b</sup>

<sup>a</sup> Dichotomous substance use variable (yes or no).

<sup>b</sup> Binomial distribution used, exact significance provided.

<sup>c</sup>Continuity corrected.

\*p≤.05, \*\*p≤.01, \*\*\*p≤.001.

**Table 60:** Past 30-day prescription drug use<sup>a</sup>, differences from pretest to posttest for middle school Hispanic SFS program participants

Substance (pre n, post n)	% Pretest	% Posttest	McNemar Test	% Pretest	% Posttest	McNemar Test
	Male			Female		
Any prescription medication not prescribed (530/498)	10.5	14.7	5.297*	8.8	12.6	3.361
Any prescription pain pills not prescribed (565/546)	6.4	12.8	10.256***	4.6	5.9	0.607 <sup>b</sup>
Any Ritalin, Adderal, or Prozac not prescribed (525/512)	2.8	3.2	0.453 <sup>b</sup>	1.1	0.8	1.000 <sup>b</sup>
Any pres sleep aids or tranquilizers not prescribed (525/510)	4.7	5.3	0.388 <sup>b</sup>	2.6	4.9	0.210 <sup>b</sup>
Any other medications not prescribed (523/510)	6.8	8.9	1.885	4.8	10.6	9.481**

<sup>a</sup> Dichotomous substance use variable (yes or no).

<sup>b</sup> Binomial distribution used, exact significance provided.

\*p≤.05, \*\*p≤.01, \*\*\*p≤.001.

If we examine only those SES respondents who reported substance use at pre-test, we can compare the reported average frequency of use at pretest to the average reported frequency at posttest. Ideally, the frequency of use will decline from pretest to posttest, however, the frequency measure is a crude measure and changes in frequency typically need to be fairly large to see changes on the scale. Among high school participants who reported use in individual drug categories at baseline, there are significant decreases for males in chewing tobacco, alcohol use, marijuana and inhalant use. Similarly, high school females showed decreases in cigarette, alcohol, binge drinking and marijuana use. (See Table 61.)

**Table 61:** Frequency of ATOD use<sup>a</sup>, differences from pretest to posttest among high school Hispanic SFS program participants reporting use in each individual category at baseline

Substance (Respondents reporting use at baseline, male n & female n)	Pre-test Mean	Post-test Mean	t-value	Pre-test Mean	Post-test Mean	t-value	Desired Outcome
	Male			Female			
Cigarettes (63/50)	3.02	2.90	0.405	2.66	1.86	3.092**	⬇️
Chewing tobacco (11/3)	1.73	0.82	4.303**	1.00	0.00	NA <sup>b</sup>	⬇️
Alcohol (81/96)	1.86	1.44	2.674**	1.53	0.99	5.520***	⬇️
Binge drinking (52/44)	2.21	1.77	1.486	1.82	0.77	7.198***	⬇️
Marijuana (66/63)	2.85	2.24	2.492*	2.22	1.89	2.043*	⬇️
Inhalant lifetime use (14/3)	1.43	0.64	2.797*	1.00	0.00	NA <sup>b</sup>	⬇️

<sup>a</sup>0=0 times, 1=1 or 2 times, 2=3 to 9 times, 3=10 to 19 times, 4=20 to 39 times, 5=40 or more times.

<sup>b</sup> T-test was not conducted because the standard error of the mean difference is zero.

\*p ≤ .05, \*\*p ≤ .01, \*\*\*p ≤ .001.

Again looking only at respondents who reported any ATOD use at pretest, Table 62 below shows whether the prevalence increases or decreases. Among males there were decreases in the prevalence of cigarette use and in binge drinking, however, there were dramatic increases in the use of chewing tobacco, alcohol use and inhalant use. Among Hispanic high school females there were decreases in the prevalence of all substances with the exception of one. Inhalant use increased from less than 1% to almost 10%. Figures 42 and 43 following the table graphically display these changes.

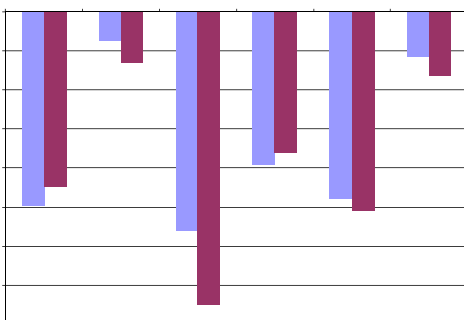
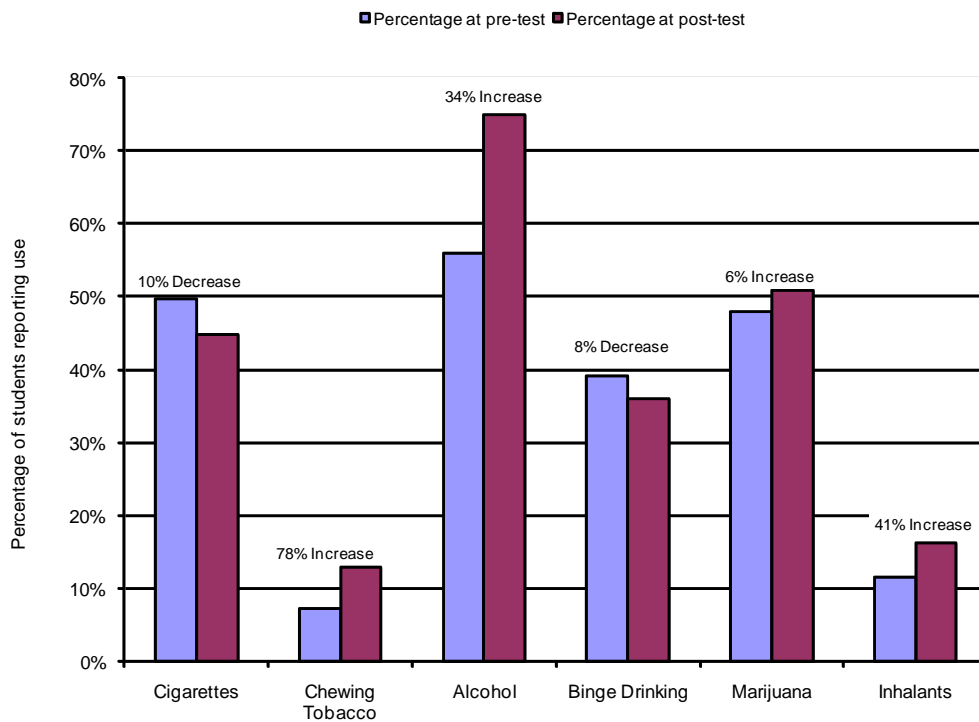
**Table 62:** Past 30-day ATOD use<sup>a</sup> at posttest among those program participants reporting ATOD use at pretest

Substance (Respondents reporting use at baseline, male n & female n)	% Pretest	% Posttest	% Change	% Pretest	% Posttest	% Change
	Male			Female		
Cigarettes (125/120)	49.6	44.8	-9.7	40.8	30.8	-24.5
Chewing Tobacco (125/120)	7.2	12.8	77.8	2.5	1.7	-32.0
Alcohol (125/120)	56.0	75.0	33.9	54.5	52.5	-3.7
Binge Drinking (125/120)	39.2	36.0	-8.2	35.0	28.3	-19.1
Marijuana (125/120)	48.0	50.8	5.8	48.3	43.3	-10.4
Inhalant ever use (122/118)	11.5	16.2	40.9	.8	9.9	1137.5

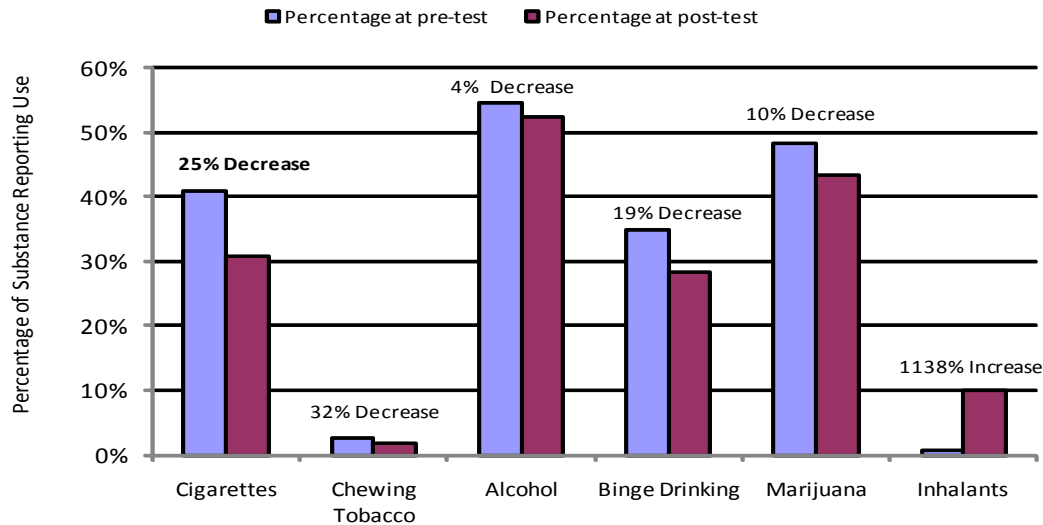
<sup>a</sup> Dichotomous substance use variable (yes or no).

\*p<.05, \*\*p<.01, \*\*\*p<.001.

**Figure 42:** Percent of male high school Hispanic SFS program participants reporting substance use at posttest among only program participants reporting substance use at pretest



**Figure 43:** Percent of female high school Hispanic SFS program participants reporting substance use at posttest among only program participants reporting substance use at pretest



*High School SFS Hispanic Subpopulation Compared with High School YRRS Hispanic Subpopulation*

Comparisons of SFS and YRRS ATOD use are not available this year due to the disproportionate number of Hispanic SFS program participants concentrated in the 9<sup>th</sup> grade. There were too few SFS respondents in grades 10 through 12 to graph. There is some comparison on 9<sup>th</sup> grade SFS and YRRS data in the discussion section.

*Results from General Linear Models*

For Hispanic high school males, the unadjusted GLM revealed significant effects of time on past 30 day cigarette use, chewing tobacco use, and methamphetamine use. Prevalence of use increased for all over the course of the prevention program. In the model that adjusted for the influence of grade and language spoken at home, significant effects of time were found for cigarette use, cocaine, and heroin. It is however very important to note that the actual prevalence of males who reported cocaine and heroin use was extremely low. On the other hand, cigarette use, alcohol, binge drinking and marijuana use were among the highest prevalence. (See Table 63.)

Table 63: Examining the effect of time from pretest substance use to posttest substance use for Hispanic high school males, unadjusted and adjusted<sup>a</sup> model results

Substance (unadj n, adj n)	Unadjusted				Adjusted				Desired Outcome
	Base-line Mean	Post-test Mean	F-test & sig. <sup>b</sup>	effect size <sup>c</sup>	Base-line Mean	Post-test Mean	F-test & sig. <sup>a</sup>	effect size <sup>b</sup>	
Cigarettes (265/262)	0.72	0.94	7.108**	0.026	0.71	0.92	6.342*	0.024	☺
Chewing Tobacco (287/283)	0.07	0.18	10.315** *	0.035	0.07	0.18	1.013	0.004	☺
Alcohol (285/281)	0.53	0.61	1.913	0.007	0.54	0.62	0.833	0.003	☺
Binge Drinking (287/283)	0.40	0.49	1.594	0.006	0.41	0.49	0.048	0.000	☺
Marijuana (286/282)	0.66	0.78	2.638	0.009	0.67	0.79	0.166	0.001	☺
Cocaine (287/283)	0.03	0.06	1.820	0.006	0.03	0.06	6.099*	0.021	☺
Inhalants (274/270)	0.07	0.11	2.092	0.008	0.07	0.11	1.147	0.004	☺
Heroin (275/271)	0.01	0.01	0.077	0.000	0.01	0.01	4.539*	0.017	☺
Methamphetamine (274/270)	0.00	0.02	6.112*	0.022	0.00	0.02	1.530	0.006	☺
Ecstasy (275/271)	0.08	0.10	0.308	0.001	0.08	0.10	1.386	0.005	☺
Any Prescription Medication Not Prescribed (272/269)	0.14	0.20	5.890*	0.021	0.14	0.20	3.623	0.013	☺

<sup>a</sup>Model adjusted for grade and English as a primary language at home.

<sup>b</sup>Exact statistic.

<sup>c</sup>Partial eta squared where effects are: small = .01, medium = .06, large = .14 or larger.

\*p ≤ .05, \*\*p ≤ .01, \*\*\*p ≤ .001.

Among Hispanic high school females (see Table 64), there was a significant increase in past 30 day marijuana use and lifetime inhalant use. In the model adjusting for grade and language spoken at home, there was a significant effect of time such that over the course of the prevention program, cigarette use increased slight and marijuana use increased. Both were statistically significant increases. Females reported the highest prevalence of use with cigarettes, alcohol,

binge drinking, and marijuana use. At posttest, the highest prevalence of any substance was marijuana.

**Table 64:** Examining the effect of time from pretest substance use to posttest substance use for Hispanic high school females, unadjusted and adjusted<sup>a</sup> model results

Substance (unadj n, adj n)	Unadjusted				Adjusted				Desired Outcome
	Base-line Mean	Post-test Mean	F-test & sig. <sup>b</sup>	effect size <sup>c</sup>	Base-line Mean	Post-test Mean	F-test & sig. <sup>b</sup>	effect size <sup>c</sup>	
Cigarettes (274/272)	0.49	0.48	0.003	0.000	0.47	0.49	5.240*	0.011	☹
Chewing Tobacco (288/286)	0.01	0.01	0.199	0.001	0.01	0.01	3.551	0.012	☹
Alcohol (285/283)	0.52	0.48	0.447	0.002	0.52	0.49	0.336	0.001	☹
Binge Drinking (285/283)	0.28	0.25	0.640	0.002	0.28	0.25	0.044	0.000	☹
Marijuana (288/286)	0.49	0.60	4.587*	0.016	0.48	0.60	5.598*	0.019	☹
Cocaine (290/288)	0.07	0.04	1.196	0.004	0.07	0.04	0.493	0.002	☹
Inhalants (276/274)	0.01	0.08	12.034***	0.042	0.01	0.08	2.618	0.010	☹
Heroin (276/274)	0.01	0.02	0.692	0.003	0.01	0.02	0.278	0.001	☹
Meth-amphetamines (276/274)	0.00	0.00	1.000	0.004	0.00	0.00	0.396	0.001	☹
Ecstasy (274/272)	0.06	0.05	0.153	0.001	0.06	0.05	0.834	0.003	☹
Any Prescription Medication Not Prescribed (260/258)	0.11	0.15	2.284	0.009	0.11	0.15	0.594	0.002	☹

<sup>a</sup>Model adjusted for grade and English as a primary language at home.

<sup>b</sup>Exact statistic.

<sup>c</sup>Partial eta squared where effects are: small = .01, medium = .06, large = .14 or larger.

\*p ≤ .05, \*\*p ≤ .01, \*\*\*p ≤ .001.

The 2010 survey instrument for high school students included two scales: (1) the Risk of Harm Scale and (2) the Peer Use Scale. Both scales had high reliability (>0.80) but the unintended increase in the Risk of Harm Scale mean scores was only statistically significant for the unadjusted model among males. Conversely, the unintended increase on the Peer Use Scale

remained after adjusting the model. One explanation for this result might be that program participants are part of a high-risk population and thus their peers are more likely to use substances to begin with. (See Table 65.)

**Table 65:** Examining the effect of time from pretest scores for perception of harm and peer use scales to posttest scores for Hispanic high school males, unadjusted and adjusted<sup>a</sup> model results

Unadjusted								
Measure (unadj n, adj n)	Scale Range	Cronbach's $\alpha$	Base-line Mean	Cronbach's $\alpha$	Posttest Mean	F-test & sig.	effect size <sup>b</sup>	Desired Outcome
Risk of Harm Scale (285/281)	0-3	0.864	1.89	0.871	1.75	6.627*	0.023	⬇️
Peer Use Scale (273/269)	0-3	0.846	0.95	0.842	1.09	5.962*	0.021	⬇️
Adjusted								
Measure (unadj n, adj n)	Scale Range	Cronbach's $\alpha$	Base-line Mean	Cronbach's $\alpha$	Posttest Mean	F-test & sig.	effect size <sup>b</sup>	Desired Outcome
Risk of Harm Scale (285/281)	0-3	0.864	1.88	0.871	1.75	1.392	0.005	⬇️
Peer Use Scale (273/269)	0-3	0.846	0.94	0.842	1.09	7.188**	0.026	⬇️

<sup>a</sup>Model adjusted for grade and English as a primary language at home.

<sup>b</sup>partial eta squared where effects are: small = .01, medium = .06, large = .14 or larger.

\*p ≤ .05, \*\*p ≤ .01, \*\*\*p ≤ .001.

Both scales also had strong reliability with the female population ( $\alpha > 0.75$ ). Nonetheless, a slight decrease on the Risk of Harm Scale was observed and the finding was statistically significant for both models. The slight decrease for the Peer Use Scale was not statistically significant for females. Interestingly, female peer use was actually higher at pre-test than for males. (See Table 66.)

**Table 66:** Examining the effect of time from pretest scores for perception of harm and peer use scales to posttest scores for Hispanic high school females, unadjusted and adjusted<sup>a</sup> model results

Unadjusted								
Measure (unadj n, adj n)	Scale Range	Cronbach's $\alpha$	Base-line Mean	Cronbach's $\alpha$	Posttest Mean	F-test & sig.	effect size <sup>b</sup>	Desired Outcome
Risk of Harm Scale (288/286)	0-3	0.872	2.12	0.878	2.01	5.451*	0.019	↻
Peer Use Scale (275/273)	0-3	0.831	1.18	0.774	1.07	3.565	0.013	↻
Adjusted								
Measure (unadj n, adj n)	Scale Range	Cronbach's $\alpha$	Base-line Mean	Cronbach's $\alpha$	Posttest Mean	F-test & sig.	effect size <sup>b</sup>	Desired Outcome
Risk of Harm Scale (288/286)	0-3	0.872	2.12	0.878	2.00	4.411*	0.015	↻
Peer Use Scale (275/273)	0-3	0.831	1.18	0.774	1.07	0.877	0.003	↻

<sup>a</sup> Model adjusted for grade and English as a primary language at home.

<sup>b</sup> partial eta squared where effects are: small = .01, medium = .06, large = .14 or larger.

\*p ≤ .05, \*\*p ≤ .01, \*\*\*p ≤ .001.

Additional measures were gathered on the high school SFS survey including riding in a car with someone who had been drinking and drinking and driving. In addition, questions on the respondents' perceptions of what their parent's attitudes towards drinking were and their own attitudes towards alcohol use were asked. In Table 67 below, Hispanic high school males increased their prevalence if having ridden in a car with someone who had been drinking. This change was statistically significant in the unadjusted model although not in the adjusted. The respondents' perceptions of what their parents felt about them drinking alcohol decreased and became more lenient as did their own attitudes towards alcohol use. Indeed given that over 60% of males reported drinking in the past 30 days at posttest, it makes sense that their own feelings about drinking would change to reflect their behavior.

**Table 67:** Examining the effect of time from pretest scores for riding in a car driven by someone who had been drinking alcohol, driving a car after drinking alcohol, parental attitudes toward alcohol use and respondent attitudes toward alcohol use to posttest scores for Hispanic high school males, unadjusted and adjusted<sup>a</sup> model results

Measure (unadj n, adj n)	Unadjusted				Adjusted				Desired Outcome
	Base-line Mean	Post-test Mean	F-test & sig.	effect size <sup>b</sup>	Base-line Mean	Post-test Mean	F-test & sig.	effect size <sup>a</sup>	
Rode in car driven by someone who had been drinking alcohol (287/283)	0.51	0.38	5.085*	0.017	0.52	0.37	0.098	0.000	⬇️
Drove car after drinking alcohol (283/279)	0.16	0.18	0.237	0.001	0.16	0.18	1.504	0.005	⬇️
Parental Attitudes toward Alcohol Use (286/282)	2.47	2.35	6.410*	0.022	2.48	2.34	3.426	0.012	⬆️
Respondent Attitudes toward Alcohol Use (286/283)	2.07	1.84	13.804***	0.046	2.06	1.84	4.546*	0.016	⬆️

<sup>a</sup>Model adjusted for grade and English as a primary language at home.

<sup>b</sup>partial eta squared where effects are: small = .01, medium = .06, large = .14 or larger.

\*p ≤ .05, \*\*p ≤ .01, \*\*\*p ≤ .001.

Hispanic high school females on the other reported decreases in riding in a car with a driver who had been drinking and driving after drinking. Their own attitudes towards alcohol use increased meaning they became more restrictive. None of the changes for females were statistically significant unfortunately. It is interesting that the prevalence of alcohol use and binge drinking for females decreased from pre to posttest (although not significantly), while marijuana use increased. The attitudes toward alcohol use reflects that decrease but if the same question had been asked about marijuana use, it would have been very interesting to see how responses changed. (See Table 68.)

**Table 68:** Examining the effect of time from pretest scores for riding in a car driven by someone who had been drinking alcohol, driving a car after drinking alcohol, parental attitudes toward alcohol use and respondent attitudes toward alcohol use to posttest scores for middle school females, unadjusted and adjusted<sup>a</sup> model results

Measure (unadj n, adj n)	Unadjusted				Adjusted				Desired Outcome
	Base-line Mean	Post-test Mean	F-test & sig.	effect size <sup>b</sup>	Base-line Mean	Post-test Mean	F-test & sig.	effect size <sup>a</sup>	
Rode in car driven by someone who had been drinking alcohol (286/284)	0.45	0.36	2.908	0.010	0.45	0.36	0.035	0.000	⬇️
Drove car after drinking alcohol (289/287)	0.12	0.07	3.225	0.011	0.13	0.07	3.609	0.013	⬇️
Parental Attitudes toward Alcohol Use (284/282)	2.49	2.47	0.061	0.000	2.49	2.47	0.050	0.000	↔️
Respondent Attitudes toward Alcohol Use (285/283)	2.01	2.07	1.250	0.004	2.00	2.07	0.117	0.000	↔️

<sup>a</sup>Model adjusted for grade and English as a primary language at home.

<sup>b</sup>partial eta squared where effects are: small = .01, medium = .06, large = .14 or larger.

\*p ≤ .05, \*\*p ≤ .01, \*\*\*p ≤ .001.

## Discussion

Hispanic high school students report a high prevalence of ATOD use at pretest, particularly for cigarettes, alcohol, binge drinking and marijuana use. This is true for both male and female Hispanic high school students. Lifetime inhalant use was actually lower among high school students than among middle school student sample. Prescription drug use also increased over the course of the prevention program. However, when we examine the GLMs that control for biological sex, Hispanic ethnicity, grade, and language spoken at home, we can see that for males, the significant increases that could be attributed to time are for cigarette use, cocaine, and heroin use. Past 30 day cigarette use is quite common in the male sample, however, cocaine and heroin use are very rare. Means for ATOD use listed in the GLM tables can range between 0 (no one reported any use) to 1 (everyone reported use). Means for cocaine and heroin are almost 0. Moreover, the effect sizes are small for all significant associations, indicating that it is not likely that time has a strong effect on use but rather there is an unmeasured variable (or variables) that have a far greater effect on increased use. This may be something as simple as friends', siblings', or parents' use of these drugs. Alternatively, among Hispanic high school females, the significant increases that remained in the adjusted model included past 30 day cigarette use and marijuana use, both of which have pretest means close to .50 meaning there is considerable use of these two substances among females. However, again the actual effect size of time is small. So while, there is a significant change over time and due in part to the change in time, there are

other unmeasured factors that are contributing to these increases. Prevention programs should consider conducting interviews and/or focus groups to try to get at what might be qualitatively different from pre to posttest and that may be causing increases in use. The SFS does not measure these other factors, but if known, it is possible that items could be added to measure them. Unfortunately, not having sufficient data to really compare to YRRS data changes, hinders direct comparisons with a control group. However, since 9<sup>th</sup> graders make up the majority of the this SFS high school sample and therefore, contribute the most power to the models, if we look at 9<sup>th</sup> graders in the YRRS sample, some basic comparisons can be made. For example, Hispanic males in the YRRS sample report similar cigarette use as the SFS sample and females report lower use. However, 9<sup>th</sup> grade females prevalence decreases similarly to the decrease in prevalence for SFS females. (Refer back to Table 59 for the average prevalence.) As with the SFS males, past 30 day chewing tobacco also increases among YRRS 9<sup>th</sup> grade males, as do essentially all other substances assessed in the YRRS. Furthermore, similar to most other comparisons with the YRRS samples, the SFS high school respondents typically report somewhat less use than the YRRS sample but not

Finally, because past 30 day ATOD use is relatively common among high school students, it may be worthwhile to consider if the prevention programs being used are appropriate for this age group. If approximately 30% of the sample (made up of predominantly 9<sup>th</sup> graders) is reporting past 30 day alcohol and marijuana use, it may be that programs geared towards helping those who do use to stop using are more appropriate.

### **Results for Native American Middle School Participants**

Surveys were completed by 384 middle school Native American program participants. Slightly more of the respondents were male (50.7%) than female (49.3%) and the average age was 12.9 years old for males and 12.8 years old for females. More than half (68.0% of males and 61.4% of females) of the participants were in the seventh grade. Similar to their Hispanic peers, more than half of Native American students (52.3% of males and 55.0% of females) lived in homes where a language other than English was spoken. (See Table 69.)

**Table 69:** Demographics for Native American middle school SFS program participants (n=384)

Demographic	% SFS Program Participants	% SFS Program Participants
Grade	Male (n=194)	Female (n=189)
6 <sup>th</sup> grade	7.5	13.6
7 <sup>th</sup> grade	68.0	61.4
8 <sup>th</sup> grade	12.9	13.6
9 <sup>th</sup> grade	11.6	11.4
Language Other than English Spoken Most Often <sup>a</sup>		
	52.3	55.0

<sup>a</sup> Dichotomous variable (yes or no) capturing the percentage of youth living in homes where English is not the primary language.

Among Native American middle school males there were no statistically significant pre- to posttest differences in substance use measures although favorable trends were observed for cigarettes, binge drinking and inhalant use, while unfavorable trends were observed for chewing tobacco, alcohol and marijuana (see Table 70). Among Native American females, substance use prevalence doubled between pretest and posttest for alcohol use, binge drinking, and marijuana use, with statistically significant increases for alcohol and marijuana use (see Table 70). Prevalence of tobacco use, both cigarette smoking and chewing tobacco use, decreased for females although the findings were not statistically significant.

**Table 70:** Past 30-day ATOD use<sup>a</sup> differences<sup>b</sup> from pretest to posttest for middle school Native American SFS program participants

Substance (pre n, post n)	% Pretest	% Posttest	McNemar Test	% Pretest	% Posttest	McNemar Test
	<i>Male</i>			<i>Female</i>		
Cigarettes (357/357)	15.4	13.7	0.690	11.5	8.8	0.332
Chewing Tobacco (383/381)	6.2	7.7	0.508	2.1	1.1	0.625
Alcohol (357/357)	10.4	11.5	0.754	6.9	12.6	0.013*
Binge Drinking (377/376)	8.3	7.3	0.727	3.3	7.1	0.065
Marijuana (371/371)	16.5	18.6	0.388	7.1	14.8	0.001***
Inhalant ever use (381/383)	8.9	7.7	0.804	10.1	10.6	1.000

<sup>a</sup> Dichotomous substance use variable (yes or no).

<sup>b</sup> Binomial distribution used with exact significance tests.

\*p≤.05, \*\*p≤.01, \*\*\*p≤.001.

Favorable trends were observed for both males and females on nearly every past 30-day prescription drug use measure although none of the pre- to posttest differences was statistically significant (see Table 71). Among females, the reported prevalence of Ritalin, Adderal or Prozac and the reported prevalence of sleep aids or tranquilizers remained stable between baseline and posttest.

**Table 71:** Past 30-day prescription drug use<sup>a</sup>, differences<sup>b</sup> from pretest to posttest for middle school Native American SFS program participants

Substance (pre n, post n)	% Pretest	% Posttest	McNemar Test	% Pretest	% Posttest	McNemar Test
	<i>Male</i>			<i>Female</i>		
Any prescription medication not prescribed (358/359)	5.0	3.9	0.754	5.1	4.5	0.727
Any prescription pain pills not prescribed (359/359)	2.8	1.1	0.375	3.4	1.7	0.250
Any Ritalin, Adderal, or Prozac not prescribed (359/359)	1.7	0.6	0.500	1.1	1.1	1.000
Any pres sleep aids or tranquilizers not prescribed (359/358)	1.7	0.6	0.500	1.7	1.7	1.000
Any other medications not prescribed (358/358)	3.9	2.2	0.375	3.4	1.7	0.375

<sup>a</sup> Dichotomous substance use variable (yes or no).

<sup>b</sup> Binomial distribution used with exact significance tests.

\*p≤.05, \*\*p≤.01, \*\*\*p≤.001.

The frequency of self-reported ATOD use in the past 30 days generally decreased among Native American males and females who reported use in each individual category at baseline. Significant decreases were seen for males in past 30 day cigarette use, alcohol and inhalant use, and for females in inhalant use. (See Table 72.)

**Table 72:** Frequency of ATOD use<sup>a</sup>, differences from pretest to posttest among middle school Native American SFS program participants reporting use in each individual category at baseline

Substance (Respondents reporting use at baseline, male n & female n)	Pre-test Mean	Post-test Mean	t-value	Pre-test Mean	Post-test Mean	t-value	Desired Outcome
	<i>Male</i>			<i>Female</i>			
Cigarettes (27/21)	2.15	1.04	4.309***	1.71	1.24	2.024	☹
Chewing tobacco (12/4)	3.08	2.00	1.569	1.00	.025	3.000	☹
Alcohol (19/12)	2.00	1.26	2.163*	1.75	1.25	1.732	☹
Binge drinking (16/6)	2.06	1.63	1.239	2.17	1.83	1.000	☹
Marijuana (31/13)	2.45	2.48	-0.124	1.85	1.46	1.046	☹
Inhalant ever use (17/19)	1.00	0.47	4.243***	1.00	0.68	2.882**	☹

<sup>a</sup>0=0 times, 1=1 or 2 times, 2=3 to 9 times, 3=10 to 19 times, 4=20 to 39 times, 5=40 or more times.

\*p ≤ .05, \*\*p ≤ .01, \*\*\*p ≤ .001.

Trends for substance use among youth reporting any current use at baseline were more positive for Native American males than females with decreases in the prevalence of cigarette smoking, binge drinking and marijuana and inhalant use and steady prevalence (no change) of chewing tobacco and alcohol use (see Table73). On the other hand, the results for females reporting any substance use at pretest demonstrate large increases in the prevalence of alcohol use, binge drinking and marijuana and inhalant ever use, although decreases were observed for both tobacco use measures and lifetime inhalant use.

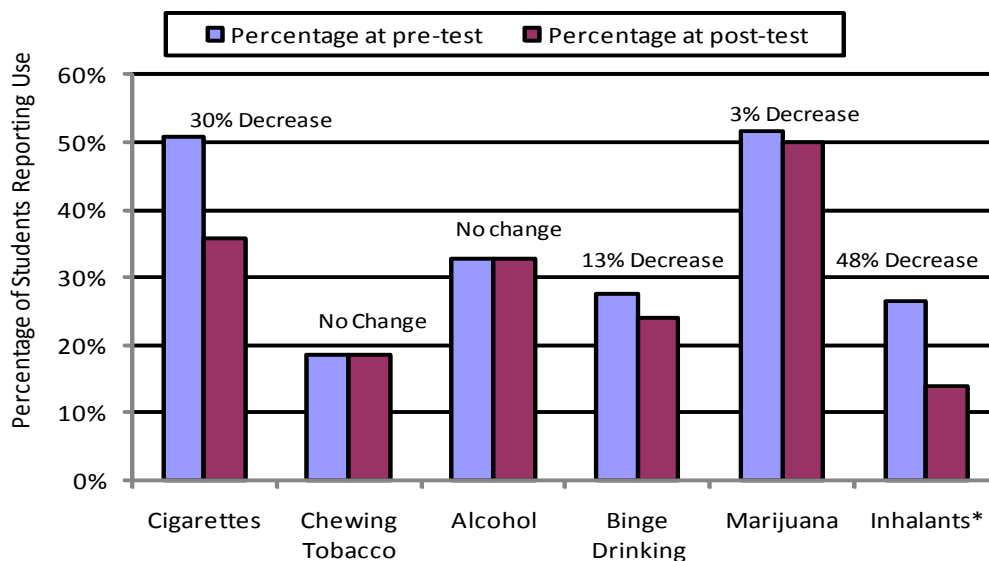
**Table 73:** Past 30-day ATOD use<sup>a</sup> at posttest among middle school Native American SFS program participants reporting ATOD use at pretest

Substance (Respondents reporting use at baseline, male n & female n)	% Pretest	% Posttest	% Change	% Pretest	% Posttest	% Change
	Male			Female		
Cigarettes (53/46)	50.9	35.8	-29.7	45.7	28.3	-38.1
Chewing Tobacco (65/51)	18.5	18.5	0.0	7.8	3.9	-50.0
Alcohol (58/42)	32.8	32.8	0.0	28.6	40.5	41.6
Binge Drinking (58/42)	27.6	24.1	-12.7	14.3	26.2	83.2
Marijuana (60/45)	51.7	50.0	-3.3	28.9	48.9	69.2
Inhalant ever use (64/51)	26.6	13.8	-48.1	37.3	29.4	-21.2

<sup>a</sup> Dichotomous substance use variable (yes or no).

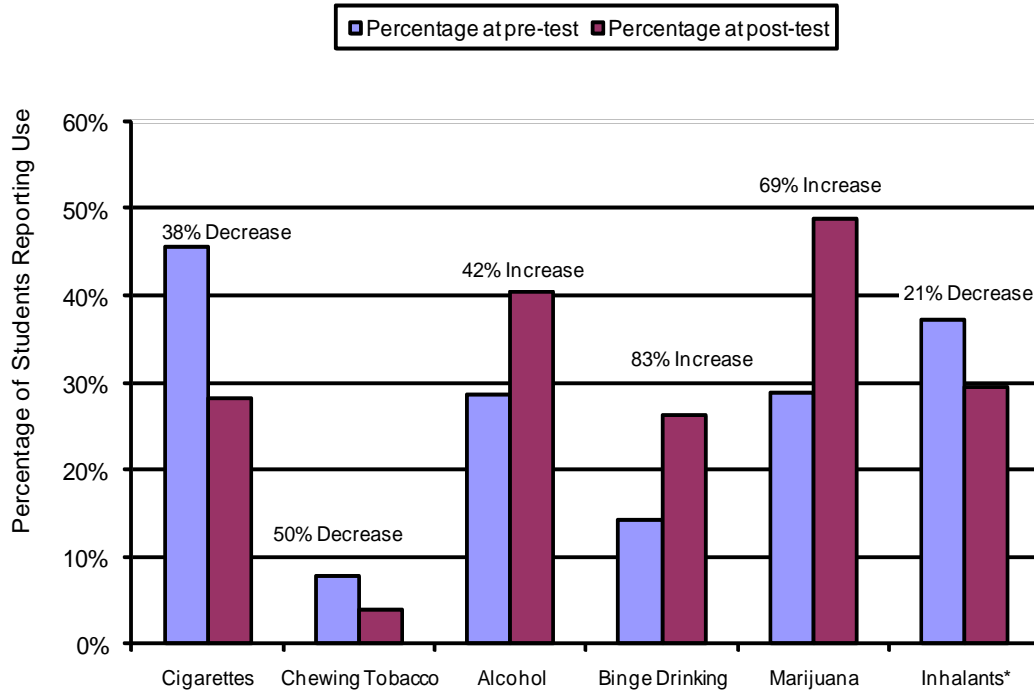
Figures 44 & 45 that follow, graphically display the changes in prevalence from pretest to posttest for males and then females. As previously mentioned, males who reported any ATOD use at baseline either decreased in their self-reported use or remained the same, whereas Native American females, increased their use of alcohol, binge drinking, and marijuana use in the past 30 days. Remarkably their past 30 day cigarette use prevalence declined.

**Figure 44:** Percent of male middle school Native American SFS program participants reporting substance use at posttest among only program participants reporting substance use at pretest



\*Inhalant ever use.

**Figure 45:** Percent of female middle school Native American SFS program participants reporting substance use at posttest among only program participants reporting substance use at pretest.



\*Inhalant ever use.

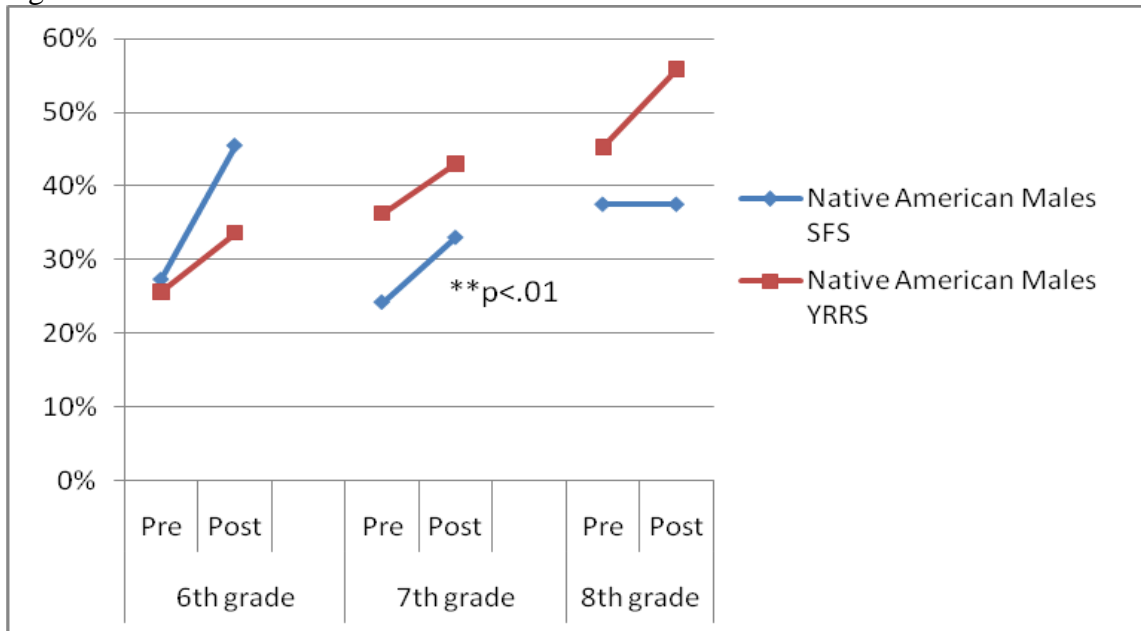
*Middle School SFS Native American Subpopulation Compared with Middle School YRRS Native American Subpopulation*

Tobacco use (Native American students, grades 6<sup>th</sup>-8<sup>th</sup>)

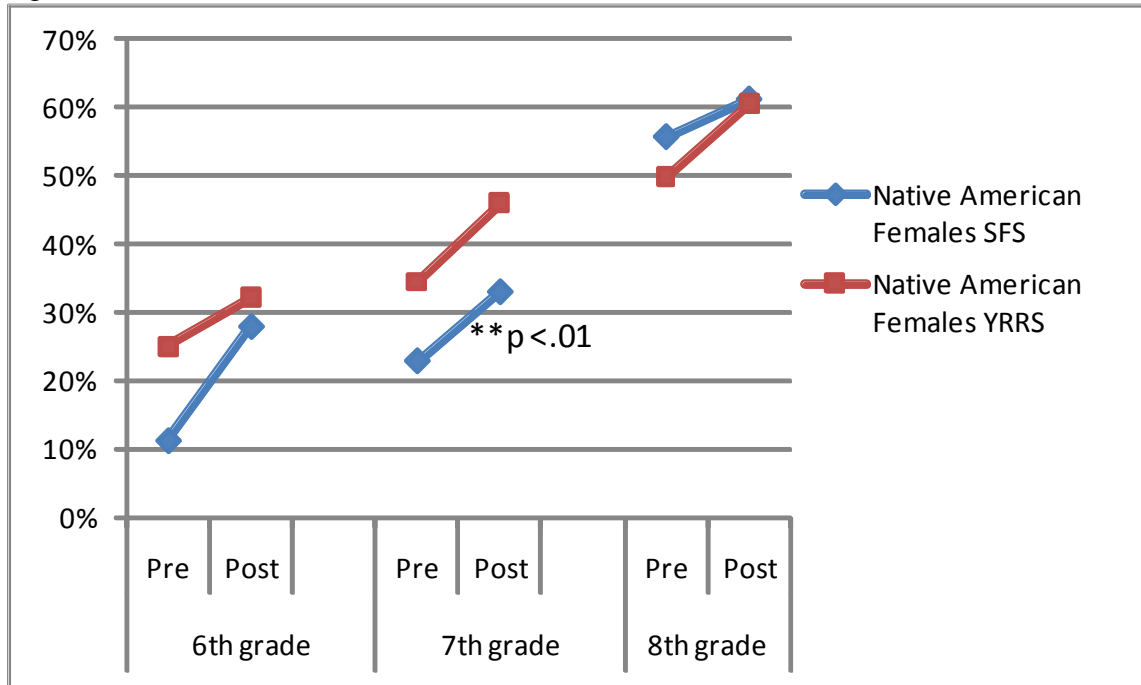
Experimentation with cigarettes increased for middle school Native American males and females across all grades except for males in eighth grade where the reported prevalence of having ever smoked cigarettes remained the same (see Figure 46 and Figure 47). Baseline prevalence of lifetime tobacco use was greater for SFS students compared to YRRS students for 6<sup>th</sup> grade males and 8<sup>th</sup> grade females. The reported increases in lifetime use of tobacco were statistically significant for both 7<sup>th</sup> grade males and females. Typically, SFS samples report less overall use than YRRS samples, therefore, findings in which SFS respondents are reporting greater use is rather worrisome. It seems very important to prevention programs working with Native Americans to attempt to understand why Native American youth, males and females alike are demonstrating such high prevalence of lifetime use. This may be associated with parental use

and therefore, programs will want to focus efforts of how prevent smoking among children of smokers. Alternatively, cigarettes may be easily available and relatively inexpensive so therefore the drug of choice. In that case, prevention programs should focus on environmental level changes by increasing taxes on tobacco and/or conducting more compliance checks.

**Figure 46:** Percent of 6<sup>th</sup>-8<sup>th</sup> grade Native American males reporting having ever smoked cigarettes



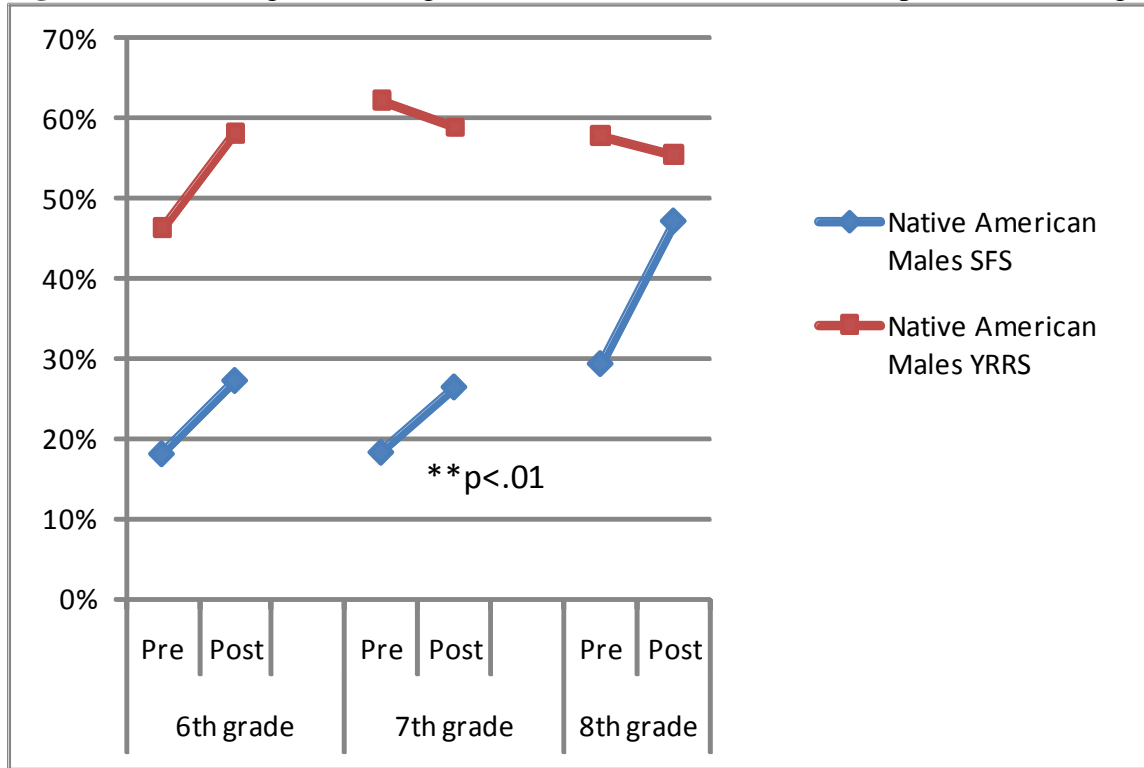
**Figure 47:** Percent of 6<sup>th</sup>-8<sup>th</sup> grade Native American females reporting having ever smoked cigarettes



Alcohol use (Native American students, grades 6<sup>th</sup>-8<sup>th</sup>)

Native American males reported an increased prevalence of lifetime alcohol use across all three grades although a significant increase was found in 7<sup>th</sup> grade. Also in 7<sup>th</sup> and 8<sup>th</sup> grade, the increases among Native Americans were in direct contrast to the decreases found among the YRRS Native American male sample. This may indicate that SFS respondents start to use alcohol generally later than the average Native American young male but continue to increase over time while, in essence “catching up” to their peers. However, delaying use is an exceedingly important part of prevention. (See Figure 48.)

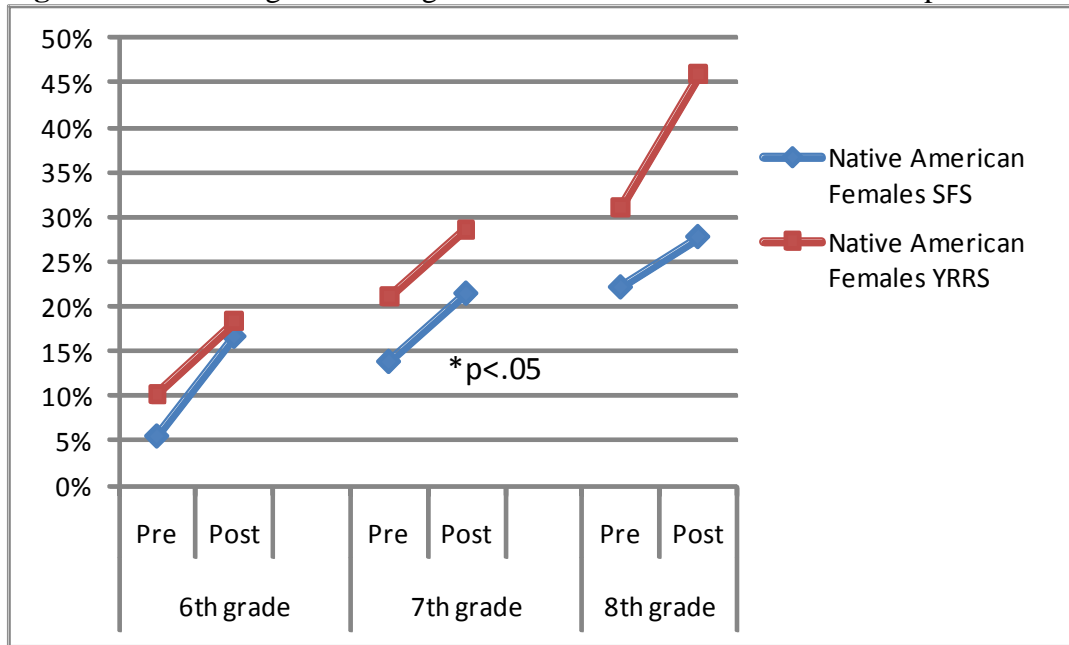
**Figure 48:** Percentage of 6<sup>th</sup>-8<sup>th</sup> grade Native American males who report ever drinking alcohol



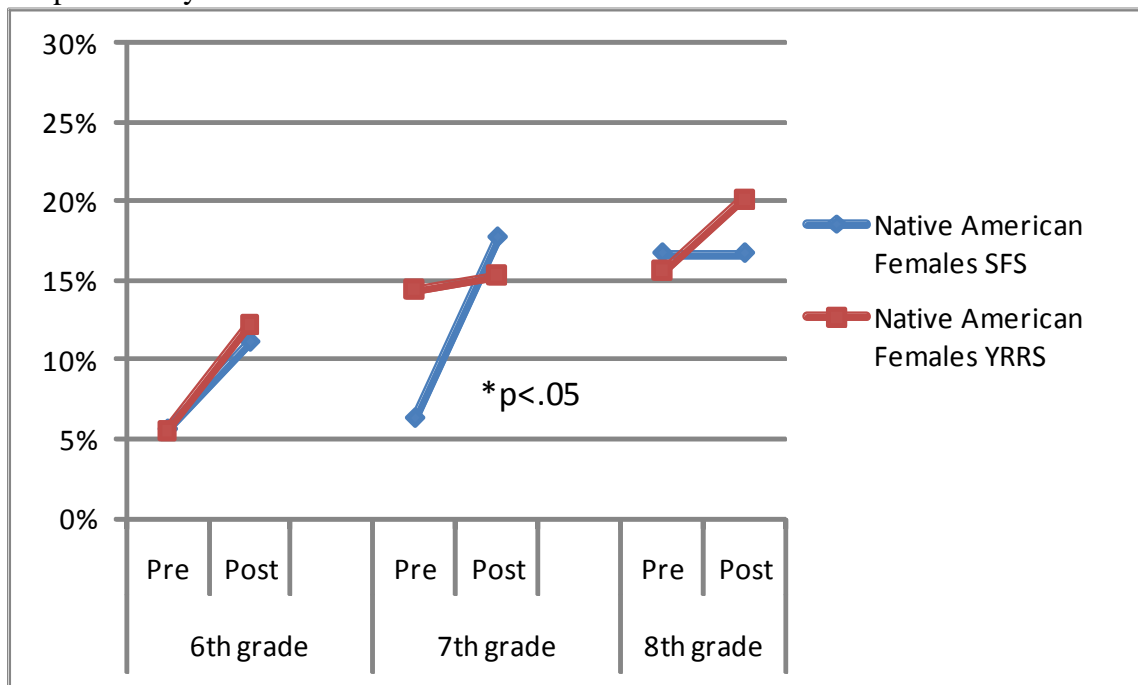
Drug use (Native American students, grades 6<sup>th</sup>-8<sup>th</sup>)

Among the SFS 6<sup>th</sup> to 8<sup>th</sup> grade Native American females, lifetime marijuana use increased significantly among 7<sup>th</sup> graders only. However, in 6<sup>th</sup> grade the increase among SFS females was steeper than among a comparable YRRS sample. In 7<sup>th</sup> grade the increase among the SFS sample was comparable to the increase in the YRRS sample and finally, among 8<sup>th</sup> graders, the lifetime prevalence again increased but not nearly as dramatically as the YRRS sample. (See Figure 49.) When looking at past 30 day marijuana use among the SFS female sample, there is again a significant increase among the 7<sup>th</sup> graders. Among 6<sup>th</sup> grade SFS females, the increase in the prevalence of self-reported past 30 day use is almost identical to the YRRS sample, although slightly less, but in 7<sup>th</sup> grade the increase in past 30 day use is quite dramatic, beginning at rates well below the YRRS sample and increasing to well above the YRRS sample. Whereas in 8<sup>th</sup> grade, there is essentially no change in self-reported past 30 day marijuana use among Native American Females. (See Figure 50.)

**Figure 49:** Percentage of 6<sup>th</sup>-8<sup>th</sup> grade Native American females who report ever using marijuana



**Figure 50:** Percentage of 6<sup>th</sup>-8<sup>th</sup> grade Native American females who report using marijuana in the past 30 days



*General Linear Models*

The GLM Models were run to examine the effect of time between pre and posttest on the outcome. We controlled for pretest estimates on the outcome because we assumed that use at pretest will predict at least in part use at posttest. In the adjusted models, we also controlled for the grade in which a student is and the language spoken at home. Among the Native American Middle School male SFS sample, there are no significant changes from pre to posttest in substance use either in the unadjusted or adjusted model. When combined with the entire sample, the significant increases found among 7<sup>th</sup> graders were no longer evident. (See Table 74.) In addition, perceptions of harm, parental and respondent attitudes towards substance use and intentions to smoke did not change significantly from pre to posttest among middle school native American Males. (See Table 75.)

**Table 74:** Examining the effect of pretest substance use on the posttest substance use for middle school Native American male students, unadjusted and adjusted§ model results

Substance (unadj n, adj n)	Unadjusted				Adjusted				Desired Outcome
	Baseline Mean	Post- test Mean	F-test & sig. <sup>a</sup>	effect size <sup>b</sup>	Baseline Mean	Post- test Mean	F-test & sig. <sup>a</sup>	effect size <sup>b</sup>	
Cigarettes (175/134)	0.33	0.25	2.157	0.012	0.37	0.28	2.933	0.022	⓪
Chewing Tobacco (194/147)	0.19	0.18	0.090	0.000	0.20	0.16	0.270	0.002	⓪
Alcohol (183/139)	0.21	0.20	0.042	0.000	0.20	0.23	2.900	0.021	⓪
Binge Drinking (183/139)	0.18	0.21	0.262	0.001	0.19	0.25	0.140	0.001	⓪
Marijuana (188/142)	0.40	0.48	2.143	0.011	0.52	0.58	1.763	0.013	⓪
Any Prescription Medication Not Prescribed (181/136)	0.05	0.04	0.399	0.002	0.07	0.04	0.231	0.002	⓪

§ Adjusted for grade and language spoken at home.

<sup>a</sup> Exact statistic provided.

<sup>b</sup> partial eta squared where effects are: small = .01, medium = .06, large = .14 or larger.

\*p ≤ .05, \*\*p ≤ .01, \*\*\*p ≤ .001.

**Table 75:** Examining the effect of pretest scores for perception of harm, parental approval, respondent approval and intentions to smoke on posttest scores for middle school male Native American students, unadjusted and adjusted model results

Measure (unadj n, adj n)	Unadjusted				Adjusted				Desired Outcome
	Baseline Mean	Post-test Mean	F-test & sig. <sup>a</sup>	effect size <sup>b</sup>	Baseline Mean	Post-test Mean	F-test & sig. <sup>a</sup>	effect size <sup>b</sup>	
Risk of Harm Scale (193/146)	1.65	1.79	3.302	0.017	1.65	1.81	1.027	0.007	☞
Parental Attitudes toward Alcohol Use (192/145)	2.74	2.77	0.210	0.001	2.70	2.71	3.398	0.023	☞
Respondent Attitudes toward Alcohol Use (192/145)	2.49	2.53	0.440	0.002	2.43	2.46	0.228	0.002	☞
Intention to smoke a cigarette soon (146/107)	5.00	7.31	1.750	0.012	6.21	7.48	1.972	0.019	☹
Intention to smoke a cigarette during the next year (144/105)	0.28	0.27	0.055	0.000	0.25	0.25	0.433	0.004	☹
Intention to smoke a cigarette if offered by best friend (146/107)	0.29	0.34	0.575	0.004	0.26	0.32	0.752	0.007	☹

<sup>s</sup> Adjusted for grade and language spoken at home.

<sup>a</sup> Exact statistic provided.

<sup>b</sup> partial eta squared where effects are: small = .01, medium = .06, large = .14 or larger.

\*p ≤ .05, \*\*p ≤ .01, \*\*\*p ≤ .001.

Among the female Native American middle school sample, we find that in the unadjusted model there is a significant effect of time on past 30 day binge drinking and marijuana use, indicating that there were significant increases in reported use over the course of the prevention program. (See Table 76.) The increase in marijuana use likely reflects the sharp increases seen among the 7<sup>th</sup> grade females. Once the model adjusted grade and language spoken at home, the effect of time was no longer significant. This would indicate that there is something unique about the 7<sup>th</sup> graders or their environment that is influencing their likelihood of ATOD use. When examining the middle school Native American females on measures associated with ATOD use, in the unadjusted model we find no significant effects of time on perceptions of harm, attitudes towards

alcohol use, and intentions to smoke over time. However, in the model which adjusts for grade level and the language primarily spoken at home, there actually is a significant effect of time on the intention to smoke during the next year. Females indicate greater intention to smoke over the next year at posttest controlling for their pretest intentions to smoke. (See Table 77.)

**Table 76:** Examining the effect of pretest substance use on the posttest substance use for middle school Native American female students, unadjusted and adjusted model results

Substance (unadj n, adj n)	Unadjusted				Adjusted				Desired Outcome
	Baseline Mean	Post- test Mean	F-test & sig. <sup>a</sup>	effect size <sup>b</sup>	Baseline Mean	Post- test Mean	F-test & sig. <sup>a</sup>	effect size <sup>b</sup>	
Cigarettes (182/128)	0.20	0.18	0.469	0.003	0.25	0.22	2.507	0.020	☹
Chewing Tobacco (189/132)	0.02	0.01	1.000	0.005	0.03	0.02	2.211	0.017	☹
Alcohol (174/121)	0.12	0.17	2.204	0.013	0.17	0.22	0.058	0.000	☹
Binge Drinking (174/121)	0.07	0.14	4.574*	0.026	0.11	0.18	0.229	0.002	☹
Marijuana (183/129)	0.13	0.22	4.680*	0.025	0.18	0.29	0.000	0.000	☹
Any Prescription Medication Not Prescribed (177/121)	0.05	0.04	0.499	0.003	0.07	0.05	0.577	0.005	☹

<sup>s</sup> Adjusted for grade and language spoken at home.

<sup>a</sup> partial eta squared where effects are: small = .01, medium = .06, large = .14 or larger.

<sup>b</sup> Exact statistic provided.

\*p ≤ .05, \*\*p ≤ .01, \*\*\*p ≤ .001.

**Table 77:** Examining the effect of pretest scores for perception of harm, parental approval, respondent approval and intentions to smoke on posttest scores for middle school female Native American students, unadjusted and adjusted model results

Measure (unadj n, adj n)	Unadjusted				Adjusted				Desired Outcom e
	Baseline Mean	Post- test Mean	F-test & sig. <sup>a</sup>	effect size <sup>b</sup>	Baseline Mean	Post- test Mean	F-test & sig. <sup>a</sup>	effect size <sup>b</sup>	
Risk of Harm Scale (189/132)	2.07	2.07	0.001	0.000	2.13	2.13	1.027	0.000	↻
Parental Attitudes toward Alcohol Use (187/131)	2.87	2.85	0.257	0.001	2.85	2.83	1.198	0.009	↻
Respondent Attitudes toward Alcohol Use (187/131)	2.67	2.75	2.242	0.012	2.69	2.73	1.702	0.013	↻
Intention to smoke a cigarette soon (157/104)	6.34	8.84	1.975	0.013	7.62	8.26	0.789	0.008	↻
Intention to smoke a cigarette during the next year (157/104)	0.27	0.36	3.309	0.021	0.19	0.38	5.838*	0.055	↻
Intention to smoke a cigarette if offered by best friend (157/104)	0.38	0.49	3.295	0.021	0.32	0.47	2.691	0.026	↻

<sup>§</sup> Adjusted for grade and language spoken at home.

<sup>a</sup> partial eta squared where effects are: small = .01, medium = .06, large = .14 or larger.

<sup>b</sup> Exact statistic provided.

\*p ≤ .05, \*\*p ≤ .01, \*\*\*p ≤ .001.

## Discussion

As with the Hispanic middle school students, Native American youth are also increasing their ATOD use over the course of the school year. While increases in experimentation are developmentally normal, and we could reasonably expect that lifetime use measure might increase, we would also hope that past 30 day ATOD use would not increase as dramatically. Over half of the Native American middle school sample was in the 7<sup>th</sup> grade and given that the samples was not very large to begin with, it is possible that significant differences found for that grade level were because of the larger sample size which increased the power to detect statistically significant differences. Clearly there were also increases in other grades as well but

given the small sample sizes, there was sufficient error so as not to be statistically significant. Increases in ATOD use among females were more likely than among males. Females in the 6<sup>th</sup> grade are initiating cigarette use at alarming rates, and continue straight through 8<sup>th</sup> grade. Alcohol use among middle school females is also increasing dramatically among females. It is worrisome to consider the increases in past 30 day drinking and binge drinking among these young girls. Besides the physical and psychological dangers directly associated with alcohol use at such a young age, there are the additional dangers of heavy drinking such as unprotected and unwanted sexual encounters and unintended pregnancies, all of which set these girls up for a trajectory of problematic outcomes. Finally, the even more dramatic increases in marijuana use among the females indicates that there is considerable exposure and access to it. Similar to the results from the Hispanic middle school analyses, programs working with Native American communities need to talk with students, parents, and school staff about what the data are indicating. There may need to be environmental and structural changes made to reduce access or there may be other interventions that need to be conducted with this population.

### Results for Native American High School Participants

Only 103 Native American high school program participants completed the SFS survey (see Table 78). There were more male respondents (53.4%) than females (46.6%) and the average age of program participants was 15.6 years old. Most participants were in ninth grade (55.3%). Slightly more than half (54.4%) of participants came from homes where English was not the primary language. Because of the small sample size we chose not to run additional analyses since when stratified by biological sex and grade, there would be cells with no respondents.

**Table 78:** Demographics for High School Native American SFS Program Participants at Pretest (N=103)

Demographic Variable	% SFS Program Participants
Grade	
Not in school	0.0%
8 <sup>th</sup> grade	2.9%
9 <sup>th</sup> grade	55.3%
10 <sup>th</sup> grade	18.4%
11 <sup>th</sup> grade	12.6%
12 <sup>th</sup> grade	10.7%
Biological Sex	
Male	53.4%
Female	46.6%
Language Other than English Spoken Most Often <sup>a</sup>	54.4%

<sup>a</sup> Dichotomous variable (yes or no) capturing the percentage of youth living in homes where English is not the primary language.

## *SFS Supplemental Modules*

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Modules B through E of the SFS are optional measurements that programs can choose to use if they feel that the constructs measured in the modules are relevant to their prevention program. Although optional, many programs choose to administer them because it is felt they measure important changes occurring that are not measures in the CORE module. The measures in modules B-E are from the California Health Kids Survey (CHKS)<sup>11</sup> and have high to moderate reliability and validity.

### *Middle School Findings for the SFS Supplemental Modules*

Cronbach alphas at pre and posttest for middle school students are provided for each subscale in Table 79. All scales at pre and post test show adequate to good reliability.

**Table 79:** Reliability statistics for scales in the middle school SFS supplemental modules

Scale/measure	Pretest Cronbach's $\alpha$	Posttest Cronbach's $\alpha$
Violence Perpetration	.802	.805
Violence Victimization	.747	.769
Cooperation and Communication	.709	.716
Self-efficacy	.751	.763
Empathy	.839	.859
Problem solving	.750	.750
Self-awareness	.789	.786
Goals and Aspirations	.791	.813
Caring Relationships: Adults in School	.815	.849
High Expectations: Adults in School	.862	.894
Meaningful Participation: In the School	.794	.818
Caring Relationships: Adults in Home	.841	.872
High Expectations: Adults in Home	.855	.856
Meaningful Participation: In the Home	.823	.843
Caring Relationships: Adults in Community	.860	.769
High Expectations: Adults in Community	.914	.921
Meaningful Participation: In the Community	.628	.694
Caring Relationships: Peers	.882	.896
High Expectations: Pro-social peers	.608	.653

Not all sites chose to use modules B & C but for those that did, the breakdown of their contribution to the overall sample can be found in Table 80.

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<sup>11</sup> Permission to use measures was obtained from WestEd prior to administering them.

**Table 80:** Data for Modules B and C by site

Site	%
Counseling Associates	30.1
Five Sandoval Indian Pueblos Council	3.1
National Indian Youth Leadership	20.1
Native American Community Academy	13.5
North Central Community Based Services	19.5
Santa Fe Community College	13.9
Total	100.0

Modules B and C measure a student’s perpetration of violence and their experiences with being victimized by others. The GLM results table (Table 81) presents the average scores from the perpetration scale and the victimization scale. The range for responses was 0 to 4, where four equaled high frequency, i.e., “almost every day”, and 0 equaled “never”. Both the perpetration of violence and violence victimization increased from pre to post-test among middle school students in both the unadjusted and adjusted models. These statistically significant increases are alarming, but keep in mind that the mean for both is below .50 so closer to 0, or “never”, than 1, which is “once in a while.” This would indicate that while there was indeed a highly significant increase, the actual magnitude of the increase is small.

**Table 81:** Examining the effect of Module B and Module C pretest scores on posttest scores for selected middle school SFS program participants, unadjusted and adjusted<sup>a</sup> model results

Measure (unadjusted n/adjusted n)	Unadjusted				Adjusted				Desired Outcome
	Base- line Mean	Post- test Mean	F-test & sig. <sup>b</sup>	effect size <sup>c</sup>	Base- line Mean	Post- test Mean	F-test & sig. <sup>b</sup>	effect size <sup>c</sup>	
Violence Perpetration (1044/1012)	0.38	0.48	43.956***	0.040	0.38	0.48	15.079***	0.015	⬇
Violence Victimization (1046/1014)	0.33	0.41	38.256***	0.035	0.33	0.41	7.485**	0.007	⬇
Felt unsafe at or on way to school (998/968)	0.10	0.12	0.575	0.001	0.10	0.11	0.034	0.000	⬇

<sup>a</sup>Model adjusted for biological sex, grade, ethnicity, and English as a primary language at home.

<sup>b</sup>Exact statistic.

<sup>c</sup>Partial eta squared where effects are: small = .01, medium = .06, large = .14 or larger.

\*p ≤ .05, \*\*p ≤ .01, \*\*\*p ≤ .001.

Two additional measures from the NM YRRS are included in module C (see Tables 81 & 82). These ask about feeling unsafe at or on the way to school and the number of days absent from school in the past 30 days because of feeling unsafe. For these measures, there are essentially no differences from pre to posttest. It is rather alarming though that 6 to 7 percent of middle school students have missed at least one day of school in the past 30 days because of feeling unsafe. Given the recent media attention on bullying by students and the potential for very tragic consequences resulting from it, it makes sense to give more thought to what is happening in the schools and whether school policies and/or environments could be adapted to decrease the likelihood of bullying.

**Table 82:** The percentage of respondents who did not go to school at least once during the past 30 days because they felt unsafe at or on their way to school by frequency category, selected middle school SFS program participants

	<b>0 days</b>	<b>1 day</b>	<b>2 or 3 days</b>	<b>4 or 5 days</b>	<b>6 or more days</b>
Baseline (%) (n=1205)	93.9	3.1	1.7	0.7	0.6
Posttest (%) (n=1097)	92.7	3.6	1.9	0.8	0.9

Modules D & E measure internal and external resiliency respectively. Resiliency is a factor made up of many facets that have been shown to be associated with ATOD use. Increased resiliency, measured as a whole or as subscales, decreases the likelihood of use. Many prevention programs focus a lot of time and effort on increasing resiliency among youth to resist drugs and alcohol and peer pressure, etc. This is often particularly true of programs working with younger children who may not yet be using drugs.

Again, not all sites chose to use modules D & E. Those programs that used Module D are listed in Table 83 and a breakdown of the contribution to the entire sample is provided.

**Table 83:** Data for Module D by site

<b>Site</b>	<b>%</b>
Counseling Associates	27.3
Five Sandoval Indian Pueblo	2.8
National Indian Youth Leadership	18.2
Native American Community Academy	12.2
North Central Community Based Services	17.7
Santa Fe Community College	12.6
Talking Talons	9.3
Total	100.0

Internal resiliency is measured in Module D. Internal resiliency includes concepts such as self-efficacy, problem solving skills, self awareness, having goals and aspirations and the ability to communicate and work with others productively. In the unadjusted GLM, significant improvements from pre to post test were found for the following scales: Self efficacy, empathy, problem solving, and goals and aspirations. However, in the model adjusted for the influences of biological sex, grade, race/ethnicity, and language spoken at home, significant improvements were no longer found. Of note, is that the means at posttest within the adjusted module still changed the desired direction of change for all the measures, but were not longer statistically significant. (See Table 84.)

**Table 84:** Examining the effect of Module D pretest scores on posttest scores for selected middle school SFS program participants, unadjusted and adjusted<sup>a</sup> model results

Measure (unadjusted n/adjusted n)	Unadjusted				Adjusted				Desired Outcome
	Base- line Mean	Post- test Mean	F-test & sig. <sup>b</sup>	effect size <sup>c</sup>	Base- line Mean	Post- test Mean	F-test & sig. <sup>b</sup>	effect size <sup>c</sup>	
Cooperation and Communication (1211/1139)	2.10	2.12	0.872	0.001	2.11	2.13	0.306	0.000	➡
Self-efficacy (1210/1138)	2.23	2.27	6.568*	0.005	2.23	2.28	1.001	0.001	➡
Empathy (1210/1138)	1.99	2.04	5.233*	0.004	1.99	2.04	0.301	0.000	➡
Problem solving (1210/1138)	1.85	1.96	25.473***	0.021	1.85	1.97	0.232	0.000	➡
Self-awareness (1202/1130)	2.25	2.25	0.000	0.000	2.26	2.26	0.806	0.001	➡
Goals and Aspirations (1210/1138)	2.60	2.66	11.410***	0.001	2.61	2.67	3.789	0.003	➡

<sup>a</sup>Model adjusted for biological sex, grade, ethnicity, and English as a primary language at home.

<sup>b</sup>Exact statistic.

<sup>c</sup>Partial eta squared where effects are: small = .01, medium = .06, large = .14 or larger.

\*p ≤ .05, \*\*p ≤ .01, \*\*\*p ≤ .001.

Those programs that chose to use Module E are listed in Table 85 and a breakdown of each program's contribution to the overall sample is provided.

**Table 85:** Data for module E by site

Site	%
Counseling Associates	25.9
Five Sandoval Indian Pueblo	2.6
National Indian Youth Leadership	17.0
Native American Community Academy	11.5
North Central Community Based Services	16.8
Santa Fe Community College	11.9
Santa Fe Mountain Center	4.3
Talking Talons	8.7
UNM ACL Teen Center	1.2
Total	100.0

The measures of external resiliency in Module E reflect changes in relationships and expectations from other adults and meaningful participation in the community. Among the middle school respondents, the unadjusted module indicated significant improvements in several measures, most of which were related to meaningful and caring relationships with adults and peers, but also included high expectations from adults in the community and meaningful participation in the community. After adjusting for the influences of sociodemographic factors, meaningful participation in the community remained statistically significant. (See Table 86.)

The scales for items on the resiliency measures were from 0 to 3 where 3 indicates having a lot of external support in one's life and 0 indicating having very little. There is some variation in the average score for these scales and not all are so high as to high ceiling effects. All are above 1, "a little true" but some fall below 2, "pretty much true". From these results, youth would seem to feel that they lack meaningful involvement and participation in school and in their communities. In addition, they report lacking in meaningful relationships with adults in school. Adults in schools can do a lot to increase the connectedness students feel in school. For example, teachers and administrators can spend more time with students outside of the regular school day, greet students by name in the hallway, or provide opportunities for youth to become involved in the school in a variety of ways and by extension in the greater community.

**Table 86:** Examining the effect of Module E pretest scores on posttest scores for selected middle school SFS program participants, unadjusted and adjusted<sup>a</sup> model results

Measure (unadjusted n/adjusted n)	Unadjusted				Adjusted				Desired Outcome
	Base- line Mean	Post- test Mean	F-test & sig. <sup>b</sup>	effect size <sup>c</sup>	Base- line Mean	Post- test Mean	F-test & sig. <sup>b</sup>	effect size <sup>c</sup>	
Caring Relationships: Adults in School (1285/1212)	1.97	2.04	6.484*	0.005	1.98	2.04	0.681	0.001	☺
High Expectations: Adults in School (1285/1212)	2.35	2.33	0.723	0.001	2.36	2.34	1.107	0.001	☺
Meaningful Participation: In the School (1281/1208)	1.81	1.84	2.599	0.002	1.82	1.86	1.405	0.001	☺
Caring Relationships: Adults in Home (1269/1197)	2.36	2.34	1.081	0.001	2.36	2.34	0.517	0.000	☺
High Expectations: Adults in Home (1269/1197)	2.66	2.64	2.316	0.002	2.67	2.64	2.010	0.002	☺
Meaningful Participation: In the Home (1261/1190)	2.11	2.13	0.903	0.001	2.11	2.13	0.024	0.000	☺
Caring Relationships: Adults in Community (1280/1208)	2.32	2.41	12.567***	0.010	2.33	2.42	0.911	0.001	☺
High Expectations: Adults in Community (1280/1208)	2.37	2.45	10.082**	0.008	2.38	2.46	2.104	0.002	☺

**Table 86-Continued:** Examining the effect of Module E pretest scores on posttest scores for selected middle school SFS program participants, unadjusted and adjusted<sup>a</sup> model results

	Unadjusted				Adjusted				
Meaningful Participation: In the Community (1271/1200)	1.65	1.70	3.921*	0.003	1.65	1.71	5.938*	0.005	↻
Caring Relationships: Peers (1270/1198)	2.15	2.25	16.186***	0.013	2.16	2.26	0.903	0.001	↻
High Expectations: Pro-social peers (1272/1201)	2.05	2.03	1.296	0.001	2.05	2.02	0.077	0.000	↻

<sup>a</sup>Model adjusted for biological sex, grade, ethnicity, and English as a primary language at home.

<sup>b</sup>Exact statistic.

<sup>c</sup>Partial eta squared where effects are: small = .01, medium = .06, large = .14 or larger.

\*p ≤ .05, \*\*p ≤ .01, \*\*\*p ≤ .001.

*High School Findings for the SFS Supplemental Modules*

Cronbach alphas for scales in modules B-E administered to high school students are presented in Table 87. All are have high to moderate reliability with one exception. At post-test the scale assessing pro-social peers was lower than would be desired or expected.

**Table 87:** Reliability statistics for scales in the high school SFS supplemental modules

<b>Scale/measure</b>	<b>Pretest Cronbach's <math>\alpha</math></b>	<b>Posttest Cronbach's <math>\alpha</math></b>
Violence Perpetration	.827	.742
Violence Victimization	.731	.769
Cooperation and Communication	.679	.723
Self-efficacy	.757	.775
Empathy	.855	.863
Problem solving	.692	.799
Self-awareness	.765	.768
Goals and Aspirations	.777	.773
Caring Relationships	.845	.856
High Expectations: Adults in School	.886	.888
Meaningful Participation: In the School	.820	.856
Caring Relationships: Adults in Home	.868	.896
High Expectations: Adults in Home	.809	.895
Meaningful Participation: In the Home	.872	.863
Caring Relationships: Adults in Community	.857	.875
High Expectations: Adults in Community	.917	.946
Meaningful Participation: In the Community	.714	.765
Caring Relationships: Peers	.947	.946
High Expectations: Pro-social peers	.639	.480

Not all programs chose to use Modules B and C. Thos sites that used these two modules with high school students are listed below in Table 88 along with the amount each contributed to the overall sample.

**Table 88:** Data for Modules B and C by site

<b>Site</b>	<b>%</b>
Five Sandoval Indian Pueblo	6.7
National Indian Youth Leadership	53.3
Native American Community Academy	14.8
North Central Community Based Services	15.6
Santa Fe Community College	9.6
Total	100.0

Interestingly, among high school students, the direction of change in the violence measures is the opposite of what was found among middle school students. Among high school students, violence perpetration and victimization both decreased from pre to posttest. In the unadjusted model, the decrease in perpetration of violence is statistically significant, but the significance is diminished in the adjusted model. Also decreasing was the mean score on feeling unsafe at school or on the way to school. (See Table 89.) Finally, slightly more respondents at post-test reported not missing any school in the previous 30 days because of feeling unsafe. (See Table 90.) All changes were in the desired direction even if not statistically significant, unlike with the middle school sample. Furthermore, all means at baseline and at posttest are less than .5 indicating that most reported never perpetrating or experiencing violence.

**Table 89:** Examining the effect of Module B and Module C pretest scores on posttest scores for selected high school SFS program participants, unadjusted and adjusted<sup>a</sup> model results

Measure (unadjusted n/adjusted n)	Unadjusted				Adjusted				Desired Outcome
	Base- line Mean	Post- test Mean	F-test & sig. <sup>b</sup>	effect size <sup>c</sup>	Base- line Mean	Post- test Mean	F-test & sig. <sup>b</sup>	effect size <sup>c</sup>	
Violence Perpetration (135/133)	0.33	0.26	4.26*	0.031	0.33	0.26	0.652	0.005	⬇️
Violence Victimization (135/133)	0.25	0.21	2.097	0.015	0.25	0.21	1.244	0.010	⬇️
Felt unsafe at or on way to school (133/131)	0.11	0.05	1.699	0.013	0.11	0.05	0.061	0.000	⬇️

<sup>a</sup>Model adjusted for biological sex, grade, ethnicity, and English as a primary language at home.

<sup>b</sup>Exact statistic.

<sup>c</sup>Partial eta squared where effects are: small = .01, medium = .06, large = .14 or larger.

\*p ≤ .05, \*\*p ≤ .01, \*\*\*p ≤ .001.

**Table 90:** The percentage of respondents who did not go to school at least once during the past 30 days because they felt unsafe at or on their way to school by frequency category, selected high school SFS program participants

	<b>0 days</b>	<b>1 day</b>	<b>2 or 3 days</b>	<b>4 or 5 days</b>	<b>6 or more days</b>
Baseline (%) (n=134)	93.3	4.5	1.5	0.0	0.7
Posttest (%) (n=135)	94.1	5.9	0.0	0.0	0.0

Table 91 provides the list of programs working with High School students who used Module D or the Internal Resiliency module.

**Table 91:** Data for Module D by site

Site	%
Rocky Mountain Youth Corps	5.3
North Central Community Based Services	4.3
Santa Fe Public Schools	50.9
Native American Community Academy	4.1
Five Sandoval Indian Pueblos	1.8
National Indian Youth Leadership	14.8
Sandoval County	6.6
Santa Fe Community College	2.7
Tri-County Community Services	9.4
Total	100.0

The scales measuring internal resiliency show improvement. In the unadjusted model, there were significant increases in cooperation and communication, self-efficacy, empathy, and problem solving. After adjusting for biological sex, grade, race/ethnicity, and language spoken at home, these significant differences were no longer seen. However, with one exception, all mean scale scores increased in the adjusted model. The exception was scale assessing goals and aspirations which decreased by .02 points. This decrease may be related to a ceiling effect since the Goals and Aspirations mean scale score was closest to 3 at pretest at 2.71. The next two highest were Self Efficacy and Self Awareness at 2.28. (See Table 92.)

**Table 92:** Examining the effect of Module D pretest scores on posttest scores for selected high school SFS program participants, unadjusted and adjusted<sup>a</sup> model results

Measure (unadjusted n/adjusted n)	Unadjusted				Adjusted				Desired Outcome
	Base- line Mean	Post- test Mean	F-test & sig. <sup>b</sup>	effect size <sup>c</sup>	Base- line Mean	Post- test Mean	F-test & sig. <sup>b</sup>	effect size <sup>c</sup>	
Cooperation and Communication (486/479)	2.02	2.12	9.827**	0.020	2.03	2.13	0.000	0.000	↻
Self-efficacy (486/479)	2.28	2.34	3.930*	0.008	2.29	2.34	0.247	0.001	↻
Empathy (486/479)	2.02	2.11	7.272**	0.015	2.02	2.10	0.447	0.001	↻
Problem solving (486/479)	1.90	2.02	11.275****	0.001	1.90	2.02	0.850	0.002	↻
Self-awareness (484/478)	2.28	2.32	1.723	0.004	2.27	2.32	0.426	0.001	↻
Goals and Aspirations (486/479)	2.71	2.69	0.428	0.001	2.71	2.69	0.071	0.000	↻

<sup>a</sup>Model adjusted for biological sex, grade, ethnicity, and English as a primary language at home.

<sup>b</sup>Exact statistic.

<sup>c</sup>Partial eta squared where effects are: small = .01, medium = .06, large = .14 or larger.

\*p ≤ .05, \*\*p ≤ .01, \*\*\*p ≤ .001.

Finally, Table 93 provides a list of programs that implemented Module E or the External Resiliency measure.

**Table 93:** Data for Module E by site

Site	%
Five Sandoval Indian Pueblos	1.8
National Indian Youth Leadership	16.0
Native American Community Academy	4.4
North Central Community Based Services	4.7
Rocky Mountain Youth Corps	5.5
Santa Fe Community Center	2.9
Santa Fe Public Schools	54.5
Tri County Community Services	10.2
Total	100.0

Module E measured external resiliency such as relationships and support from others including parents, adults, and peers. High school students generally reported moderate to high average mean scores at posttest but only caring relationships with adults in school increased significantly. In the adjusted model, however, meaningful participation in home increased significantly. Responses on these measures ranged from 0 to 3 where 0 reflect not having any external support and 3 a lot of external support. Average scores on most scales were between 2 and 3 and increased. However, several were between 1 and 2 and therefore worthy of some additional consideration. High school students reported having less support than might be preferred in their relationships with adults at school and indicated a relatively low sense of engaging in meaningful ways at school, at home, and in the community. They also indicated that while they generally feel they have caring relationships with peers, their peers do not necessarily have a pro-social influence on them. Overall these results speak to a lack of connection and involvement youth seem to feel towards their family life, school life, and community life. One thing that may be of considerable benefit to youth is create more opportunities for them to connect in meaningful ways to their environments. This could include activities such as creating a club at school, becoming involved in a local political issue, volunteering at a shelter, helping with grocery shopping, menu planning or meal preparations. It seems that high school youth need ways in which they can feel they are able to make a positive difference in other's lives through their contributions. High school is often a time in which many kids "tune out" to their parents, teachers, and the world around them. Parents, teachers, and community leaders need to find ways to bring them back in to the fold and keep them connected with activities in which they can participate and feel accomplished. (See Table 94.)

**Table 94:** Examining the effect of Module E pretest scores on posttest scores for selected high school SFS program participants, unadjusted and adjusted<sup>a</sup> model results

Measure (unadjusted n/adjusted n)	Unadjusted				Adjusted				Desired Outcome
	Base- line Mean	Post- test Mean	F-test & sig. <sup>b</sup>	effect size <sup>c</sup>	Base- line Mean	Post- test Mean	F-test & sig. <sup>b</sup>	effect size <sup>c</sup>	
Caring Relationships (449/444)	1.83	1.98	14.977***	0.032	1.82	1.98	0.215	0.000	☺
High Expectations: Adults in School (448/444)	2.17	2.24	3.699	0.008	2.16	2.23	1.628	0.004	☺
Meaningful Participation: In the School (447/443)	1.63	1.69	2.731	0.006	1.62	1.68	0.007	0.000	☺
Caring Relationships: Adults in Home (205/200)	2.13	2.15	0.295	0.001	2.14	2.15	2.368	0.012	☺
High Expectations: Adults in Home (205/200)	2.50	2.49	0.082	0.000	2.51	2.49	0.311	0.002	☺
Meaningful Participation: In the Home (205/200)	1.84	1.88	0.355	0.002	1.86	1.88	4.297*	0.022	☺
Caring Relationships: Adults in Community (204/199)	2.22	2.30	2.116	0.010	2.22	2.29	1.847	0.009	☺
High Expectations: Adults in Community (204/199)	2.31	2.36	0.621	0.003	2.31	2.35	0.514	0.003	☺

**Table 94-Continued:** Examining the effect of Module E pretest scores on posttest scores for selected high school SFS program participants, unadjusted and adjusted<sup>a</sup> model results

	Unadjusted				Adjusted				
Meaningful Participation: In the Community (205/200)	1.42	1.44	0.167	0.001	1.42	1.43	0.812	0.004	↻
Caring Relationships: Peers (205/200)	2.28	2.25	0.315	0.002	2.29	2.25	0.020	0.000	↻
High Expectations: Pro-social peers (205/200)	1.94	2.02	2.573	0.012	1.95	2.02	0.023	0.000	↻

<sup>a</sup>Model adjusted for biological sex, grade, ethnicity, and English as a primary language at home.

<sup>b</sup>Exact statistic.

<sup>c</sup>Partial eta squared where effects are: small = .01, medium = .06, large = .14 or larger.

\*p ≤ .05, \*\*p ≤ .01, \*\*\*p ≤ .001.

### *Summary of Findings*

It is interesting that there is as much improvement among measures of external resiliency as there is among both middle school and high school students given that these constructs are not necessarily directly targeted by prevention programs that more typically focus on building internal resiliency among this age group. It would seem that prevention programming may encourage youth to connect with adults and peers in their lives in more meaningful ways which then benefits the youth. It is also interesting that middle school students fared so much worse on measures of violence perpetration and victimization than did high school students, although it is possible that the increases seen among the middle school sample is due to a floor effect yet this was not seen among the high school sample.

This FY, the middle school SFS sample has looked rather different from previous years where they tended to show greater improvements or at the very least, fewer increases in undesired behaviors. Middle school findings indicate that considerable thought needs to be given as to what is happening in the middle school setting and whether these are conditions that are isolated to particular sites or if this is more universal. For example, at least one middle school is located within the same campus as the high school. This may explain why middle school students are beginning to use drugs at higher rates than previously seen. Consideration must be given not only to environmental conditions that may be leading to increases in ATOD use and increases in violence but also to whether current prevention curricula being used are still appropriate. We would recommend that prevention programmers not only talk amongst themselves but also talk candidly with students and staff within the school systems to get a broader perspective of what is happening.