New Mexico Department of Health, Office of Substance Abuse prevention

Evaluation of Substance Abuse Prevention Programming in New Mexico: Block Grant Funded Direct Services

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List of Abbreviations

ATOD	Alcohol, Tobacco, and Other Drugs
CBP	Community Based Processes
DWI	Driving While Intoxicated
FY	Fiscal Year
IRB	Institutional Review Board
LEA	Law Enforcement Agency
LST	Botvin's Life Skills Training
OSAP	Office of Substance Abuse Prevention
PIRE	Pacific Institute for Research and Evaluation
PVMS	Project Venture Middle School
SAPT	Substance Abuse Prevention and Treatment Block Grant
SEOW	State Epidemiological Outcomes Workgroup
SFS	Strategies for Success
SPF	Strategic Prevention Framework
TGFD	Too Good for Drugs
UAD	Underage Drinking
YRRS	New Mexico Youth Risk and Resiliency Survey
YRBSS	Youth Risk Behavior Surveillance Survey

Introduction

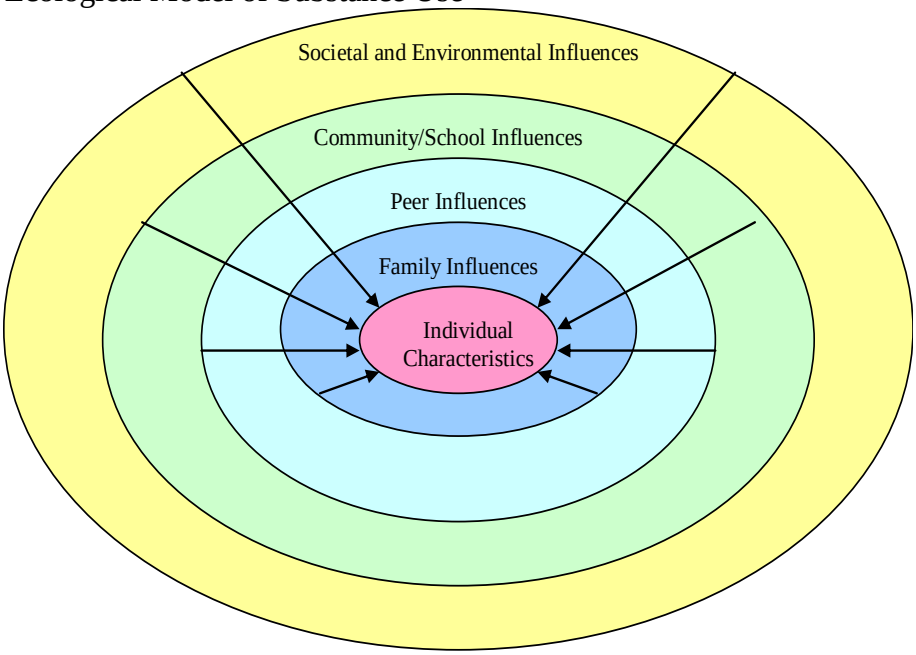
In recent years, progress has been made in reducing some alcohol, tobacco, and other drug (ATOD) use and abuse among adolescents in New Mexico (NM), yet for some substances average use among New Mexico youth is still far higher than the U.S. average. Data from the 2011 NM Youth Risk and Resiliency Survey (YRRS) for example revealed that among high school students in 2011, 19.9% of 9th-12th graders in NM were current smokers, down from 24% in 2009, yet slightly higher than the U.S. rate (18.1%).[1] Furthermore, 27.4% of high school students reported having first drunk alcohol (other than just a few sips) prior to age 13 compared to 20.5% among U.S. high school students as a whole. Marijuana use among NM adolescents is also well above the U.S. average and may well be increasing. In 2011, 18.5% of adolescents reported trying marijuana before the age of 13 compared to 8.1% across the U.S.; 27.6% of high school students in NM reported using marijuana at least once in the past 30 days compared to only 23.1% across the U.S. On the other hand, NM has made considerable strides in reducing current drinking and binge drinking prevalence among high school students. Past 30-day prevalence for both measures in NM has actually decreased over time to averages very close to U.S. averages. In NM, 36.9% reported drinking alcohol at least once in the past 30 days and 22.4% reported current binge drinking compared with 38.7% and 21.9% respectively in the U.S. as a whole. Males and females did not differ significantly on many of the YRRS ATOD use measures in 2011 meaning that females reported as much use as males. Minorities in NM are frequently at greater risk for ATOD use than their non-Hispanic white peers.

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 ATOD initiation and use. Prevention strategies may focus on parents or youth, and some focus on the family as a whole. Others focus on changing the school and community environments in which youth live and interact with peers. Figure 1 shows the multiple levels of influence on an individual's behavior. Individual characteristics such as self-esteem, attitudes, perception of risk, and even genetic predisposition are also influential in whether an individual is at increased risk for ATOD use and abuse. Added to those individual characteristics are the influences of the family including influences from parents or caregivers who may or may not use substances themselves, who may or not monitor their child's behavior or set clear boundaries and expectations. Even older siblings may introduce younger siblings, even inadvertently, to ATOD use. One objective of OSAP funded prevention programming during Fiscal Year 2012-2013 (FY13) was to target prevention programming efforts on these first two levels of influence, where most of the research on the effectiveness of prevention programming has focused. In addition, another OSAP objective for ATOD prevention is for providers to use environmental-level prevention strategies

[1] Green D, Peñaloza L, and FitzGerald C. 2012. New Mexico Youth Risk & Resiliency Survey: High School Survey Results 2011. Epidemiology and Response Division, New Mexico Department of Health, School and Family Support Bureau, New Mexico Public Education Department, and University of New Mexico Prevention Research Center. Report can be found at:http://nmhealth.org/erd/HealthData/pdf/ERD-HealthData-YRRS-HighSchoolResults-2011.pdf.

to reduce underage alcohol use. In FY13, OSAP required direct service providers to set aside some prevention funding to implement at least one environmental prevention strategy, such as changing school and/or local policies, discouraging retail access to youth by working with retailers, helping law enforcement to enforce underage drinking law more strenuously, and changing the perception of that underage drinking is normative adolescent behavior.

Figure 1: The Ecological Model of Substance Use



OSAP has designed a comprehensive prevention program to address risk factors and increase protective factors influencing substance use at multiple levels of this model. In the FY13 this included providing direct service prevention programming to 12 to 17 year olds in multiple communities across NM.

OSAP requires local and statewide evaluation be conducted for the purpose of learning about and improving the effectiveness of prevention programming across the state and reducing ATOD initiation and use. All 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 in ATOD use, 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 to alcohol and tobacco 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. These strategies were assessed through the 2013 New Mexico Community Survey (2013 NMCS) and reported on in the Strategic Prevention Enhancement grant final report.

State Evaluation Team

The Pacific Institute for Research and Evaluation (PIRE) served as the state level evaluation contractor for FY13. The evaluation team includes Martha W. Waller, Ph.D., Elizabeth Lilliott, Ph.D., 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

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 of participants. The evaluation then examines differences between the two data points. However, in a true experimental design pre- and post-test data for a comparison group that did not receive prevention programming would also exist. The collection of comparison data is extremely challenging and prohibitively expensive for NM. At this point most youth in the state receive some form of prevention programming in school. Therefore, data from the NM middle school and high school Youth Risk and Resiliency Survey (YRRS) (also known as the Youth Risk Behavior Surveillance Survey or YRBSS) are used to compare to middle school and high school youth data from the Strategies for Success (SFS) instrument. This is done through graphing pre- and post-test data against comparable YRRS data. YRRS data are weighted to reflect the NM student population and therefore, are representative of the "typical" or average student in NM. More detail on how this was done is discussed in the Strategies for Success section.

PIRE continues to explore with OSAP alternatives to improving the current 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 FY13, no new assessment instruments were created.

During FY13, 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 (SFS) to simplify and streamline the evaluation process for communities. Second was to assist programs in planning and executing the best approach to collecting pre & post intervention data. This is extremely important. Changes from pre to post-test may reflect changes in the comfort levels of the participants. At pre-test some respondents may feel less willing to answer truthfully even with the guarantee of confidentiality. In this case, respondents may report less ATOD use at pre-test than has actually taken place. If respondents report more honestly at the end of the intervention because respondents have developed a relationship with the program

providers and trust has been established, this in turn could lead to more accurate reporting of ATOD use. In turn, this would create the perception of increases the in prevalence of use at post-test. Alternatively, at post-test respondents may have learned the socially desirable response and therefore, may 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 accomplish. PIRE has discussed with program providers and evaluators ways in which they might improve the test taking environments among their programs.

Strategies for Success (SFS) 12-17

Background

In FY 13, there were 5 prevention programs addressing substance use among 12-17 year olds in New Mexico. Prevention programs typically seek to build drug resistance skills that enable young people to recognize and challenge common misperceptions 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). The following programs were implemented during FY13.

Botvin's Life Skills Training

The Life Skills Training universal classroom program is a proven, highly effective substance abuse prevention/competency enhancement program designed to focus primarily on the major social and psychological factors promoting substance use/abuse. It is based on 20 years of research concerning the causes of substance abuse and how best to prevent it. The program includes five major components, each of which consists of two to six lessons that are taught in sequence. The LST program increases student' knowledge of the immediate consequences of substance use while providing them with the necessary skills to resist social (peer) pressures to smoke, drink and use drugs. In addition, it helps student develop greater self-esteem, self-mastery, and self-confidence, enabling them to effectively cope with social anxiety. The key components of the Elementary version of the Life Skills Training Program are Personal Self-Management Skills (provide students with skills for enhancing self-esteem, learning creative problem solving, reducing stress and anxiety, and managing anger), General Social Skills (empower students with skills to meet personal challenges such as overcoming shyness, communicating clearly, building relationships, and avoiding violence), and Drug Resistance Skills (enable students to build defenses against pressures to use tobacco, alcohol, and other drugs). In addition, the key factors addressed by this approach are Cultural Bonding, School Bonding, Perception of Harm, and Social Competence.

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, with "Home Pages" for families with high-school aged students.

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.

Methods

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 made available with permission to measure outcomes around violence perpetration, violence victimization, internal resiliency, and external resiliency from 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 possibly more accurate indicators of the program's objectives. 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.

The SFS instruments in FY13 remain the same as in FY 12, and only the version of the ATOD Core survey for middle school students (6^{th} through 8^{th} graders) was administered. The survey measures 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. It also probes students about their future intentions to smoke cigarettes. 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 and so serves as our comparison group.

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 total sample size for middle school students from 5^{th} grade to 8^{th} grade was 700[2]. There were no high school students this year in our sample. The middle school sample consists of adequate subsamples to conduct sub-group analyses by biological sex, Hispanic ethnicity 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 except demographic information. 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,

[2] The sample size 700 reflected the number of combined pretest and posttest participants. Some posttest participants have missed the pretest.

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 × 2 contingency tables with a dichotomous outcomes (e.g., yes/no, ever/never) with matched pairs of subjects. The alpha criterion set was .05 ($\alpha = <.05$). 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's 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 & posttest a partial Eta squared was calculated (η_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 2011 were analyzed using SAS controlling for survey design effects. The total N for middle school respondents was 3,851. When weighted to reflect the population, middle school data reflect almost 74,989 middle school respondents. The YRRS data are 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 2011) 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, 7th grade *pretest* SFS data are compared to 7th grade YRRS data and 7th grade *posttest* SFS data are compared to 8th grade YRRS data less approximately 3 months of increase). Please note that 8th grade *posttest* SFS data are compared

to 9th grade YRRS data on questions available in both SFS and YRRS high school survey. 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 6 sites utilizing the Strategies for Success survey instrument. The distribution of SFS participants by site is captured in Table 1 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 1: Distribution of SFS middle school program participants by site

Site	Curriculum Provided	Number of Participants[a]	Percent of Total Participants[b]
Counseling Associates	Botvin's Life Skills Training	341	48.7
Five Sandoval Pueblos	Project Venture	28	4.0
North Central Community Based Services	Too Good for Drugs	122	17.4
Santa Fe Mountain Center	Project Venture	57	8.1
San Juan County Partnership	Botvin's Life Skills Training	122	17.4
Southern New Mexico Human Development	Strengthening Families Program	30	4.3
	Total	700	100.0

[a]This is based on the number of combined participants at pretest and posttest. Some posttest participants have missed the pretest.
[b]Due to rounding, the percentage total is not exactly 100%

The mean age for males was 11.9 and 11.9 for females. The sample was almost evenly distributed between males (49.9%) and females (50.0%). SFS program participants were predominantly Hispanic for both males (65.1%) and females (64.7%), followed by Native American and white. Approximately half of males (51.2%) and females (55.5%) indicated that at home, they most often spoke a language other than English (see

Table 2). The total matched pairs included in analyses was N=625.

Table 2: Demographics for middle school SFS program participants by gender[a] (n=691)

Demographic	% SFS Program Participants Male (n=344)	% SFS Program Participants Female (n=346)
Grade		
5th grade	0.58	1.45
6th grade	47.97	49.71
7th grade	33.14	35.26
8th grade	13.31	13.58
Race/Ethnicity		
White	12.79	10.69
Hispanic	65.12	64.74
Native American	18.31	21.97
Other	3.78	2.60
Language Other than English Spoken Most Often[b,c]		
Yes	51.16	55.49

[a]Demographic information is based on the number of pretest participants only. Missing data for gender: n=1.
[b]Dichotomous variable (yes or no) capturing the percentage of youth living in homes where English is not the primary language.
[c]Missing data for language other than English by gender: male=6 and female=1.

Prevalence of Substance Use among Middle School Respondents

Among male and female middle schools students, we find that there are no statistically significant changes in any reported substance use from pre to posttest. There were minor increases and decreases for male and females but none large enough to be attributable to anything other than chance (see Table 3). Surprisingly, binge drinking among males did not increase from pre- to post-test but it did among females. In addition, cigarette use among males also decreased slightly. Interestingly, although alcohol use was the most prevalent risk behavior reported, marijuana and inhalant use are more prevalent than binge drinking.

Table 3: Past 30-day ATOD use[a] prevalence, differences from pretest to posttest for middle school SFS program participants

Substance Total sample N=625	**Pretest**		**Posttest**		**McNemar Test**	**Pretest**		**Posttest**		**McNemar Test**	**Desired Outcome**
	n	**%**	n	**%**		n	**%**	n	**%**		
	Male					*Female*					
Cigarettes	11	3.47	8	2.52	0.60	6	1.96	10	3.27	1.14	↓

Chewing Tobacco	2	0.63	6	1.89	2.67	3	0.98	2	0.66	0.2	↓
Alcohol	26	8.20	27	8.52	0.03	17	5.56	20	6.54	0.33	↓
Binge Drinking	8	2.53	8	2.53	0.00	7	2.29	11	3.59	1.14	↓
Marijuana	14	4.46	18	5.73	1.33	11	3.61	13	4.26	0.33	↓
Inhalant ever use	12	3.81	16	5.08	1.33	11	3.61	14	4.59	0.69	↓

[a] Dichotomous substance use variable (yes or no).

Reported prescription drug use was generally low among both males and females. At pretest males reported almost no use but at post-test, the number of male respondents reporting prescription drug misuse increased. Compared to males, females reported more general Rx drug misuse at pretest. Unfortunately, we are not able to determine what prescription drugs the girls may be using. There were no statistically significant differences from pre- to posttest for males or females (see Table 4).

Table 4: Past 30-day prescription drug use[a] prevalence, differences from pretest to posttest for middle school SFS program participants

Substance Total sample N=625	**Pretest**		**Posttest**		**McNemar Test**	**Pretest**		**Posttest**		**McNemar Test**	**Desired Outcome**
	n	**%**	n	**%**		n	**%**	n	**%**		
	Male					*Female*					
Any R_x medication not prescribed	2	0.63	7	2.22	5.00	4	1.32	3	0.99	0.14	↓
Any R_x pain pills not prescribed	0	0.00	3	0.95	NA	2	0.65	4	1.31	0.67	↓
Any Ritalin, Adderal, or Prozac not prescribed	0	0.00	0	0.00	NA	2	0.65	0	0.00	NA	↓
Any R_x sleep aids or tranquilizers not prescribed	1	0.32	2	0.63	1.00	0	0.00	1	0.33	NA	↓
Any other medications not prescribed	1	0.32	6	1.89	5.00	7	2.29	7	2.29	0.00	↓

[a] Dichotomous substance use variable (yes or no).

As is frequently the case in reporting substance use among adolescents, floor and ceiling effects are observed. For example, among these young adolescents, most do not report past 30 day substance use at pretest. As a result of maturation over the course of the school year, 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 there is little room, if any, to decrease.

Similarly, students may report very strong and positive relationships with their parents, a known protective factor against ATOD use. Since the parent-child relationship is typically very strong at pretest, over the course of the prevention program, there may be a decrease in this level of closeness. This is called a ceiling affect, essentially implying that on average strong parent-child relationships existed at pretest and therefore, the only room for movement is to decrease. When there is little variation in responses and most cluster at one end or the other of a spectrum, it is difficult to judge whether these effects (positive or negative) are an artifact of the program or the result of maturation. The use of a control group is typically the best way to see if these changes occurred because of the intervention or whether these changes would have occurred regardless of the intervention. When participants report very low substance use at pretest, it is difficult to demonstrate reductions in substance use at posttest. Likewise, when respondents report high protective factors at pretest, it is difficult to demonstrate increases in these protective factors at posttest.

Table 5 captures the average number of times core drugs were used in the past 30 days at pretest and posttest among middle school SFS program participants who reported use in each individual drug category at pretest. Both males and females reported statistically significant decreases in ever using inhalants. Caution should be exercised when interpreting the change of inhalant use because the question of inhalant ever used assesses lifetime inhalant use. Estimates of lifetime inhalant use at posttest should either remain the same as at pretest or increase. Decreases in reported inhalant ever use at posttest may indicate data reporting inconsistence between pretest and posttest or missing data at posttest. Males also decreased cigarette use and alcohol use significantly. The frequency of marijuana use in the past 30 days decreased slightly for males, which is a great improvement after observing an increase trend in three consecutive fiscal years (FY10 to FY12), and females continued to show a decline in marijuana use since FY12 cohort (see Table 5).

Table 5: Frequency of ATOD use[a], differences from pretest to posttest among middle school 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 (8/3)	1.38	0.50	-2.50*	2.67	0.33	-2.65	⬇
Chewing tobacco (2/3)	1.00	0.50	-1.00	3.00	0.00	-1.96	⬇
Alcohol (18/9)	1.33	0.57	-3.05**	1.22	0.56	-2.00	⬇
Binge drinking (18/9)	0.61	0.24	-1.50	1.00	0.44	-1.47	⬇
Marijuana (12/8)	2.08	1.72	-1.17	2.38	1.25	-1.84	⬇
Inhalant ever use (13/11)	1.00	0.67	-2.35*	1.00	0.55	-2.89*	⬇

[a]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.

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 decreases in almost every reported substance use at posttest (from 3.5% to 44.3%) except for chewing tobacco, which displayed a drastic change at posttest (104.4%) (see Table 6).
Figure **2** graphs the changes from pretest to posttest for males. The pattern is true for female SFS program participants who reported decreases in every reported substance use at posttest (from 16.6% to 100.0%).
Figure 3 graphs the changes from pretest to posttest for females.

Table 6: Past 30-day ATOD use[a] prevalence at posttest among those program participants reporting any ATOD use at pretest

Substance Baseline users: male=46 female=32	% Pretest	% Posttest	% Change	% Pretest	% Posttest	% Change
	Male			*Female*		
Cigarettes	23.91	13.33	-44.25	18.75	15.63	-16.64
Chewing Tobacco	4.35	8.89	104.37	9.38	0.00	-100.00
Alcohol	58.7	37.78	-35.64	53.13	25.00	-52.94
Binge Drinking	17.39	11.36	-34.68	21.88	12.5	-42.87
Marijuana	34.78	27.27	-21.59	34.38	18.75	-45.46
Inhalant ever use	28.26	27.27	-3.50	34.38	28.13	-18.18

[a] Dichotomous substance use variable (yes or no).

Figure 2: 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

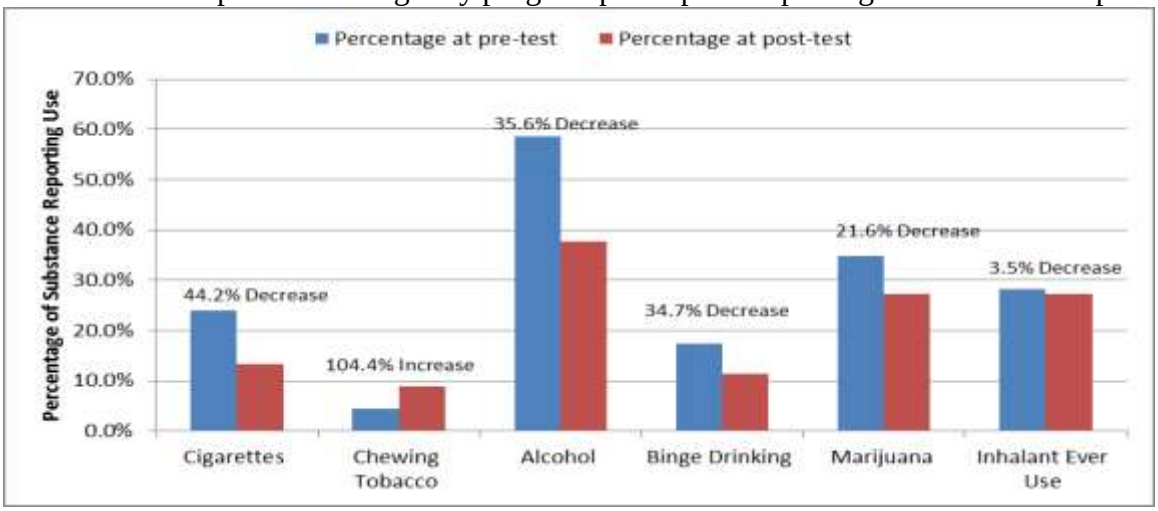
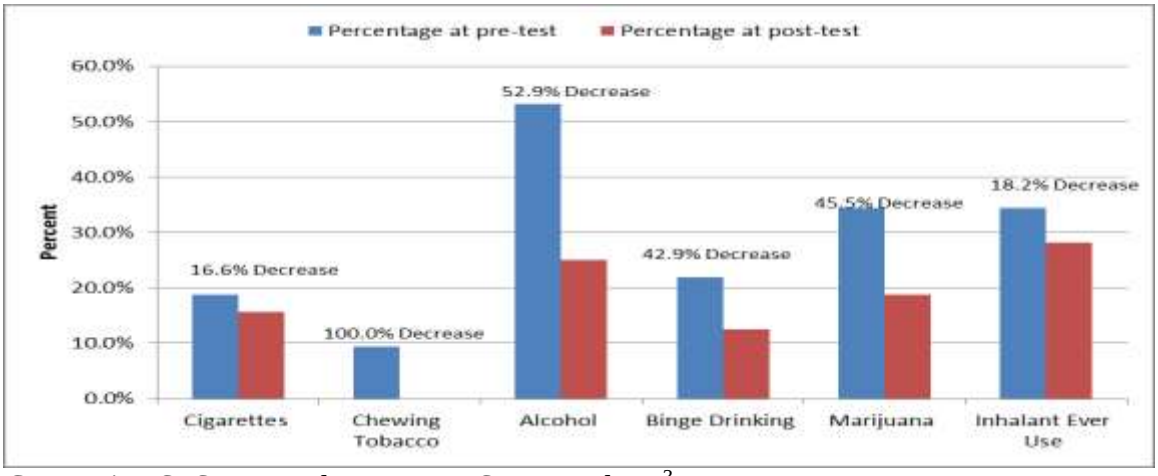


Figure 3: The percentage of female middle school SFS program participants reporting past 30-day substance use at posttest among only program participants reporting substance use at pretest.



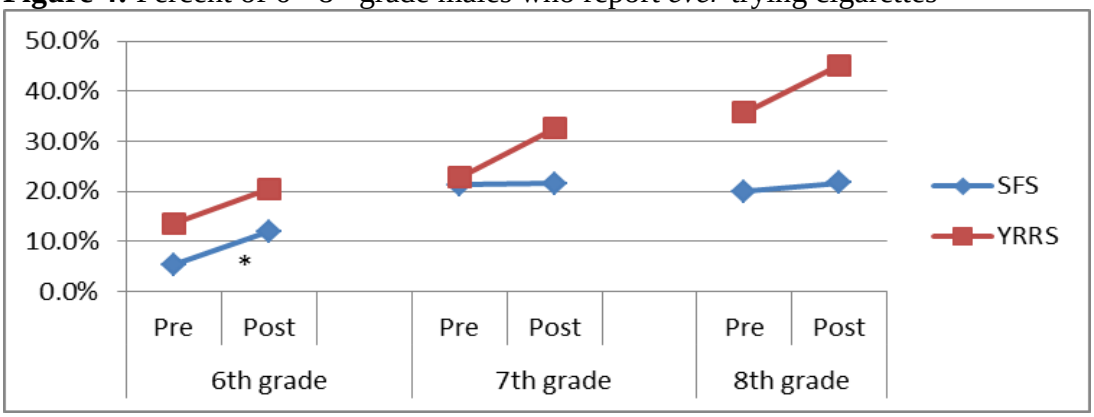
Comparing SFS Respondents to YRRS Respondents[3]

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

Overall, SFS students reported a mixed trend in lifetime and past 30-day tobacco use across grades. Sixth grade male and female SFS students exhibited significant increase in lifetime tobacco use (see Figure 4 & Figure 5). SFS students from other grades remained at the same level of lifetime use from pre to posttest or increased insignificantly. Compared with 2011 YRRS students, the prevalence rates of past 30-day tobacco use for 6th graders of male and female SFS students in FY13 are lower than YRRS 6th graders. As grades increase, the SFS prevalence rates show less consistent trends across grades and gender (see

Figure **6** & Figure 7). In general, the prevalence of tobacco use (lifetime use and past 30-day use) among male and female 2013 SFS program participants was lower at posttest than the average New Mexico student as reported by the 2011 YRRS.

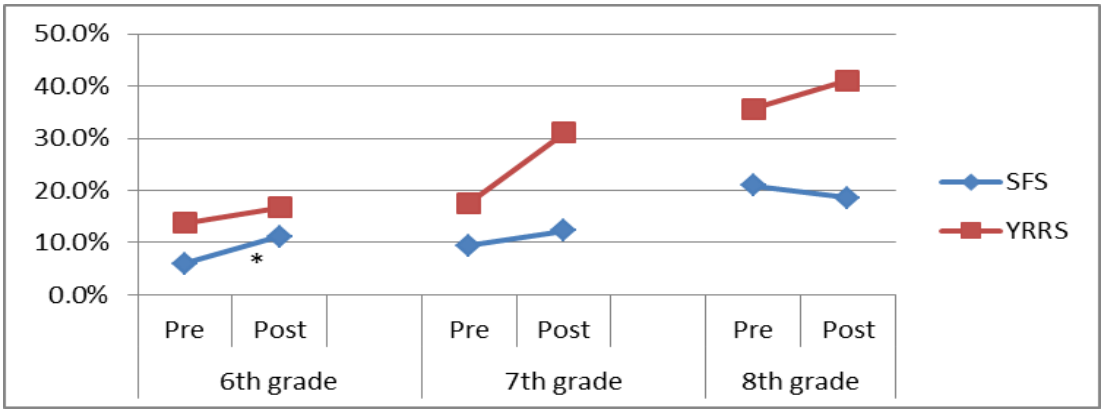
Figure 4: Percent of 6th-8th grade males who report *ever* trying cigarettes



*Change from pre to posttest for SFS is significant ($p < .05$).

Figure 5: Percent of 6th-8th grade females who report *ever* trying cigarettes

[3] Graphs not shown in text are available upon request.



*Change from pre to posttest for SFS is significant ($p < .001$).

Figure 6: Percent of 6th-8th grade males who report past 30-day cigarettes use

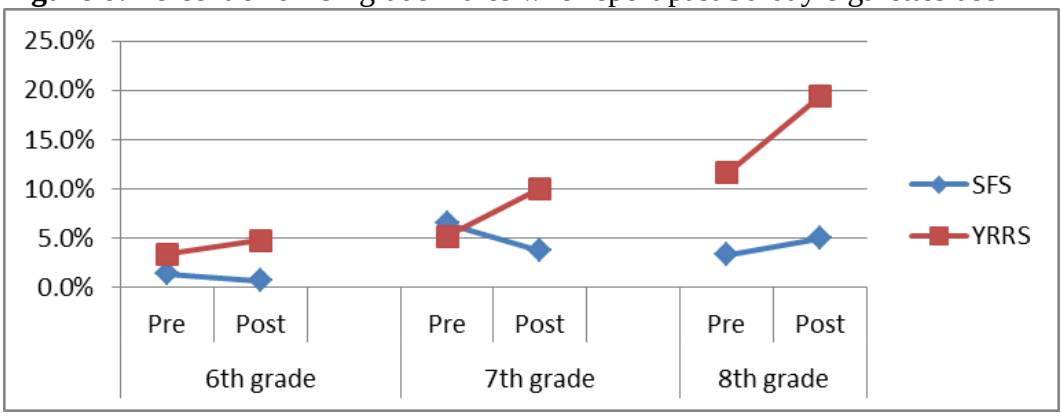
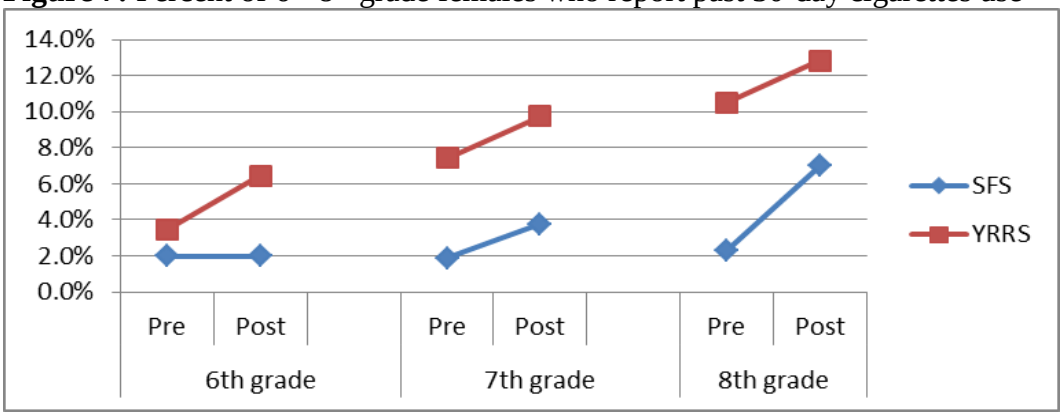


Figure 7: Percent of 6th-8th grade females who report past 30-day cigarettes use



There are higher percentages of male and female SFS program participants than their YRRS peers who reported their intentions not to smoke a cigarette "at any time during the next year," or "if a best friend offered a cigarette." Statistically speaking, SFS program participants' intentions remained unchanged between pretest and posttest in all grades except 7th grade male students regarding their intention of not smoking next year (see

Figure **8** to

Figure **11**).

Figure 8: Percent of 6th-8th grade males who report that they will probably not or definitely not smoke a cigarette at any time during the next year

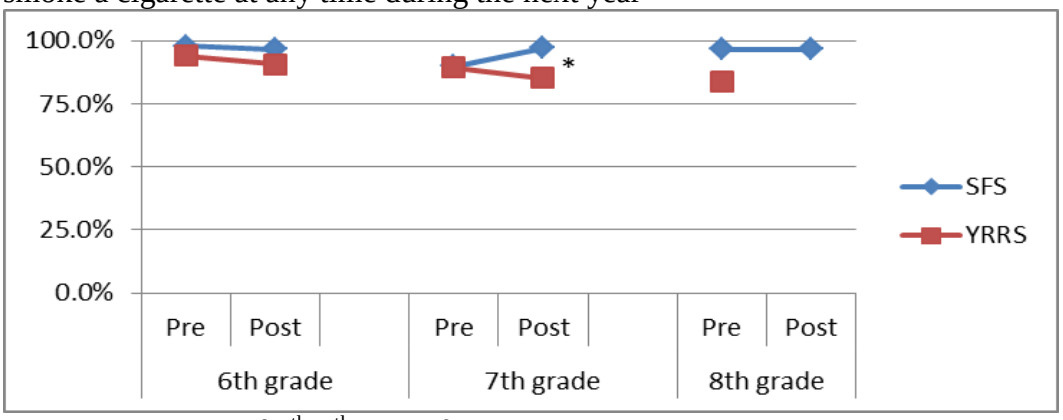


Figure 9: Percent of 6th-8th grade females who report that they will probably not or definitely not smoke a cigarette at any time during the next year

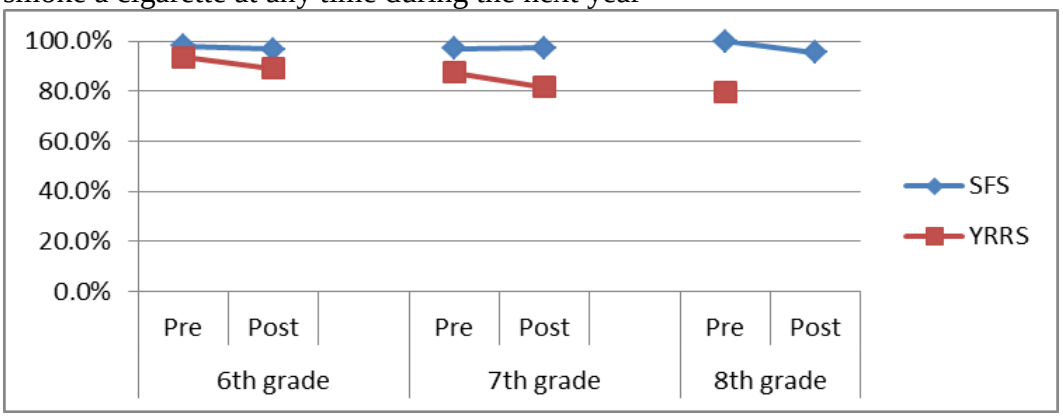


Figure 10: Percent of 6th-8th grade males who report that they would probably not or definitely not smoke a cigarette if one of their best friends offered it

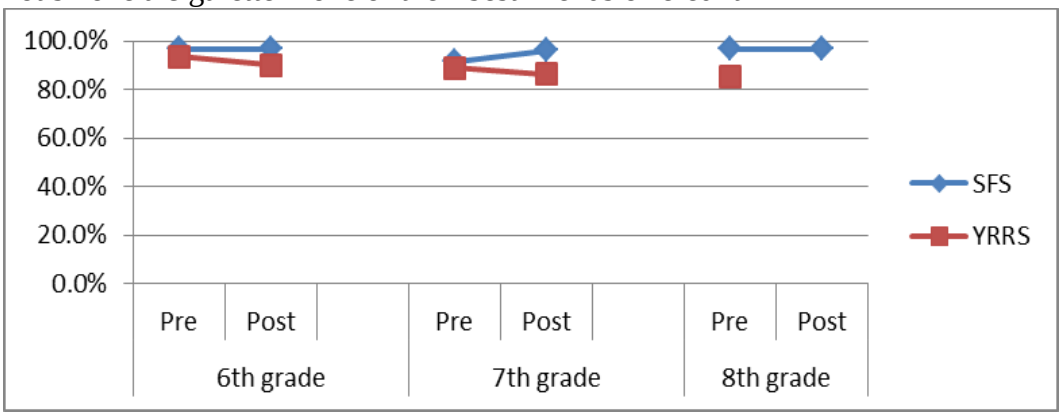
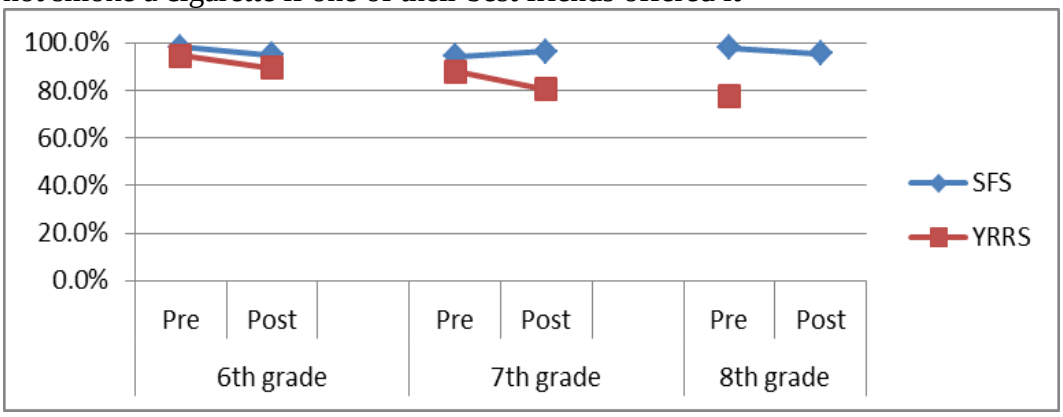


Figure 11: Percent of 6th-8th grade females who report that they would probably not or definitely not smoke a cigarette if one of their best friends offered it



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

The data show slight increases among SFS male and female students who reported *ever* drinking alcohol (see Figure 12 & Figure **13**). Generally, fewer SFS students appear to report ever using alcohol compared to YRRS students.

Figure 12: Percentage of 6th-8th grade males who report *ever* drinking alcohol

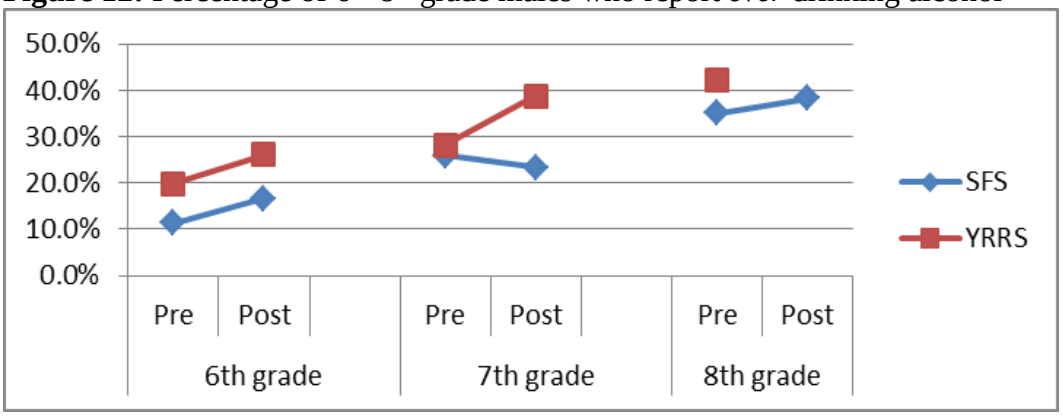
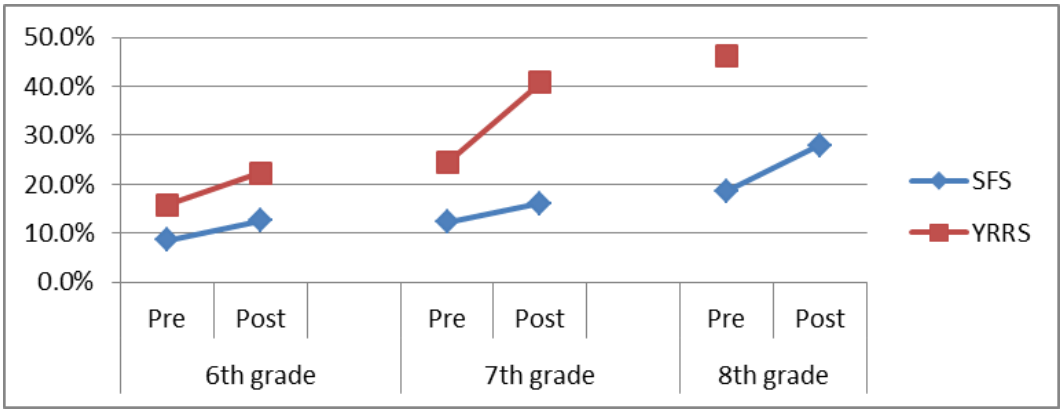


Figure 13: Percentage of 6th-8th grade females who report *ever* drinking alcohol



Both males and females showed inconsistent patterns in past 30-day alcohol use between pretest and post-test across all grades, for example, 6th grade girls slightly increased yet 7th grade girls decreased from pre to posttest. All changes are statistically insignificant. Again, the prevalence rates are generally lower than YRRS students (see

Figure 14 & Figure 15).

Figure 14: Percentage of 6th-8th grade males who report drinking alcohol in the past 30 days

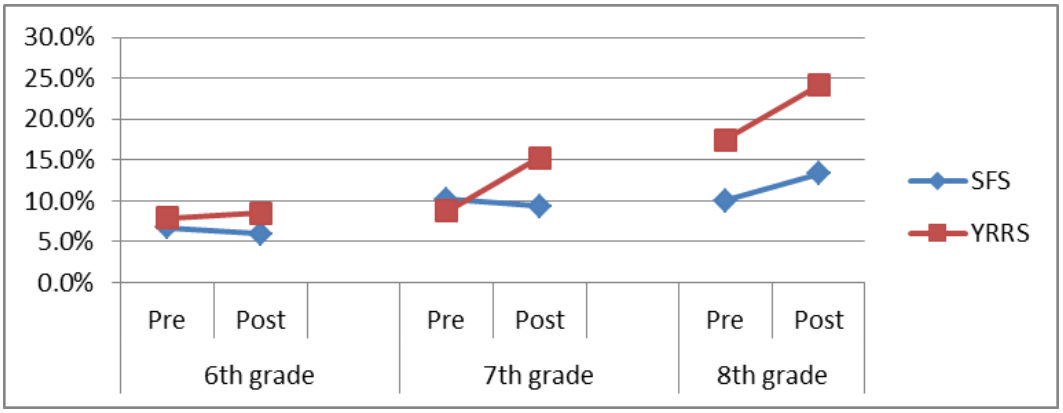
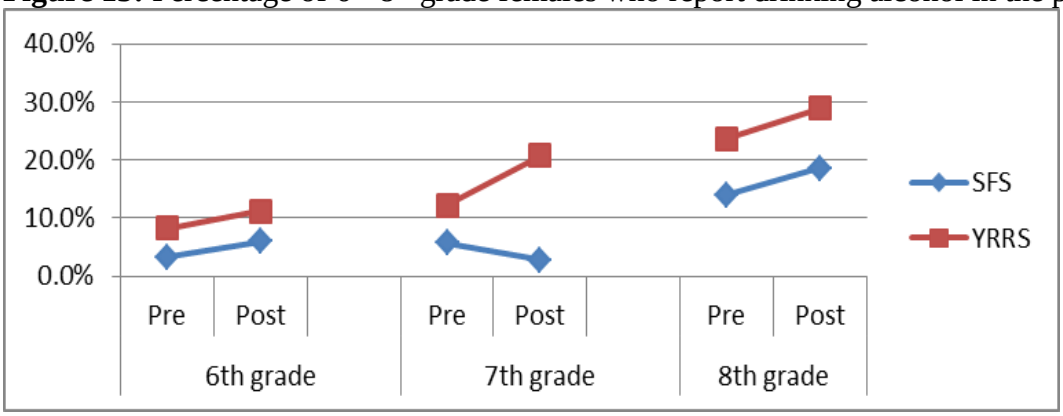


Figure 15: Percentage of 6th-8th grade females who report drinking alcohol in the past 30 days



Binge drinking also displays inconsistent patterns across grades and genders such as an increase for 7th grade boys and 6th grade girls, and a decrease for boys in 6th grade, yet such changes have not reached a significant level. Overall, SFS program participants report a lower prevalence rate of binge drinking than YRRS respondents.

Figure 16: Percentage of 6th-8th grade males who report binge drinking in the past 30 days

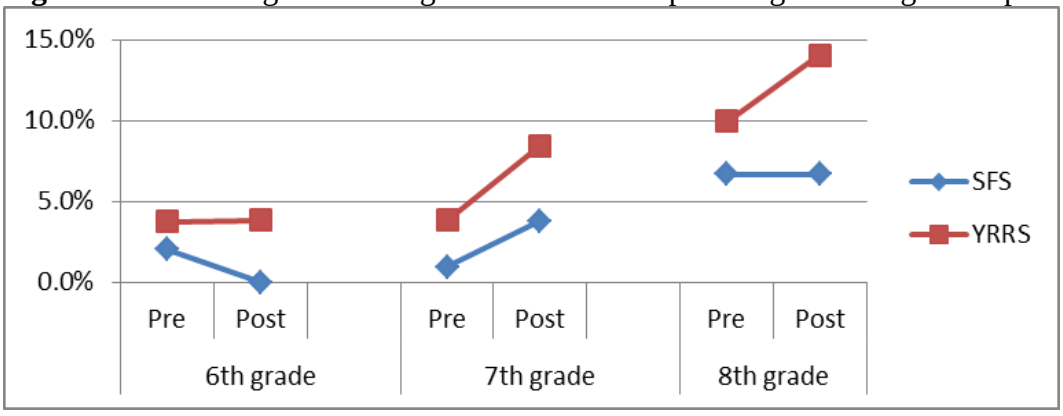
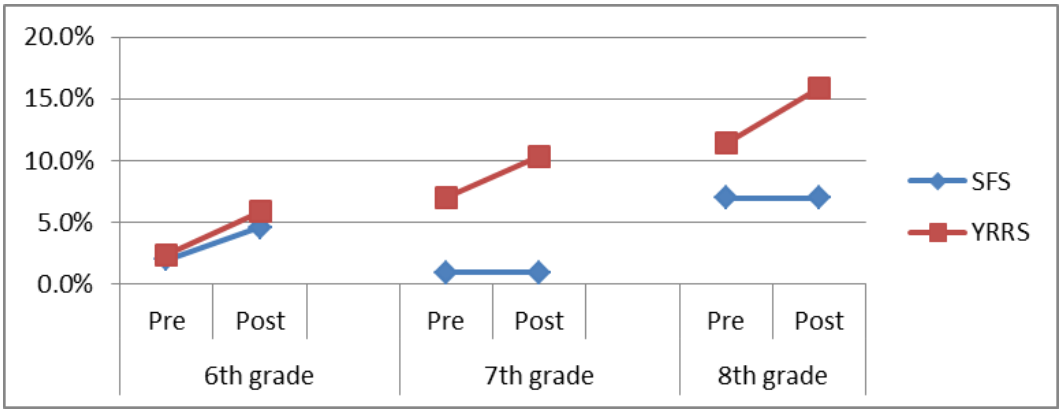


Figure 17: Percentage of 6th-8th grade females who report binge drinking in the past 30 days



In sum, SFS students generally have less current alcohol use than their YRRS counterparts. Yet depending on which alcohol consumption behavior is in question, there are no consistent trends observed in the SFS sample.

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

The number of SFS students reporting *ever* using marijuana increased only slightly or remained the same from pre to posttest males and females (Figure 18 & Figure 19). A similar pattern was found in past 30-day marijuana use across all grades and genders (Figure 20 and

Figure **21**), where any increases seen were slight and 8th grade current marijuana use remained stable. Furthermore, the observed rates of past 30-day marijuana use in the SFS 7th graders are lower than the reported rates for 2011 YRRS students for both males and females. The FY13 SFS cohort showed slight increases in marijuana use across grades and gender that mirrored the trend observed in 2011 YRRS students, yet overall marijuana use did not change significantly between pre and post-test.

Figure 18: Percentage of 6th-8th grade males who reported *ever* using marijuana

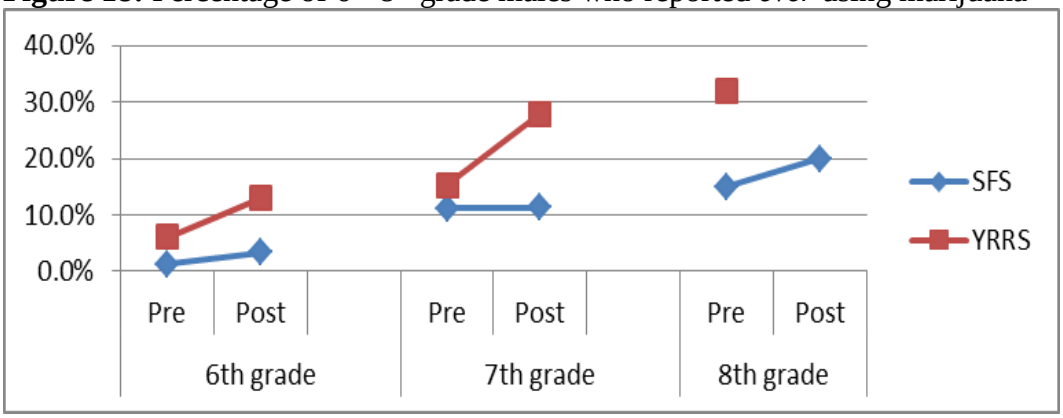


Figure 19: Percentage of 6th-8th grade females who reported *ever* using marijuana

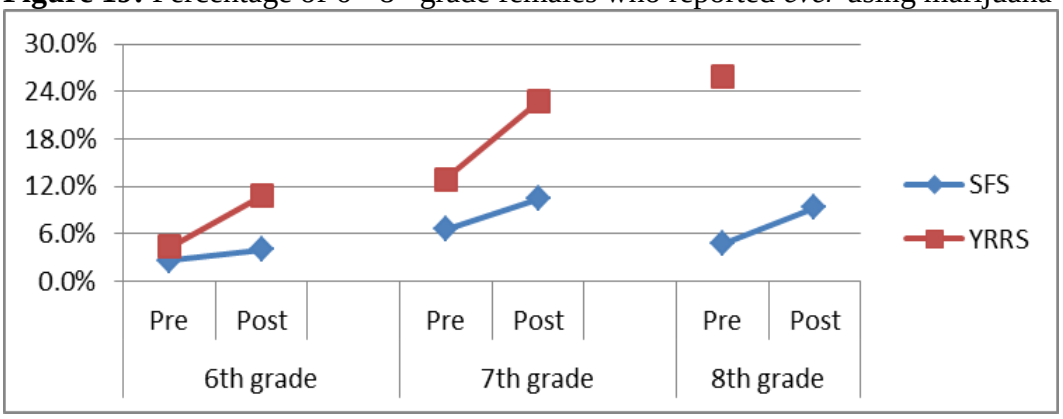


Figure 20: Percentage of 6th-8th grade males who reported past 30-day marijuana use

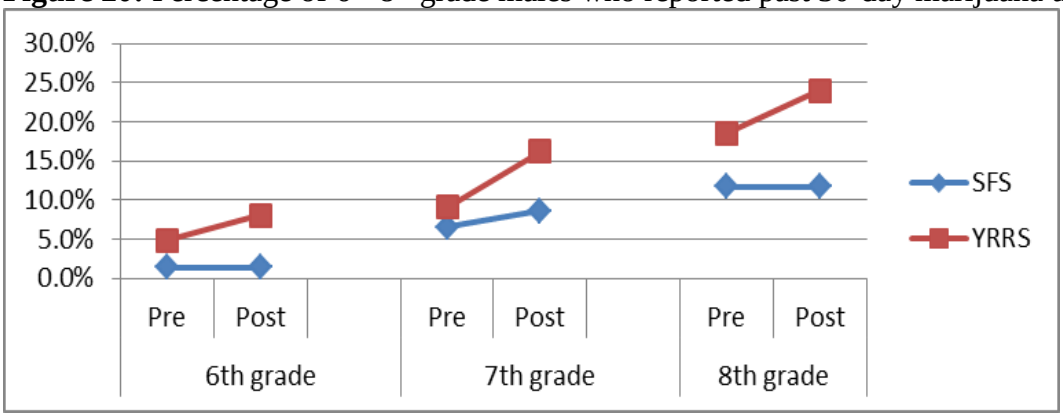
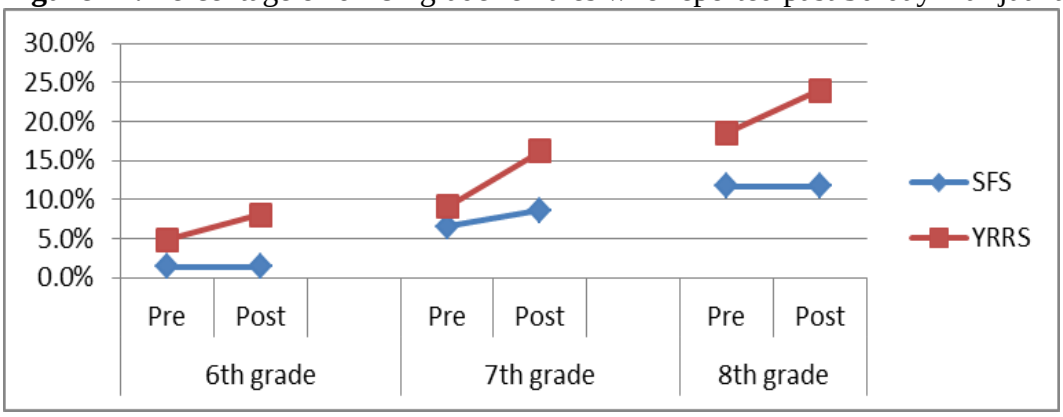


Figure 21: Percentage of 6th-8th grade females who reported past 30-day marijuana use



Compared to YRRS students, inhalant use is much lower for males and females across all grades. And both males and females showed inconsistent change patterns across grades.

Figure 22: Percentage of 6th-8th grade males who report ever using inhalants

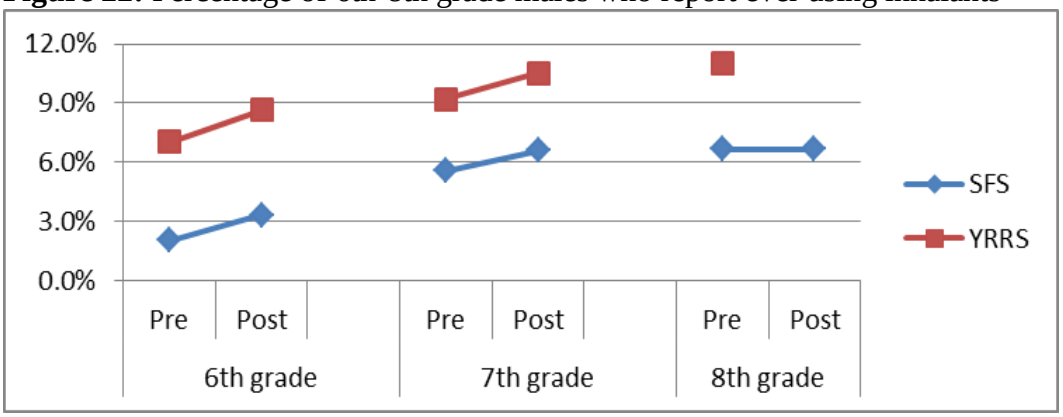
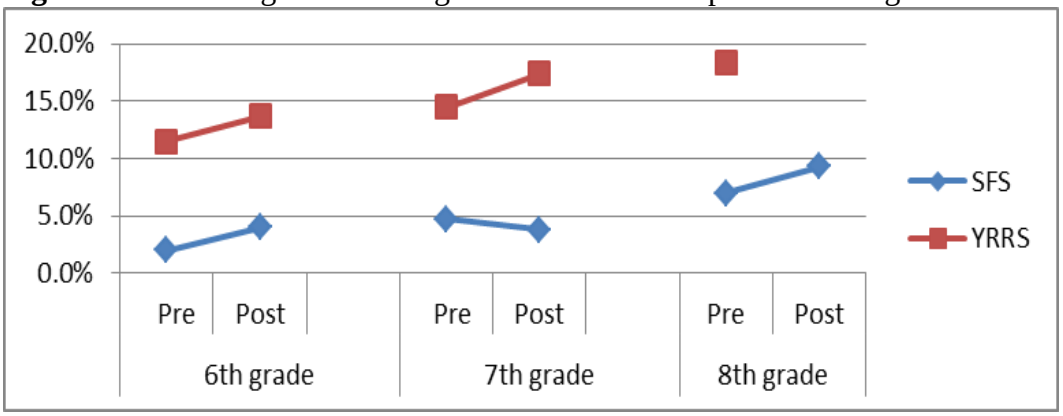


Figure 23: Percentage of 6th-8th grade females who report ever using inhalants



Results from General Linear Models

The GLM analyses assess the effect size of prevention programs over the course of the program on substance use. Findings from the GLM analyses generally support the results obtained from the McNemar's tests for both males and females. Among males, only prescription drug use achieved statistical significance in the unadjusted model (see Table 7). For females, no statistically significant changes were seen between pre and posttest in the unadjusted model. After adjusting the models to control for covariates (i.e., grade, ethnicity, and English as a primary language at home) none of them has achieved statistical significance across genders (see Table 7 & Table 8).

Table 7: Examining the effect of time from pretest substance use to the posttest substance use for middle school males, unadjusted and adjusted[a] model results

	Unadjusted				Adjusted				
Substance (unadjusted n /adjusted n)	Base-line Mean	Post-Test Mean	F-test & sig.[b]	effect size[c]	Base-line Mean	Post-test Mean	F-test & sig.[b]	effect size[c]	Desired Outcome
Cigarettes (302/297)	0.04	0.03	0.22	0.001	0.04	0.03	0.00	0.000	↓
Chewing Tobacco (305/300)	0.01	0.01	1.00	0.003	0.01	0.01	1.40	0.005	↓
Alcohol (295/290)	0.08	0.09	0.33	0.001	0.07	0.09	0.43	0.002	↓
Binge Drinking (296/291)	0.04	0.04	0.00	0.000	0.03	0.03	0.33	0.001	↓
Marijuana (309/304)	0.07	0.08	0.43	0.001	0.07	0.08	0.05	0.000	↓
Any Prescription Medication Not Prescribed (318/313)	0.01	0.02	5.06*	0.016	0.01	0.02	0.19	0.001	↓

[a]Model adjusted for grade, ethnicity, and English as a primary language at home.
[b]Exact statistic provided
[c]Partial eta squared where effects are: small = .01, medium = .06, large = .14 or larger.
*$p \leq .05$.

Table 8: Examining the effect of time from pretest substance use to the posttest substance use for middle school females, unadjusted and adjusted[a] model results

	Unadjusted				Adjusted				
Substance (unadjusted n /adjusted n)	Base-line Mean	Post-test Mean	F-test & sig.[b]	effect size[c]	Base-line Mean	Post-test Mean	F-test & sig.[b]	effect size[c]	Desired Outcome
Cigarettes (295/294)	0.03	0.05	0.82	0.003	0.03	0.05	0.94	0.003	↓
Chewing Tobacco (295/294)	0.02	0.02	0.00	0.000	0.02	0.02	1.62	0.006	↓
Alcohol (292/291)	0.04	0.09	3.41	0.012	0.04	0.09	1.43	0.005	↓
Binge Drinking (292/291)	0.03	0.05	1.14	0.004	0.03	0.05	0.96	0.003	↓
Marijuana(303/302)	0.06	0.08	0.34	0.001	0.06	0.08	0.34	0.001	↓
Any Prescription Medication Not Prescribed (299/298)	0.01	0.01	0.14	0.000	0.01	0.01	0.71	0.001	↓

[a]Model adjusted for grade, ethnicity, and English as a primary language at home.
[b]Exact statistic provided
[c]Partial eta squared where effects are: small = .01, medium = .06, large = .14 or larger.

There were slight increases in perceptions of risk and intentions to smoke next year, decreases in respondents' attitudes about substance use between pretest and posttest for both males and females. Some changes are in the desirable direction, some in an undesirable direction, though most of these changes over time do not reach statistical significance in the adjusted models. The exception for males is among the perceived risk of harm associated with substance use. Males' perceived risk of harm significantly increased between pre and posttest. There were small program effect sizes on respondents' attitudes towards alcohol use for males, but these effect sizes disappeared with the adjusted model (see Table 9 and

Table 10).

Table 9: 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[a] model results

	Unadjusted				**Adjusted**				
Measure (unadjusted n/ adjusted n)	Base-line Mean	Post-Test Mean	F-test & sig.[b]	effect size[b]	Base-line Mean	Post-Test Mean	F-test & sig.[b]	effect size[c]	Desired Outcome
Risk of Harm Scale (316/312)	1.82	1.87	0.72	0.002	1.82	1.87	4.18*	0.013	↑
Parental Attitudes toward Alcohol Use (312/308)	2.78	2.73	2.11	0.007	2.78	2.73	1.10	0.004	↑
Respondent Attitudes toward Alcohol Use (315/311)	2.74	2.67	4.80*	0.015	2.73	2.67	2.57	0.008	↑
Intention to smoke a cigarette soon (262/257)	0.03	0.05	1.93	0.007	0.03	0.05	0.01	0.000	↓
Intention to smoke a cigarette during the next year (300/295)	0.23	0.22	0.17	0.001	0.23	0.21	0.08	0.000	↓
Intention to smoke a cigarette if offered by best friend (297/292)	0.23	0.24	0.20	0.001	0.23	0.24	0.03	0.000	↓

[a]Model adjusted for grade, ethnicity, and English as a primary language at home.
[b]Exact statistic provided
[c]Partial eta squared where effects are: small = .01, medium = .06, large = .14 or larger.
*$p \leq .05$.

Table 10: 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[a] model results

	Unadjusted				Adjusted				
Measure (unadjusted n/ adjusted n)	Base-line Mean	Post-test Mean	F-test & sig.[b]	effect size[c]	Base-line Mean	Post-test Mean	F-test & sig.[b]	effect size[c]	Desired Outcome
Risk of Harm Scale (304/303)	1.90	1.98	1.59	0.005	1.90	1.97	0.94	0.003	↑
Parental Attitudes toward Alcohol Use (304/303)	2.82	2.81	0.08	0.000	2.82	2.82	0.00	0.000	↑
Respondent Attitudes toward Alcohol Use (303/302)	2.77	2.73	1.03	0.003	2.76	2.74	0.83	0.003	↑
Intention to smoke a cigarette soon (274/273)	0.01	0.02	3.02	0.011	0.01	0.02	0.96	0.004	↓
Intention to smoke a cigarette during the next year (288/287)	0.17	0.15	0.28	0.001	0.17	0.15	0.16	0.001	↓
Intention to smoke a cigarette if offered by best friend (292/291)	0.20	0.21	0.20	0.001	0.20	0.21	0.28	0.001	↓

[a]Model adjusted for grade, ethnicity, and English as a primary language at home.
[b]Exact statistic provided
[c]Partial eta squared where effects are: small = .01, medium = .06, large = .14 or larger.
**$p \leq .01$.

Summary

In FY 13, self-reported reported ATOD use among middle school students was generally lower than in previous years. This was particularly true for marijuana use where prevalence at pretest in FY13 was much lower than in FY12. Yet, this was seen among the other substances and behaviors as well reported for both males and females. In addition, increases over time were generally less than increases in previous years and very few significant increases were seen overall. Intentions to smoke also did not increase over time and perceived risk of harm and attitudes towards alcohol use remained high overall. One exception to this was among males and their attitudes towards alcohol use, which changed in an unfavorable direction at post-test. This change was statistically significant at $p < .05$ but only in the unadjusted GLM model, the model that did not take into account other possible measures that may influence attitudes.

When SFS data are compared to YRRS data, we also see that SFS respondents are reporting lower use overall and in general better trajectories over time than the YRRS respondents. For example, past 30 day cigarette use among SFS 6-8th grade males decreased in both 6th and 7th grades and increased far less steeply in 8th grade than their YRRS counterparts. These differences lend evidence to the possibility that youth in the SFS programs or possible youth in their general geographic area are benefiting from direct prevention services and/or environmental prevention efforts on the part of the providers.

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 American 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 for ease of comparison with state data and at a 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 448 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, 50.0% were male and 50.0% were female. The average age for male participants was 11.9 years old and the average age for female participants was 11.8 years old. About three quarters of both males (60.0%) and females (62.1%) lived in homes where a language other than English was spoken. Table 11 provides the breakdown of the sample by demographics.

Table 11: Demographics for middle school Hispanic SFS program participants (n=449)[a]

Demographic	% SFS Program Participants Male (n=224)	% SFS Program Participants Female (n=224)
Grade[a]		
5th grade	0.9	2.2
6th grade	49.1	47.8
7th grade	29.6	34.8
8th grade	20.5	15.2
Language Other than English Spoken Most Often[bc]		
Yes	60.0	62.1

[a]Missing data for gender: n=1.

[b] Dichotomous variable (yes or no) capturing the percentage of youth living in homes where English is not the primary language.

[c]Missing data for language other than English: male=4

In FY 13, Hispanic middle school students participating in direct prevention programming did not report significant changes in their substance use from pre- to posttest. What is unusual, however, is that among Hispanic males, cigarette use, alcohol consumption and binge drinking all decreased. Marijuana use among males remained the same and chewing tobacco use and inhalant use increase by one respondent respectively. Among the SFS Hispanic females, there were reported increases in substance use with the greatest increase seen in binge drinking. However, no increases or decreases at posttest among males and females were statistically different from pretest (see Table 12). Generally speaking, very few Hispanic middle school youth reported misusing prescription medications. One notable exception is that significantly more males reported use of prescription drugs not prescribed for them at posttest compared to pretest. All other decreases and increases however were not significantly different at posttest from pretest (see Table 13).

Table 12: Past 30-day ATOD use[a] differences from pretest to posttest for middle school Hispanic SFS program participants

Substance Total sample N=449	**Pretest**		**Posttest**		**McNemar Test**	**Pretest**		**Posttest**		**McNemar Test**	**Desired Outcome**
	n	**%**	n	**%**		n	**%**	n	**%**		
	Male					*Female*					
Cigarettes	6	2.84	1	0.47	3.57	1	0.49	4	1.97	3.00	↓
Chewing Tobacco	2	0.95	3	1.42	0.33	0	0	2	0.99	NA	↓
Alcohol	21	9.95	17	8.06	0.67	11	5.42	14	6.90	0.53	↓
Binge Drinking	6	2.86	4	1.90	0.50	4	1.97	9	4.43	2.78	↓
Marijuana	5	2.39	5	2.39	0.00	6	2.97	8	3.96	0.67	↓
Inhalant ever use	5	2.38	6	2.86	0.20	7	3.45	9	4.43	0.68	↓

[a] Dichotomous substance use variable (yes or no).

Table 13: Past 30-day prescription drug use[a], differences from pretest to posttest for middle school Hispanic SFS program participants

Substance Total sample N=449	**Pretest**		**Posttest**		**McNemar Test**	**Pretest**		**Posttest**		**McNemar Test**	**Desired Outcome**
	n	**%**	n	**%**		n	**%**	n	**%**		
	Male					*Female*					
Any R_x medication not prescribed	1	0.48	5	2.39	4.00*	3	1.49	1	0.5	1.00	⬇
Any R_x pain pills not prescribed	0	0.00	2	0.95	NA	0	0.00	3	1.48	NA	⬇
Any Ritalin, Adderal, or Prozac not prescribed	0	0.00	0	0.00	NA	1	0.49	0	0.00	NA	⬇
Any R_x sleep aids or tranquilizers not prescribed	0	0.00	0	0.00	NA	0	0.00	1	0.49	NA	⬇
Any other medications not prescribed	0	0.00	0	0.00	NA	5	2.46	4	1.97	0.11	⬇

[a] Dichotomous substance use variable (yes or no).
*$p \leq .05$

When only those participants who report baseline substance specific ATOD use are examined, we find some significant decreases in the frequency of use among male respondents only. Among middle school Hispanic males who reported use at baseline, the prevalence of cigarette use decreased to zero, and alcohol use decreased significantly as well. Among females, the reported frequency of substance use all decreased across all indicators however, since the prevalence of use was so low to begin with these changes were not statistically significant. Again care should be taken about the change in ever using an inhalant (see

Table 14 for details).

Table 14: The average number of times in the past 30 days of substance use[a], at pretest and posttest among middle school Hispanic SFS program participants who reported substance specific use 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 (4/1)	1.5	0.00	-5.20**	3.00	1.00	NA	⬇
Chewing tobacco (2/0)	1.00	0.50	-1.00	0.00	0.00	NA	⬇
Alcohol (14/5)	1.29	0.61	-2.25*	1.20	0.80	-0.67	⬇
Binge drinking (18/9)	0.5	0.15	-1.16	1.00	0.80	-0.53	⬇
Marijuana (5/5)	1.80	1.00	-1.57	2.2	1.80	-0.53	⬇
Inhalant ever use (13/11)	1.00	0.60	-1.63	1.00	0.71	-1.55	⬇

[a]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.
*$p \leq .05$, **$p \leq .01$

Table 15 presents the change in the prevalence of ATOD use among those who report any ATOD use at pretest. We find that Hispanic males in middle school who reported any ATOD use at baseline decreased their prevalence of use in almost every substance except for past 30 day chewing tobacco use and the increase was minimal at best. Female ATOD users at pretest doubled their past 30 day cigarette from one respondent to two respondents, but decreased or remained the same in all other substances. Females reported greater use at pretest than males in binge drinking, marijuana use, and inhalant use. Use at posttest was greater among females compared to males for cigarette use, binge drinking, marijuana use and lifetime inhalant use. Although the actual numbers are small overall, it seems that the prevention programming may be more effective among males than among females. This finding may also reflect a difference in the characteristics of young female ATOD users and young male ATOD users in middle school. Young females reporting substance use may have initiated use earlier or for different reasons than the young males leading to a greater likelihood of continued use over time. Figure 24 and Figure 25 graph the changes from pretest to posttest for males and females respectively.

Table 15: Past 30-day ATOD use[a] at posttest among those middle school Hispanic SFS program participants reporting any ATOD use at pretest

Substance Baseline users: male=31 female=20	% Pretest	% Posttest	% Change	% Pretest	% Posttest	% Change
	Male			*Female*		
Cigarettes	19.35	3.33	-82.79	5.00	10.00	100.00
Chewing Tobacco	6.45	6.67	3.41	0.00	0.00	NA
Alcohol	70.97	36.67	-48.33	55.00	30.00	-45.45
Binge Drinking	19.35	3.45	-82.17	20.00	20.00	0.00
Marijuana	22.58	10.34	-54.21	30.00	20.00	-33.33
Inhalant ever use	19.35	13.79	-28.73	35.00	30.00	-14.29

[a] Dichotomous substance use variable (yes or no).

Figure 24: Percent of male middle school Hispanic SFS program participants reporting substance use at posttest among only program participants reporting substance use at pretest

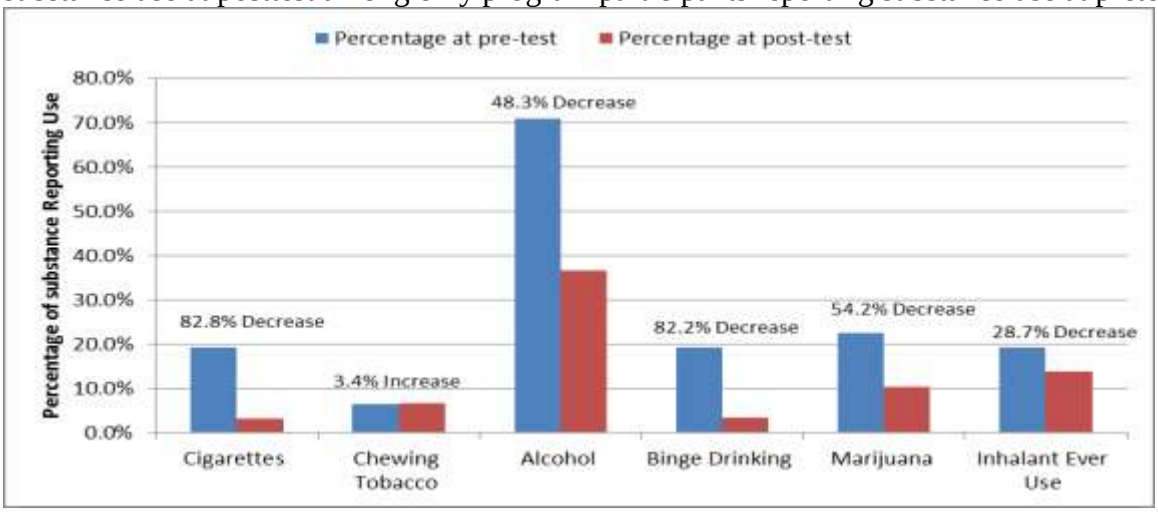
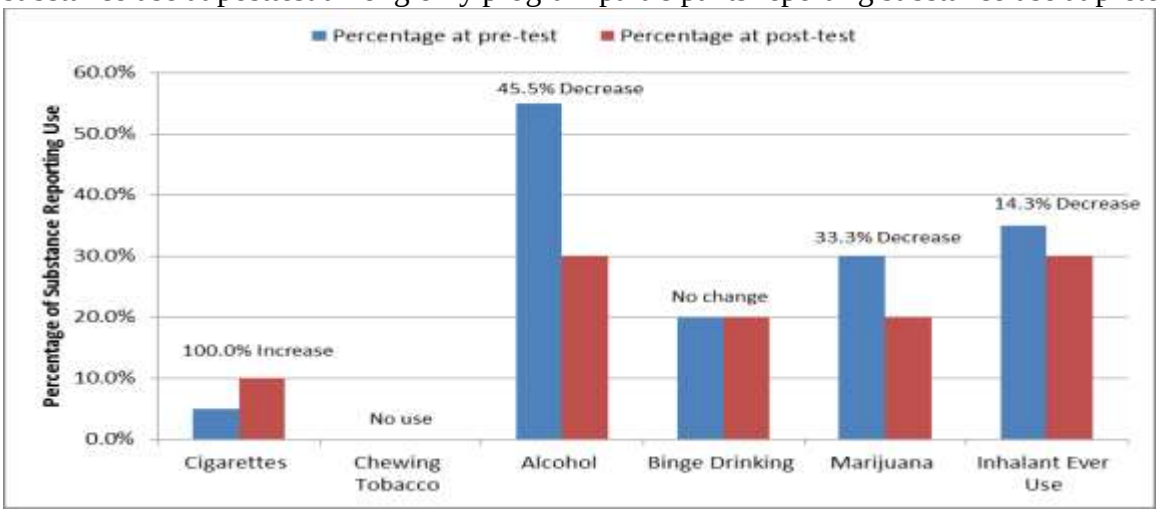


Figure 25: Percent of female middle school Hispanic SFS program participants reporting substance use at posttest among only program participants reporting substance use at pretest



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

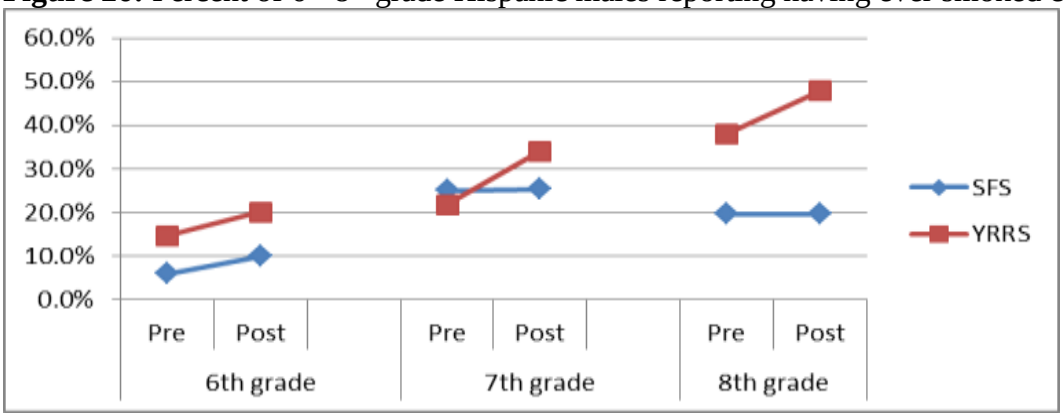
Tobacco use (Hispanic students, grades 6th-8th)

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 2011 YRRS sample, which is weighted to reflect the average Hispanic middle school student in NM. As we know from the results presented above, both males and females generally increased their ATOD use slightly over time. 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 much increase occurs over time.[4] Students receiving prevention programming ideally will not increase as quickly as the typical student who may not be receiving any prevention programming.

In Figure 26 and

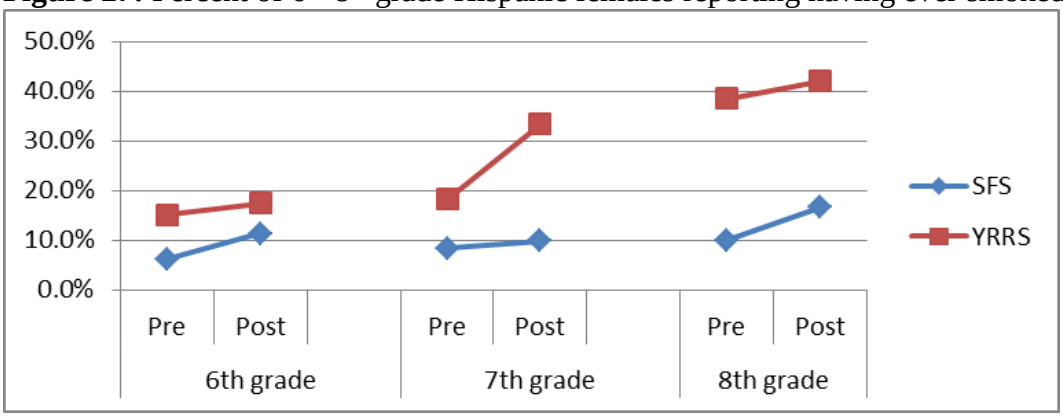
Figure 27 below we can see that among Hispanic males, SFS students in 7th and 8th grade did not increase the prevalence of ever having smoked cigarettes. Smoking did increase among 6th graders. Compared with YRRS Hispanic male sample, however, the prevalence of lifetime cigarette use among the SFS sample remains much lower overall. Among Hispanic females in seventh grade lifetime cigarette use essentially did not change over time, whereas among the general Hispanic female YRRS sample, there was considerable increase over time, in having ever smoked from pre to posttest. Compared to the YRRS sample, it appears that the prevalence rates for SFS sixth graders (males and females) are generally lower but increasing at the same rate as the general population. A decreasing pattern in past 30-day cigarette use is found for SFS male samples across grades and an increasing pattern for SFS female 6th and 7th graders, whereas YRRS samples increased from pre to posttest across grades in past 30-day cigarette use.

Figure 26: Percent of 6th-8th grade Hispanic males reporting having ever smoked cigarettes



[4] Graphs not shown in text are available upon request.

Figure 27: Percent of 6th-8th grade Hispanic females reporting having ever smoked cigarettes



Alcohol use (Hispanic students, grades 6th-8th)

The patterns of past 30-day drinking are different for SFS Hispanic males and females. Among males, there is slight decrease from pre to posttest within each grade, whereas females showed increases in sixth and eighth grade (
Figure **28** &

Figure 29); no changes are statistically significant. However, a higher percentage of seventh grade male SFS students reported current alcohol use than YRRS students at pretest. It is generally observed that the YRRS sample of Hispanic Middle School students increased faster in both genders except for sixth grade male students.

Figure 28: Percentage of 6th-8th grade Hispanic males who report drinking in the past 30 days

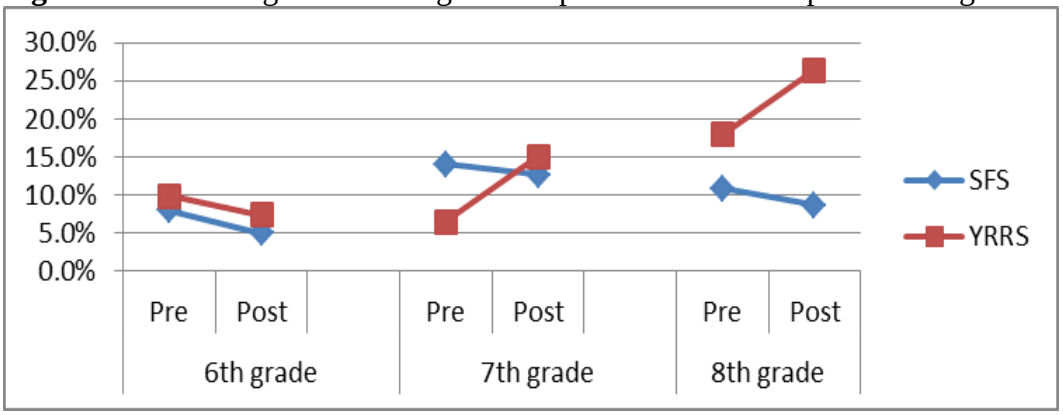
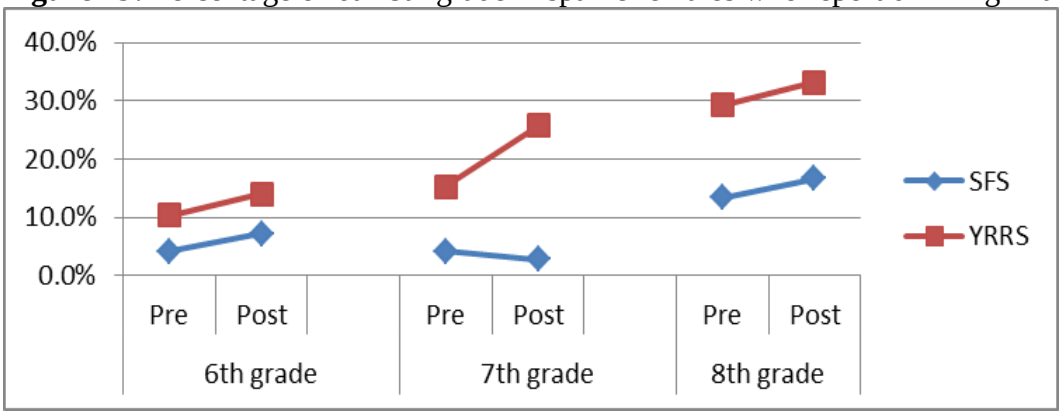


Figure 29: Percentage of 6th-8th grade Hispanic females who report drinking in the past 30 days



Current binge drinking among Hispanic middle school students is typically lower than among the corresponding YRRS sample (See Figure 30 &

Figure 31). Male 6th and 8th graders both reduced their prevalence of binge drinking at posttest compared with pretest. Males in the 7th grade did increase their use, yet much more gradually than the YRRS 7th graders. Hispanic middle school females had more risky trajectories. Among Hispanic 6th grade SFS females, increase in the prevalence of past 30-day binge drinking was similar to their corresponding sample in the YRRS. On the other hand, 7th grade Hispanic girls in the SFS sample maintained a low prevalence overall. Finally, the 8th grade SFS sample of Hispanic girls also increased almost the same about as the YRRS comparable sample. In general, Hispanic SFS and YRRS girls reported more binge drinking at posttest than boys. This is rather alarming since girls are in many ways even more vulnerable than boys when binge drinking. This is a phenomenon that needs additional consideration as to whether this is a changing trend or if this is merely a one time finding.

Figure 30: Percentage of 6th-8th grade Hispanic males who report binge drinking in the past 30 days

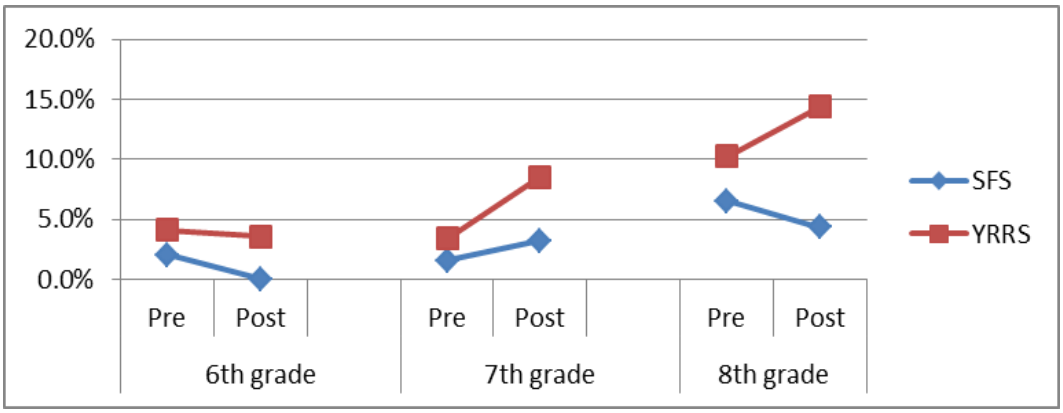
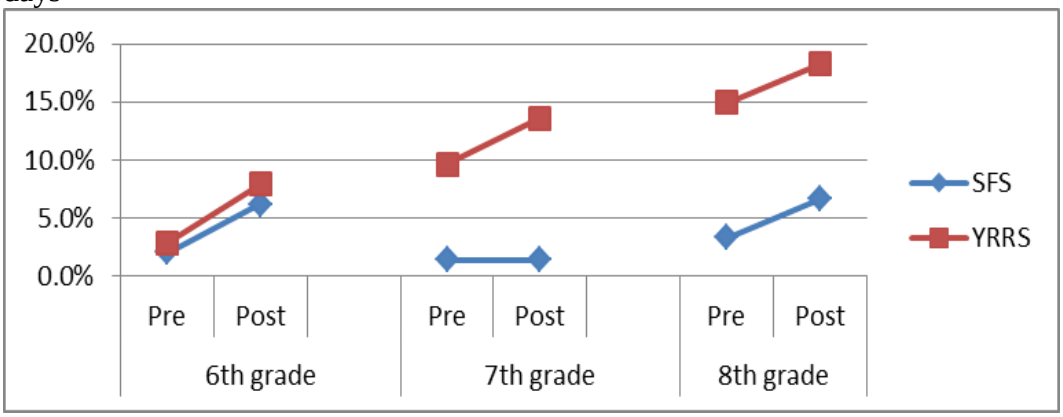


Figure 31: Percentage of 6th-8th grade Hispanic females who report binge drinking in the past 30 days



Drug use (Hispanic students, grades 6th-8th)

Based on 2011 YRRS data, marijuana use among middle school Hispanic students tends to be slightly higher than among the middle school population as a whole. Among the SFS sample, males show increases in use by 7th grade compared with 6th grade, and among 8th grade SFS males, there is a considerable increase. The increases among the SFS sample however are in no way as extreme as among the general Hispanic middle school sample from the YRRS. Males in the 7th and 8th grade SFS sample report more lifetime use than females in the same grades, although female 6th graders report greater lifetime use than male 6th graders. Note that

Figure **32** and

Figure 33 reflect lifetime use rather than past 30 day use.

Figure 32: Percentage of 6th-8th grade Hispanic males who report ever using marijuana

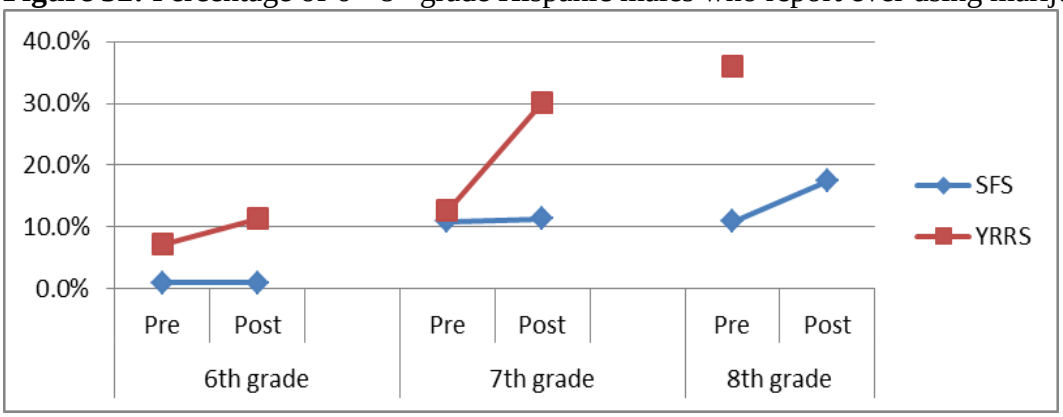
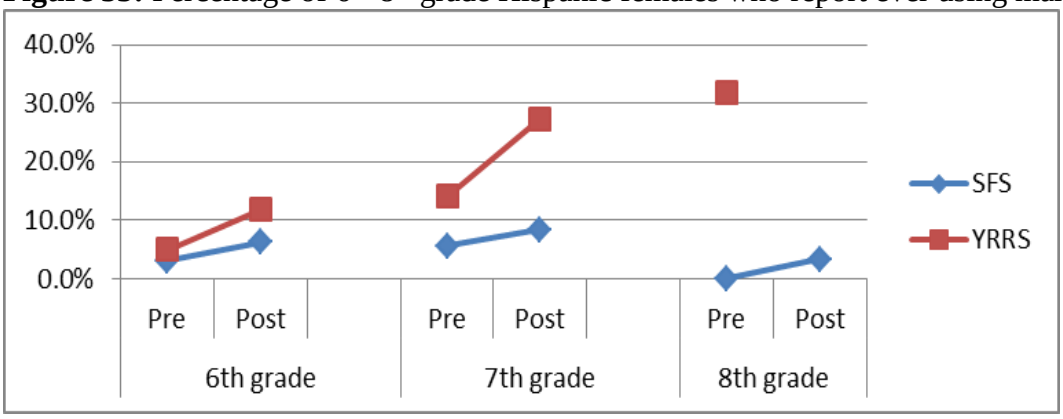


Figure 33: Percentage of 6th-8th grade Hispanic females who report ever using marijuana



Current marijuana use decreased for the SFS 7th and 8th grade males and remained at zero for 6th grade males. On the other hand, 6th and 8th grade females increased their current use, and 7th grade remained unchanged. In addition, 6th grade girls reported more use at pretest than 6th grade boys (see Figure 34 & Figure 35). When compared to their YRRS counterparts, the trends among the SFS respondents look very good.

Figure 34: Percentage of 6th-8th grade Hispanic males who report using marijuana in the past 30 days

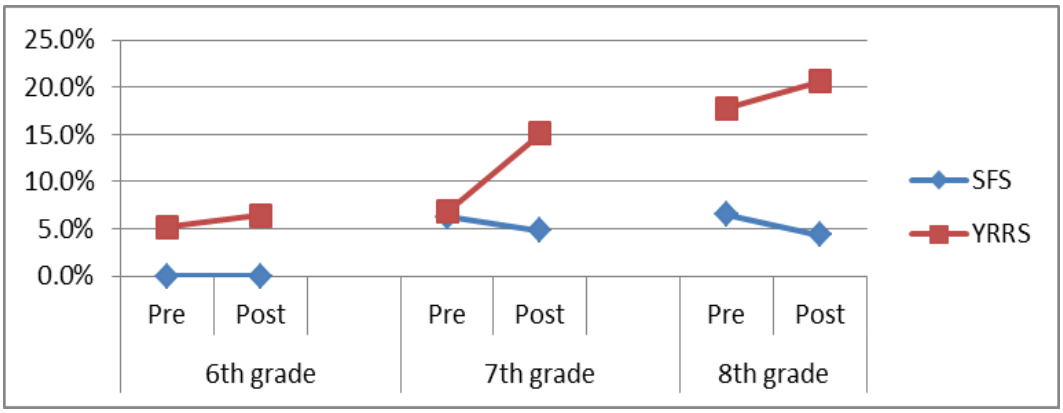
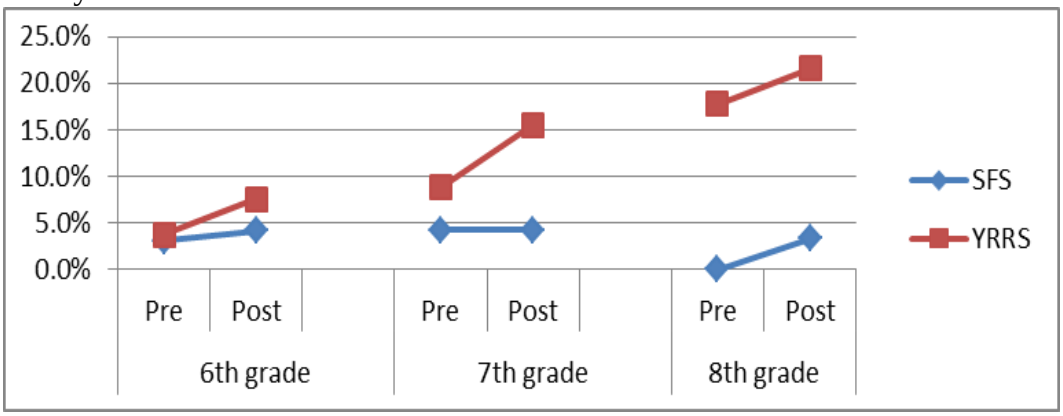


Figure 35: Percentage of 6th-8th grade Hispanic females who report using marijuana in the past 30 days



General Linear Models

The unadjusted GLMs on Hispanic males support results obtained from the McNemar tests and the paired t-test analysis. A significant increase was seen for prescription drug misuse only in the unadjusted model. The effect size was quite small overall and no significant difference remained in the adjusted model. Fortunately the general trends in use tended to decrease or remain stable overtime with the exceptions of alcohol and prescription drug misuse (see Table 16).

Table 16: Examining the effect of time from pretest substance use to the posttest substance use for male middle school Hispanic students, unadjusted and adjusted[a] model results

	Unadjusted				**Adjusted**				
Substance (unadjusted n /adjusted n)	Base-line Mean	Post-Test Mean	F-test & sig.[b]	effect size[c]	Base-line Mean	Post-test Mean	F-test & sig.[b]	effect size[c]	Desired Outcome
Cigarettes (201/197)	0.03	0.00	2.29	0.011	0.03	0.01	0.47	0.002	⬇
Chewing Tobacco (201/197)	0.01	0.01	0.00	0.000	0.01	0.01	0.91	0.005	⬇
Alcohol (195/191)	0.09	0.10	0.12	0.001	0.07	0.09	0.28	0.001	⬇
Binge Drinking (195/191)	0.04	0.03	0.18	0.001	0.03	0.02	0.47	0.003	⬇

	Unadjusted				Adjusted				
Substance (unadjusted n /adjusted n)	Base-line Mean	Post-Test Mean	F-test & sig.[b]	effect size[c]	Base-line Mean	Post-test Mean	F-test & sig.[b]	effect size[c]	Desired Outcome
Marijuana (208/204)	0.03	0.03	0.14	0.001	0.03	0.02	1.16	0.006	↓
Any Prescription Medication Not Prescribed(211/207)	0.00	0.02	4.06*	0.019	0.00	0.02	0.04	0.000	↓

a Adjusted for grade and language spoken at home.

[b]Exact statistic provided.

[c] Partial eta squared where effects are: small = .01, medium = .06, large = .14 or larger.

*$p \leq .05$.

Among Hispanic females in middle school, alcohol use increased significantly overtime only in the unadjusted model but was insignificant in the adjusted model (see

Table **17**). Unlike males, however, females tended to generally report more use at posttest than at pretest for all substances other than prescription medications implying that trends were not in the desired direction.

Table 17: Examining the effect of time from pretest substance use to the posttest substance use for female middle school Hispanic students, unadjusted and adjusted[a] model results

	Unadjusted				Adjusted				
Substance (unadjusted n /adjusted n)	Base-line Mean	Post-Test Mean	F-test & sig.[b]	effect size[c]	Base-line Mean	Post-test Mean	F-test & sig.[b]	effect size[c]	Desired Outcome
Cigarettes (199/199)	0.02	0.03	0.52	0.003	0.02	0.03	0.13	0.001	↓
Chewing Tobacco (200/200)	0.00	0.03	1.33	0.007	0.00	0.03	3.10	0.015	↓
Alcohol (194/194)	0.03	0.10	3.98*	0.020	0.03	0.10	1.10	0.006	↓
Binge Drinking (194/194)	0.03	0.08	3.16	0.016	0.03	0.08	0.00	0.000	↓
Marijuana (203/203)	0.05	0.07	0.67	0.003	0.05	0.07	0.01	0.000	↓
Any Prescription Medication Not Prescribed (199/199)	0.02	0.01	1.00	0.005	0.02	0.01	0.86	0.004	↓

[a]Adjusted for grade and language spoken at home.

[b]Exact statistic provided.

[c] Partial eta squared where effects are: small = .01, medium = .06, large = .14 or larger.

*$p \leq .05$.

Among Hispanic males, most measures of perceptions of risk and attitudes towards substance in the core module showed little significant change from pretest to posttest. In the unadjusted model, male respondents' attitudes toward alcohol became more tolerant over time (see

Table 18) but this was no longer a significant change in the model adjusted for grade and language spoken at home. The change is minimal, and should be viewed in terms of maturation in likelihood. Indeed, we see similar changes in undesirable directions in males' perception of risk of harm and parental attitudes toward alcohol use as well as their intention to smoke if a friend offers a cigarette.

Table 18: : 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[a] model results

	Unadjusted				Adjusted				
Measure (unadjusted n/ adjusted n)	Base-line Mean	Post-Test Mean	F-test & sig.[b]	effect size[c]	Base-line Mean	Post-Test Mean	F-test & sig.[b]	effect size[c]	Desired Outcome
Risk of Harm Scale (211/208)	1.94	1.92	0.08	0.000	1.93	1.92	0.05	0.000	↑
Parental Attitudes toward Alcohol Use (208/205)	2.78	2.76	0.15	0.001	2.78	2.76	0.85	0.004	↑
Respondent Attitudes toward Alcohol Use (210/207)	2.73	2.66	4.06*	0.019	2.73	2.65	1.85	0.009	↑
Intention to smoke a cigarette soon(178/174)	0.04	0.06	1.61	0.009	0.04	0.06	0.49	0.003	↓
Intention to smoke a cigarette during the next year (206/202)	0.24	0.22	0.42	0.002	0.24	0.22	0.03	0.000	↓
Intention to smoke a cigarette if offered by best friend (204/207)	0.24	0.27	0.89	0.004	0.24	0.28	0.01	0.000	↓

[a]Adjusted for grade and language spoken at home.

[b]Exact statistic provided.

[c]$_{Partial}$ eta squared where effects are: small = .01, medium = .06, large = .14 or larger.

*$p \leq .05$.

Among middle school Hispanic females we find similar results to the males in general. The one exception is that females' perceived risk of harm increased over time yet failed to achieve a significant level in both unadjusted and adjusted models. Perceived parental attitudes and personal attitudes towards alcohol use both became more tolerant over time and intention to smoke also increased. However, none of these changes were statistically significant in either the unadjusted or adjusted models and can likely be a reflection of changes associated with natural maturation (see

Table 19).

Table 19: 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[a] model results

	Unadjusted				Adjusted				
Measure (unadjusted n/ adjusted n)	Base-line Mean	Post-Test Mean	F-test & sig.[b]	effect size[c]	Base-line Mean	Post-Test Mean	F-test & sig.[b]	effect size[c]	Desired Outcome
Risk of Harm Scale (202/202)	2.02	2.04	0.06	0.000	2.02	2.04	0.02	0.000	↑
Parental Attitudes toward Alcohol Use (202/202)	2.86	2.83	1.00	0.005	2.86	2.83	1.33	0.007	↑
Respondent Attitudes toward Alcohol Use (201/201)	2.82	2.77	2.49	0.012	2.82	2.77	0.02	0.000	↑
Intention to smoke a cigarette soon (187/187)	0.01	0.02	1.00	0.005	0.01	0.02	0.78	0.004	↓
Intention to smoke a cigarette during the next year (196/196)	0.14	0.13	0.13	0.001	0.14	0.13	0.20	0.001	↓
Intention to smoke a cigarette if offered by best friend (200/200)	0.21	0.23	0.17	0.001	0.21	0.23	0.02	0.000	↓

[a]Adjusted for grade and language spoken at home.

[b]Exact statistic provided.

[C]Partial eta squared where effects are: small = .01, medium = .06, large = .14 or larger.

Summary

Hispanic middle schools students participating in OSAP-funded direct service prevention programming during FY13 saw few significant changes in behavior either negatively or positively. There were few increases or decreases in substance use. Indeed, the prevalence of substance use remained statistically the same over time. This is very encouraging given that in the previous year, there were significant increases found in marijuana and alcohol use as well as misuse of prescription medications. Simple pre/post t-tests found significant decreases in male cigarette and alcohol use and in GLM models adjusted for the influence of grade and language spoken at home, perceived risk of harm increased significantly among females. Most students in the Hispanic middle school sample reported using substances less than the comparable sample in the YRRS. This is likely in large part to how data are collected in SFS programs in comparison to the YRRS and it may also reflect differences in who is selected or self-selects into the program compared to the general middle school population. However, despite reporting lower prevalence overall, the increases in prevalence are generally lower in the SFS sample than among the YRRS sample. While comparisons between the SFS and YRRS samples should be viewed cautiously, the results would suggest that SFS participants are using fewer substances over time than students in the general population, and are less influenced by changes that occur

as a result of maturation. The use of substances among girls, some of which are greater than among males of the same age, may indicate that younger girls may be spending time with older boys or girls who are influencing them slightly earlier than boys. These data do not provide information on the context in which the children are first exposed to drugs and alcohol, although local providers in all likelihood have a sense of it, which helps them in interpreting their own local data.

Results for Native American Middle School Students

Surveys were completed by 140 middle school Native American program participants. There were equal number of female (55%) and male (45%) respondents and the average age was 11.9 years old for males and 12.1 years old for females. Most of students were in 7th grade. Similar to their Hispanic peers, more than half of Native American students (58% of males and 56% of females) lived in homes where a language other than English was spoken (see Table 20). It should be pointed out that when looking at the results of the analysis of this subgroup, that the small number of respondents in some analyses make the estimates very unstable and not reliable.

Table 20: Demographics for Native American middle school SFS program participants (n=139)

Demographic	% SFS Program Participants Male (n=63)	% SFS Program Participants Female (n=76)
Grade[a]		
6th grade	42.9	54.0
7th grade	47.6	36.8
8th grade	9.5	9.2
Language Other than English Spoken Most Often[ab]		
Yes	58.1	56.0

[a] Dichotomous variable (yes or no) capturing the percentage of youth living in homes where English is not the primary language.

[b]Missing data for language other than English: male=1 and female=1

There were no statistically significant changes from pre- to posttest for any of substances among Native American middle school boys and girls (see

Table 21), though boys were observed increasing use in almost every category of substance, particularly marijuana. On the other hand, girls showed decreased use in most of substances except cigarettes.

Table 21: Past 30-day ATOD use[a] differences[b] from pretest to posttest for middle school Native American SFS program participants

Substance Total sample N=139	**Pretest**		**Posttest**		**McNemar Test**	**Pretest**		**Posttest**		**McNemar Test**	**Desired Outcome**
	n	**%**	n	**%**		n	**%**	n	**%**		
	Male					*Female*					
Cigarettes	2	3.45	2	3.45	0.00	3	4.92	5	8.20	0.50	↓
Chewing Tobacco	0	0.00	2	3.45	NA	1	1.67	0	0.00	NA	↓
Alcohol	2	3.45	3	5.17	0.20	4	6.56	2	3.28	0.67	↓
Binge Drinking	0	0.00	1	1.72	0.00	2	3.28	1	1.64	0.33	↓
Marijuana	6	10.53	8	14.04	1.00	5	8.20	4	6.56	0.20	↓
Inhalant ever use	3	5.26	5	8.77	1.00	3	5.00	1	1.67	1.00	↓

[a] Dichotomous substance use variable (yes or no).

Similarly, there were no significant increases or decreases observed in use of prescription medications although there are both positive and negative trends. Increases in the use of prescription pain medications were seen for both male and female Native American respondents. On the other hand, females decreased their use of medications such as Ritalin or Prozac and males decreased general use of prescription medications (see

Table 22). Prescription drug use is a growing issue among youth and young adults in NM and across the US. However, it appears that at least among these middle school students, there is relatively little use of prescription medications that are not specifically prescribed for them by these students.

Table 22: Past 30-day prescription drug use[a] differences[b] from pretest to posttest for middle school Native American SFS program participants

Substance Total sample N=139	**Pretest**		**Posttest**		**McNemar Test**	**Pretest**		**Posttest**		**McNemar Test**	**Desired Outcome**
	n	**%**	n	**%**		n	**%**	n	**%**		
	Male					*Female*					
Any R_x medication not prescribed	0	0.00	0	0.00	NA	1	1.64	2	3.28	0.33	↓
Any R_x pain pills not prescribed	0	0.00	1	1.72	NA	2	3.28	1	1.64	0.33	↓
Any Ritalin, Adderal, or Prozac not prescribed	0	0.00	0	0.00	NA	1	1.64	0	0.00	NA	↓
Any R_x sleep aids or tranquilizers not prescribed	0	0.00	1	1.72	NA	0	0.00	0	0.00	NA	↓
Any other medications not prescribed	0	0.00	4	6.90	NA	2	3.28	1	1.64	0.33	↓

Substance use among youth reporting any current use at baseline decreased for Native American females across the board, while boys saw increases in chewing tobacco, binge drinking, and inhalant use (see Table 23). However, please note that there are very few youth reporting any use at all at pretest and this makes the results highly unstable.

Table 23: Past 30-day ATOD use[a] at posttest among middle school Native American SFS program participants reporting ATOD use at pretest

Substance Baseline users: male=9 female=6	% Pretest	% Posttest	% Change	% Pretest	% Posttest	% Change
	Male			*Female*		
Cigarettes	22.22	22.22	0.00	50.00	33.33	-33.34
Chewing Tobacco	0.00	22.22	NA	16.67	0.00	-100.00
Alcohol	22.22	22.22	0.00	66.67	16.67	-75.00
Binge Drinking	0.00	11.11	NA	33.33	0.00	-100.00
Marijuana	66.67	66.67	0.00	83.33	33.33	-60.00
Inhalant ever use	33.33	55.56	66.70	50.00	0.00	-100.00

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

Tobacco use (Native American students, grades 6th-8th)

The baseline prevalence rates of lifetime cigarette use and past 30-day cigarette use were generally lower for SFS students compared to their counterparts in 2011 YRRS sample. Native American 6th grade boys increase their lifetime use but 7th & 8th grade boys remained unchanged or decreased in these two measures their lifetime use (see Figure 36). For Native American middle schools girls, self-reported lifetime use increased among 6th and 7th graders and decreased among 8th graders (see Figure 37). In truth, because this reflects measure if lifetime cigarette use, it is not possible for use to decrease from the pretest if indeed the pretest measure is correct; at best it can remain the same. Therefore, decreasing trends in ever having smoked should be viewed with caution.

Figure 36: Percent of 6th-8th grade Native American males reporting having ever smoked cigarettes

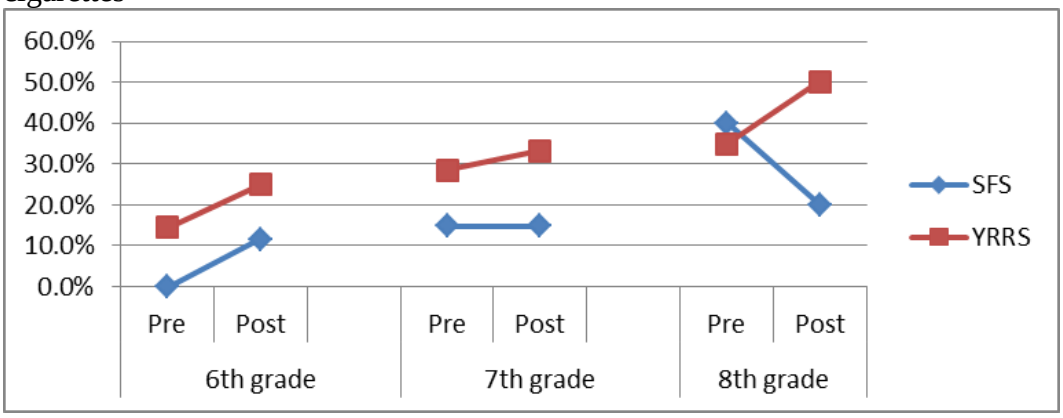
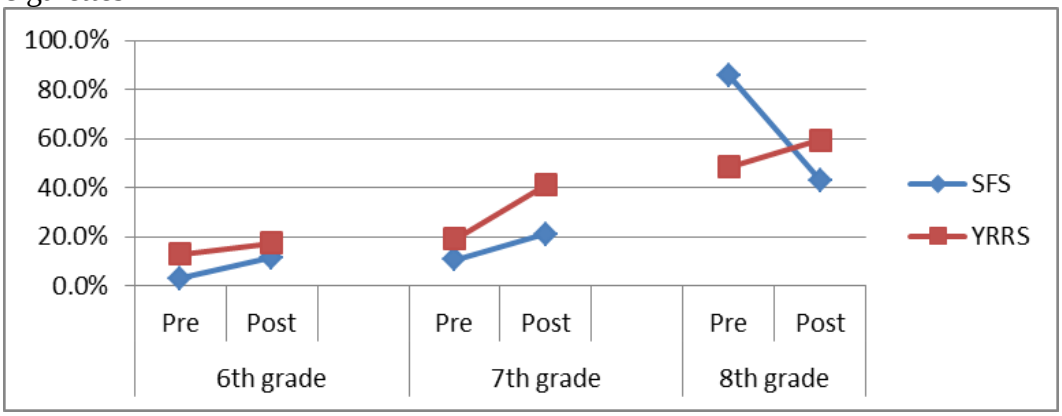


Figure 37: Percent of 6th-8th grade Native American females reporting having ever smoked cigarettes



Past 30 day cigarette use reflect current use and can be expected to change over the course of a prevention program. Among Native American males, current cigarette use increased slightly among 6th graders, decreased among 7th graders and remained the same among 8th graders (see Figure 38). On the other hand Native American 6th and 7th grade girls reported low steady use over time, but high increases among 8th graders (see Figure 39). These extreme changes among 8th graders are a result of a very small number of 8th grade students in the overall sample, which was predominantly comprised 6th and 7th graders. The changes among 8th graders should be interpreted with extreme caution.

Figure 38: Percent of 6th-8th grade Native American males reporting having smoked cigarettes in the last 30 days

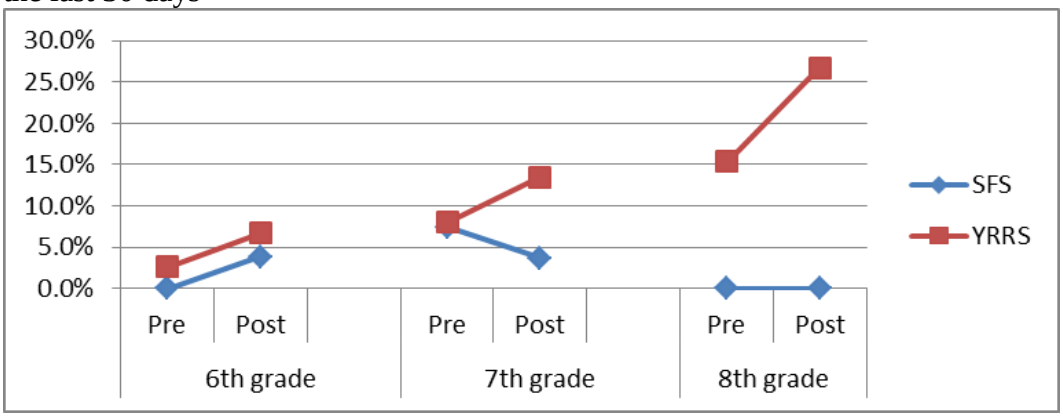
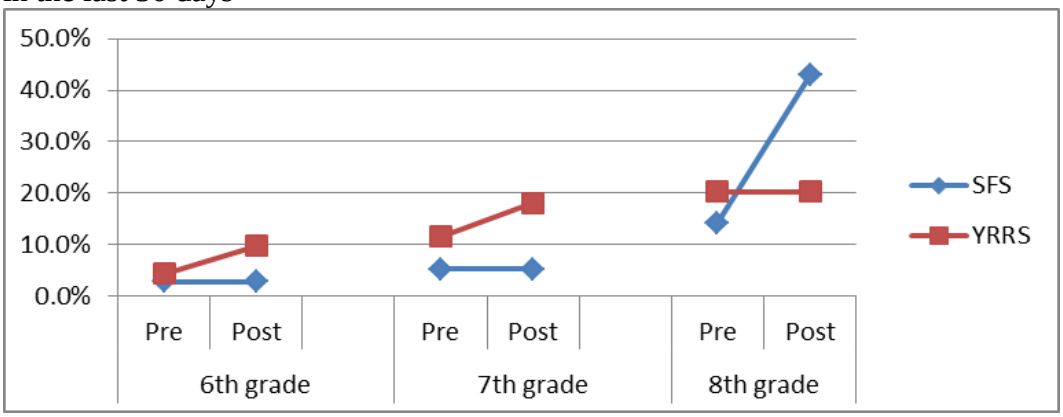


Figure 39: Percent of 6th-8th grade Native American females reporting having smoked cigarettes in the last 30 days



Alcohol use (Native American students, grades 6th-8th)

Among SFS Native American males in 6th there was a slight increase in self-reported past 30-day alcohol use but surprisingly, among 7th graders there is decrease. The 8th grade increases in self-reported use should be interpreted with extreme caution since the total number of 8th grade respondents are too few to estimate accurately (see Figure 40). SFS Native American girls

reported no-use in 6th grade and decreases in 7th grade, then remained unchanged from pre- to post-test in 8th grade. Although there should be caution used in interpreting the 8th grade findings, it is interesting to note that percentage of 8th grade girls reporting 30-day alcohol use is much higher than 7th grade girls and 8th grade boys, and reached the same level as their YRRS counterparts (see Figure 41).

Figure 40: Percentage of 6th-8th grade Native American males who report past 30-day alcohol consumption

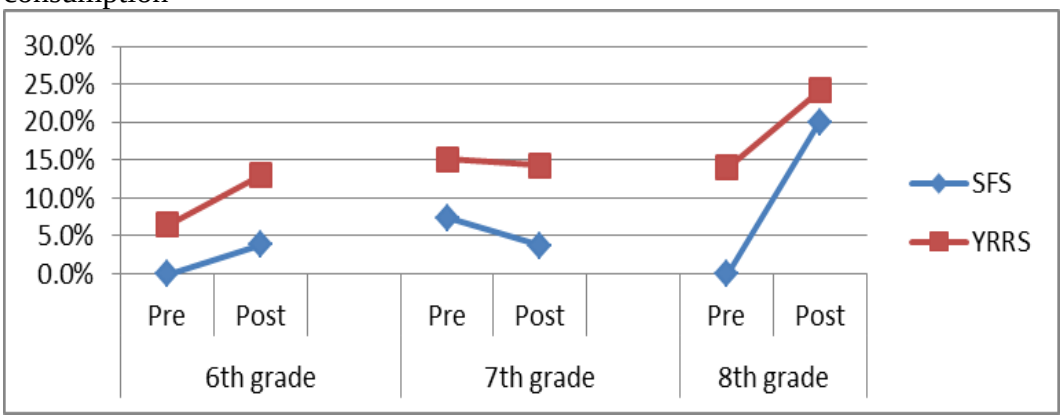
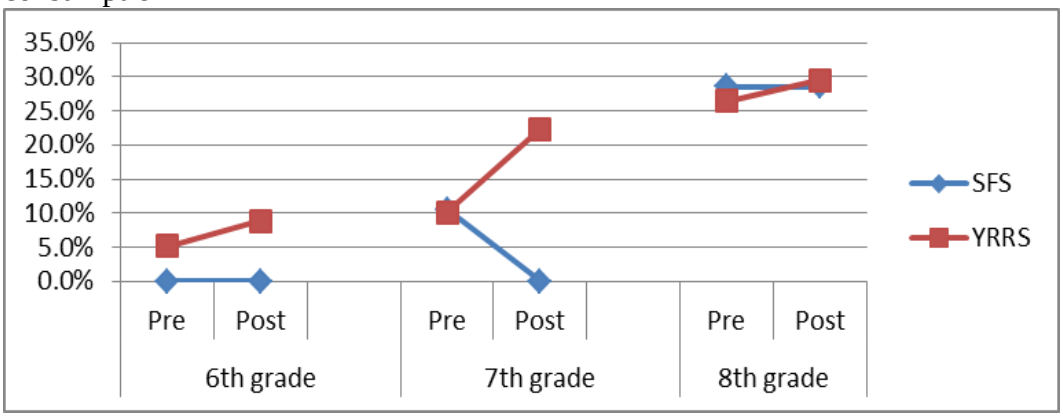


Figure 41: Percentage of 6th-8th grade Native American females who report past 30-day alcohol consumption



Surprisingly SFS Native American males reported no binge drinking among the 6th graders and 8th graders although 7th graders reported increases (see Figure 42). Similarly, the females in the SFS Native American sample reported no binge drinking at all among 6th and 7th graders and sharp decreases among 8th grade girls, although the latter finding should be interpreted with caution (see Figure 43). The trajectories among both males and females are generally better than among the YRRS sample.

Figure 42: Percentage of 6th-8th grade Native American males who report binge drinking in the past 30 days

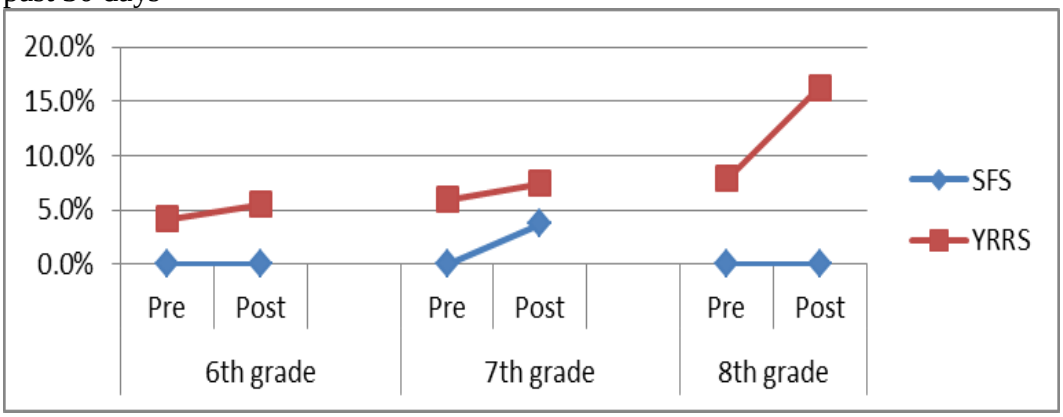
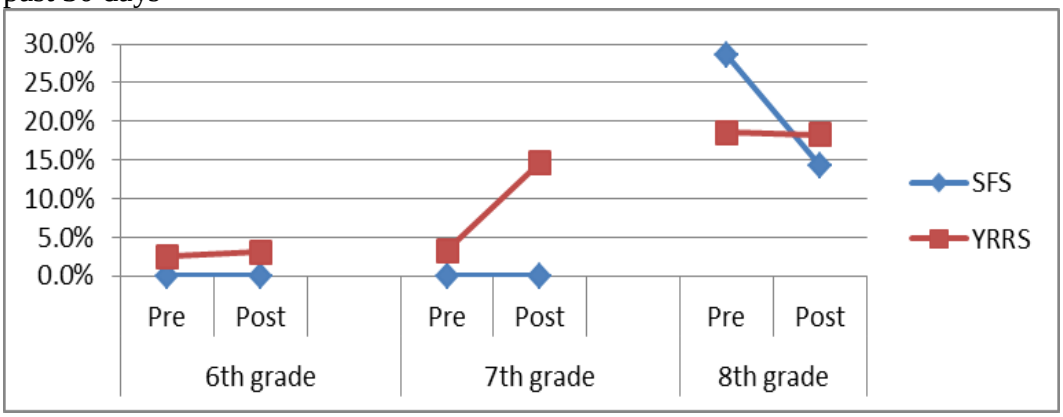


Figure 43: Percentage of 6th-8th grade Native American females who report binge drinking in the past 30 days



Drug use (Native American students, grades 6th-8th)

The prevalence of lifetime marijuana use among the SFS Native American students is quite high although lower or equal to the equivalent 2011 YRRS sample (see Figure 44 & Figure 45). It appears that marijuana use among Native American youth is more likely to occur than even alcohol use.

Figure 44: Percentage of 6th-8th grade Native American males who report ever using marijuana

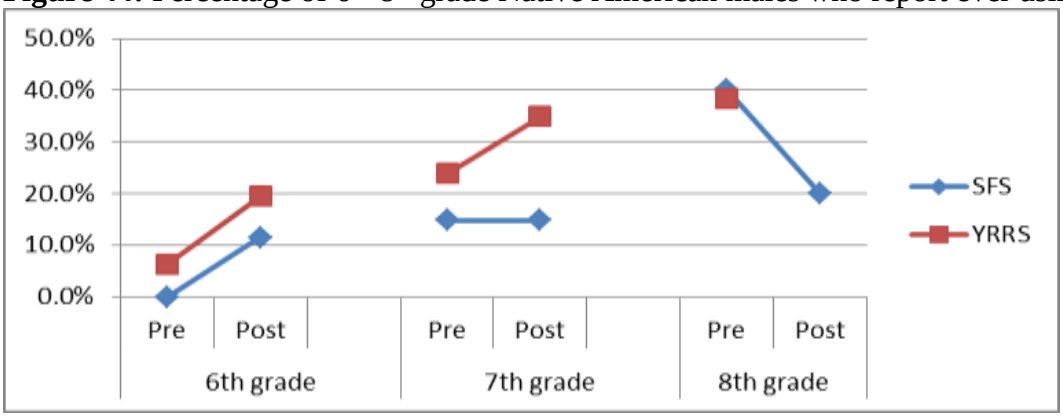
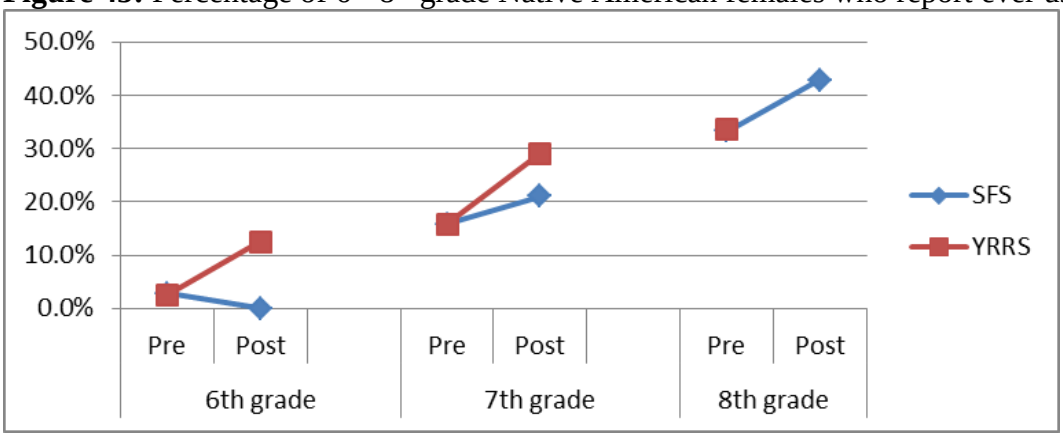


Figure 45: Percentage of 6th-8th grade Native American females who report ever using marijuana



When looking at past 30 day marijuana use, the prevalence of the SFS sample is also generally lower than the YRRS sample except for the SFS 8th grade boys and girls (Figure 46 & Figure 47). While 8th grade findings should be interpreted with caution, these findings are unique and need particular consideration. The assumption is that SFS students are underreporting their use of alcohol, tobacco, and other drugs because they tend to be more concerned about being identified. If this assumption is true, then it seems very problematic that Native American youth are reporting marijuana use, both lifetime and current, at levels very similar to those in the YRRS sample unlike other substances.

Figure 46: Percentage of 6th-8th grade Native American males who report using marijuana in the past 30 days

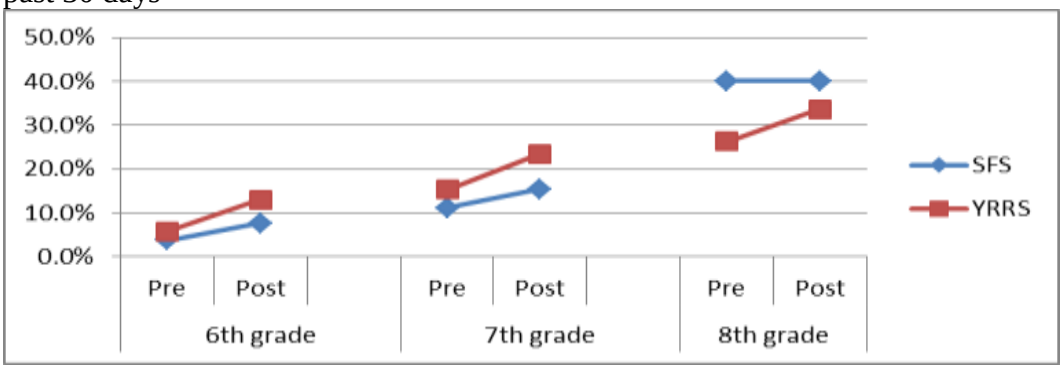
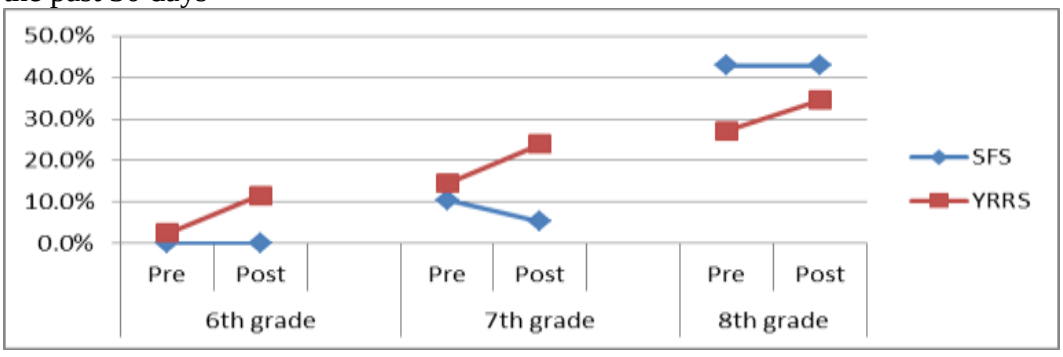


Figure 47: Percentage of 6th-8th grade Native American females who report using marijuana in the past 30 days



General Linear Models

The GLM Models were run to examine the effect of prevention programs 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 were no significant changes in ATOD use in the unadjusted and adjusted models. There were some significant changes in the unadjusted models such as perception of risks and parental attitude towards alcohol, yet not in the adjusted models. For this age group, no significant increases in use and no significant changes in attitudes are generally positive findings since this is a time when youth begin experimenting in general and attitudes become more lenient (see Table 24 &

Table 25).

Table 24: Examining the effect of pretest substance use on the posttest substance use for middle school Native American male students, unadjusted and adjusted[a] model results

	Unadjusted				**Adjusted**				
Substance (unadjusted n/adjusted n)	Base-line Mean	Post-Test Mean	F-test & sig.[b]	effect size[c]	Base-line Mean	Post-test Mean	F-test & sig.[b]	effect size[c]	Desired Outcome
Cigarettes (53/52)	0.02	0.04	0.33	0.006	0.02	0.04	0.30	0.006	↓
Chewing Tobacco (56/55)	0.00	0.04	2.04	0.036	0.00	0.04	0.51	0.010	↓
Alcohol (56/55)	0.02	0.04	0.34	0.006	0.02	0.04	0.46	0.009	↓
Binge Drinking (56/55)	0.00	0.02	1.00	0.018	0.00	0.02	0.36	0.007	↓
Marijuana (53/52)	0.17	0.23	3.12	0.057	0.17	0.23	0.02	0.000	↓
Any Prescription Medication Not Prescribed (58/57)	0.00	0.00	NA	NA	0.00	0.00	NA	NA	↓

[a]Adjusted for grade and language spoken at home.
[b]Exact statistic provided.
[c] Partial eta squared where effects are: small = .01, medium = .06, large = .14 or larger.

Table 25: 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[a] model results

	Unadjusted				**Adjusted**				
Measure (unadjusted n/ adjusted n)	Base-line Mean	Post-Test Mean	F-test & sig.[b]	effect size[c]	Base-line Mean	Post-Test Mean	F-test & sig.[b]	effect size[c]	Desired Outcome
Risk of Harm Scale (58/57)	1.10	1.50	10.43**	0.155	1.11	1.50	0.09	0.002	↑
Parental Attitudes toward Alcohol Use (58/57)	2.84	2.62	5.18*	0.083	2.84	2.61	1.34	0.024	↑
Respondent Attitudes toward Alcohol Use (58/57)	2.76	2.67	1.19	0.021	2.75	2.67	0.30	0.006	↑
Intention to smoke a cigarette soon (46/45)	0.02	0.02	0.00	0.000	0.02	0.02	0.00	0.000	↓
Intention to smoke a cigarette during the next year (51/50)	0.24	0.24	0.00	0.000	0.24	0.20	0.21	0.005	↓
Intention to smoke a cigarette if offered by best friend (50/49)	0.20	0.14	1.00	0.020	0.20	0.14	0.00	0.000	↓

[a]Adjusted for grade and language spoken at home.

[b]Exact statistic provided.

[c] Partial eta squared where effects are: small = .01, medium = .06, large = .14 or larger.

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

Among the female Native American middle school sample, there were no significant effects of time on ATOD measures in the unadjusted and adjusted models (see

Table 26). When examining the middle school Native American females on measures associated with ATOD use, a positive time effect was found on parental attitudes towards alcohol use in the adjusted models (see

Table **27**). This change in perceived parental attitudes was in the desired direction and there was a medium effective size of time spent in the prevention program, which suggests that the programming may have influenced this positive change.

Table 26: Examining the effect of pretest substance use on the posttest substance use for middle school Native American female students, unadjusted and adjusted[a] model results

	Unadjusted				Adjusted				
Substance (unadjusted n /adjusted n)	Base-line Mean	Post-Test Mean	F-test & sig.[b]	effect size[c]	Base-line Mean	Post-test Mean	F-test & sig.[b]	effect size[c]	Desired Outcome
Cigarettes (55/54)	0.07	0.13	0.33	0.006	0.07	0.13	2.00	0.038	⬇
Chewing Tobacco (54/53)	0.00	0.00	NA	NA	0.00	0.00	NA	NA	⬇
Alcohol (57/56)	0.04	0.02	0.33	0.006	0.04	0.02	0.01	0.000	⬇
Binge Drinking (57/56)	0.05	0.00	1.00	0.018	0.05	0.00	4.42	0.077	⬇
Marijuana (58/57)	0.14	0.14	0.00	0.000	0.14	0.14	1.07	0.019	⬇
Any Prescription Medication Not Prescribed (58/57)	0.02	0.03	0.33	0.006	0.02	0.04	0.09	0.002	⬇

[a]Adjusted for grade and language spoken at home.

[b]Exact statistic provided.

[c] Partial eta squared where effects are: small = .01, medium = .06, large = .14 or larger.

Table 27: 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[a] model results

	Unadjusted				Adjusted				
Measure (unadjusted n/ adjusted n)	Base-line Mean	Post-Test Mean	F-test & sig.[b]	effect size[c]	Base-line Mean	Post-Test Mean	F-test & sig.[b]	effect size[c]	Desired Outcome
Risk of Harm Scale (60/59)	1.54	1.77	2.13	0.035	1.52	1.75	1.82	0.032	↑
Parental Attitudes toward Alcohol Use (61/60)	2.68	2.75	0.28	0.005	2.68	2.80	4.10*	0.067	↑
Respondent Attitudes toward Alcohol Use (61/60)	2.62	2.57	0.11	0.002	2.62	2.62	1.34	0.023	↑
Intention to smoke a cigarette soon (51/50)	0.00	0.04	2.04	0.039	0.00	0.04	0.83	0.017	↓
Intention to smoke a cigarette during the next year (53/52)	0.21	0.17	0.25	0.005	0.21	0.17	0.83	0.017	↓
Intention to smoke a cigarette if offered by best friend (53/52)	0.19	0.09	1.96	0.036	0.17	0.10	0.32	0.007	↓

[a]Adjusted for grade and language spoken at home.
[b]Exact statistic provided.
[c]Partial eta squared where effects are: small = .01, medium = .06, large = .14 or larger.
*$p \leq .05$.

Summary

The sample size for Native American respondents is relatively small, which means that estimates are likely not as precise as we might like and we need to be careful not to over-interpret or attribute changes in response rates without caveats. Overall, Native American use of alcohol, tobacco, and other drugs are fairly low, which is a positive finding. The exception would be marijuana use, where male students report levels of use similar to males from the YRRS sample. Despite this, no statistically significant changes were found in ATOD use among Native American students regardless of gender, which includes decreases and increases in reported use. If we just examine trends, we find that Native Americans in the SFS sample tend to have lower or equal prevalence and increase their use at a far lower rate than Native Americans in the YRRS sample. Marijuana use among this population remains a considerable cause for concern for males.

SFS Supplemental Modules

Modules B though 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 the objectives in the prevention program. Although optional, many programs choose to administer them because it is felt they measure important changes occurring that are not measured in the CORE module. The measures in modules B-E are from the California Health Kids Survey (CHKS)[5] and have moderate to high reliability and validity. The analyses on the supplemental modules were only performed on the whole middle school sample and not among the high school sample or among gender or race/ethnicity subgroups. Permission to use these supplemental models was granted from the CHKS developers.

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 28. All scales at pre and posttest show adequate to good reliability.

Table 28: Reliability statistics for scales in the middle school SFS supplemental modules

Scale/measure	Pretest Cronbach's α	Posttest Cronbach's α
Violence Perpetration	0.790	0.806
Violence Victimization	0.721	0.808
Cooperation and Communication	0.625	0.688
Self-efficacy	0.712	0.718
Empathy	0.784	0.825
Problem solving	0.689	0.762
Self-awareness	0.663	0.606
Goals and Aspirations	0.675	0.778
Caring Relationships: Adults in School	0.767	0.834
High Expectations: Adults in School	0.844	0.881
Meaningful Participation: In the School	0.781	0.818
Caring Relationships: Adults in Home	0.799	0.851
High Expectations: Adults in Home	0.839	0.874
Meaningful Participation: In the Home	0.779	0.834
Caring Relationships: Adults in Community	0.805	0.832
High Expectations: Adults in Community	0.902	0.912
Meaningful Participation: In the Community	0.567	0.637
Caring Relationships: Peers	0.862	0.899
High Expectations: Pro-social peers	0.568	0.590

[5] Permission to use measures was obtained from WestEd prior to administering them.

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 29.

Table 29: Data for Modules B and C by site

Site	Percent
Counseling Associates	69.5
Five Sandoval Indian Pueblos Council	5.7
North Central Community Based Services	24.8
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 30) presents the average scores from the perpetration scale and the victimization scale. The range for responses was 0 to 4, where 4 equaled high frequency, i.e., "almost every day", and 0 equaled "never". There are significant increases from pre- to post-test in both perpetration and victimization in the unadjusted model. In the adjusted model, increases in violence perpetration remained statistically significant. However, it should be noted that means for these measures are well below .50, in other words closer to 0, or "never", than 1, which is "once in a while."

Table 30: Examining the effect of Module B and Module C pretest scores on posttest scores for selected middle school SFS program participants, unadjusted and adjusted[a] model results

	Unadjusted				Adjusted				
Measure (unadjusted n/adjusted n)	Base-line Mean	Post-test Mean	F-test & sig[b].	effect size[c]	Base-line Mean	Post-test Mean	F-test & sig[b].	effect size[c]	Desired Outcome
Violence Perpetration (448/444)	0.30	0.35	7.37**	0.016	0.30	0.35	4.18*	0.009	↓
Violence Victimization (448/444)	0.33	0.40	10.98***	0.024	0.34	0.40	2.90	0.007	↓
Felt unsafe at or on way to school (435/432)	0.12	0.11	0.10	0.000	0.12	0.11	1.73	0.004	↓

[a]Model adjusted for biological sex, grade, ethnicity, and English as a primary language at home.
[b]Exact statistic provided.
[c]Partial eta squared where effects are: small = .01, medium = .06, large = .14 or larger.
*$p \leq .05$, **$p \leq .01$, ***$p \leq .001$.

One additional measure from the NM YRRS is included in module C (see Table 31). It asks about the number of days absent from school in the past 30 days because of feeling unsafe. There

are essentially no differences from pre- to post-test. About 93% to 94% of students at posttest indicated they did not miss school because they felt unsafe.

Table 31: 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

Did not go to school because of feeling unsafe	0 days	1 day	2 or 3 days	4 or 5 days	6 or more days
Baseline (%) (n=444)	93.9	2.9	1.6	0.9	0.7
Posttest (%) (n=440)	92.7	5.5	0.7	0.7	0.5

Modules D & E measure internal and external resiliency respectively. Resiliency is a construct consisting of many factors 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 32 and a breakdown of the contribution to the entire sample is provided.

Table 32: Data for Module D by site

Site	Percent
Counseling Associates	48.7
Five Sandoval Pueblos	4.0
North Central Community Based Services	17.4
Santa Fe Mountain Center	8.1
San Juan County Partnership	17.4
Southern New Mexico Human Development	4.3
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 improvement from pre- to post-test was found for every measure except for self-awareness. And increases in goals and aspirations remained significant after adjusting for the influences of biological sex, grade, race/ethnicity, and language spoken at home (see Table 33). Having goals and aspirations is a protective factor against starting to use drugs and alcohol. Helping youth to identify and act on their goals and aspirations is a critical part of most prevention programs.

Table 33: Examining the effect of Module D pretest scores on posttest scores for selected middle school SFS program participants, unadjusted and adjusted[a] model results

	Unadjusted				Adjusted				
Measure (unadjusted n/adjusted n)	Base-line Mean	Post-test Mean	F-test & sig.[b]	effect size[c]	Base-line Mean	Post-test Mean	F-test & sig.[b]	effect size[c]	Desired Outcome
Cooperation and Communication (628/622)	2.15	2.22	5.25*	0.008	2.15	2.22	2.87	0.005	↑
Self-efficacy (628/622)	2.26	2.35	9.98**	0.016	2.26	2.35	0.46	0.001	↑
Empathy (629/623)	2.05	2.17	15.49***	0.024	2.05	2.17	0.39	0.001	↑
Problem solving (628/622)	1.97	2.03	4.16*	0.007	1.97	2.03	0.30	0.000	↑
Self-awareness (624/618)	2.35	2.38	0.78	0.001	2.35	2.38	0.21	0.000	↑
Goals and Aspirations (629/623)	2.65	2.72	12.18**	0.019	2.65	2.72	3.77*	0.006	↑

[a]Model adjusted for biological sex, grade, ethnicity, and English as a primary language at home.
[b]Exact statistic provided
[c]Partial eta squared where effects are: small = .01, medium = .06, large = .14 or larger.
*$p \leq .05$, **$p \leq .01$, ***$p \leq .001$.

Those programs that chose to use Module E are listed in Table 34 and a breakdown of each program's contribution to the overall sample is provided.

Table 34: Data for module E by site

Site	Percent
Counseling Associates	55.6
Five Sandoval Indian Pueblo	4.6
North Central Community Based Services	19.9
San Juan County Partnership	19.9
Total	100.0

The measures of external resiliency in Module E reflect changes in relationships and expectations from caring peers and adults and meaningful participation in the community. Among the middle school respondents, there was a significant increase on caring relationships with adults in the home in the adjusted model (see Table 35). Strengthening parent/child relationships is often related to more parental involvement in the youth's life and greater setting

of boundaries for the youth's behavior, both of which decrease the likelihood of engaging in substance use at a young age.

The scales for items on both resiliency modules were from 0 to 3 where 3 indicates having high resiliency and 0 indicating having very little. Examination of pre-test and post-test means of these measures indicates that most of the mean scores are greater than 2 at pretest, which leaves little room for improvement. This may contribute to the limited significant improvements observed in the average scores for these scales even though most are trending in the desired direction.

Table 35: Examining the effect of Module E pretest scores on posttest scores for selected middle school SFS program participants, unadjusted and adjusted[a] model results

	Unadjusted				**Adjusted**				
Measure (unadjusted n/adjusted n)	**Base-line Mean**	**Post-test Mean**	**F-test & sig.[b]**	**effect size[c]**	**Base-line Mean**	**Post-test Mean**	**F-test & sig.[b]**	**effect size[c]**	**Desired Outcome**
Caring Relationships: Adults in School (546/540)	2.15	2.21	2.68	0.005	2.15	2.20	0.26	0.000	⇧
High Expectations: Adults in School (546/540)	2.51	2.49	0.18	0.000	2.51	2.49	1.20	0.002	⇧
Meaningful Participation: In the School (544/538)	2.00	2.00	0.00	0.000	2.00	2.00	0.50	0.001	⇧
Caring Relationships: Adults in Home (546/540)	2.42	2.39	1.15	0.002	2.43	2.39	3.97*	0.007	⇧
High Expectations: Adults in Home (546/540)	2.72	2.68	2.57	0.005	2.72	2.68	0.12	0.000	⇧
Meaningful Participation: In the Home (545/539)	2.23	2.26	0.44	0.001	2.23	2.25	0.04	0.000	⇧
Caring Relationships: Adults in Community (547/541)	2.44	2.45	0.16	0.000	2.44	2.45	0.39	0.001	⇧
High Expectations: Adults in Community (547/541)	2.50	2.51	0.04	0.000	2.50	2.51	0.35	0.001	⇧
Meaningful Participation: In the Community (544/538)	1.84	1.82	0.40	0.001	1.83	1.81	0.09	0.000	⇧
Caring Relationships: Peers (545/539)	2.22	2.23	0.08	0.000	2.22	2.23	0.03	0.000	⇧
High Expectations: Pro-social peers (545/539)	2.14	2.10	1.66	0.003	2.13	2.10	1.35	0.003	⇧

[a]Model adjusted for biological sex, grade, ethnicity, and English as a primary language at home.
[b]Exact statistic provided
[c]Partial eta squared where effects are: small = .01, medium = .06, large = .14 or larger.
**$p \leq .01$.

Summary of SFS Survey Findings

In FY13, the middle school findings suggest meaningful as well as significant decreases across genders in overall ATOD use compared to previous years. Middle school males significantly decreased their use of cigarettes, alcohol, and inhalants, while girls decreased their inhalant use significantly. In addition, any increases over time were generally less than increases in previous years and few significant increases are seen overall. Boys increased their perceived risk of harm while girls increased their perception of parental disapproval of substance use, both protective factors for ATOD use. Alcohol use among Hispanic students stands out as typically higher than other substances while marijuana use stands out as the most prevalent substance of use among Native Americans. Although we are unable to say with certainty that the prevention programs caused the changes reported by respondents, there is as at least some evidence that the programs influenced the students when we compare SFS pre and posttest trajectories in use with YRRS estimates. On the whole, SFS respondents report less use than the average middle school student and their increase in use over time is typically less steep. This suggests that the programs may be delaying initiation of use and/or decreasing use among middle school students.

Regardless of race/ethnicity, respondents' attitudes toward alcohol use generally became more accepting over time. These changes were relatively small overall and not significant. Middle school males on the whole report greater tolerance towards alcohol use at post-test

Across the board, when we only examined those middle school students who reported actual use at pre-test, we found that their reported use at post-test decreased. This at least speaks to the effectiveness of the prevention program in reducing use. However, without a strong comparison group, we are unable to say that it was solely the effect of the program. As in most surveys of this nature, there is a strong tendency for respondents to give the socially desirable response. This tendency may be even stronger among youth. Attachment to the prevention providers by post-test may well influence how students respond at posttest in particular.

The use of the YRRS data is helpful in seeing how a convenience sample of SFS students compares to a representative sample of their peers. That said, it does not allow for pre- and post-intervention comparisons in the same way. We have attempted to replicate the equivalent of a pre- & post-intervention scenario with the YRRS data but it is only a proxy. Funding in substance use prevention is such that there are insufficient resources to allow for the collection of real comparison data.