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How Effective is the 2010-2011 D.A.R.E. Program in the Mississippi Delta?

LaDetra Michelle Forrest

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HOW EFFECTIVE IS THE 2010-2011 D.A.R.E. PROGRAM IN THE MISSISSIPPI
DELTA?

By

LaDetra Michelle Forrest

A Thesis
Submitted to the Faculty of
Mississippi State University
in Partial Fulfillment of the Requirements
for the Degree of Master of Science
in Veterinary Medical Sciences
in the College of Veterinary Medicine

Mississippi State, Mississippi

May 2012

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By

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DELTA?

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Alcohol and drug use are common among middle school students, but drug use intervention programs in schools can decrease the number of youth participating in such behaviors. More than half of Mississippi's youth self-reported that they had tried alcohol and cigarettes, and over a third of them had tried marijuana. The Delta Council implemented its 2010-2011 D.A.R.E. program in 33 Delta middle schools and administered pre- and post-test surveys to participating students. Survey items were broken into five domains and responses were assigned a numerical value. Data were divided into subgroups, and t-tests were used to determine if the mean differences between pre- and post-test were significant from zero. Students scored the highest in the areas of active and passive decision making and substance use expectancy which indicates that the program was beneficial to some students.

DEDICATION

I would like to dedicate my research to the loves of my life (God, Leamon, Mom, Dad, Stacy, Nelecha, Zakeyah, and Brayden) for being such a wonderful blessing to me on this journey. You all play different roles in my life, and each of them are significant. I could not have done this without you. Thanks for believing in me and taking this journey with me. I love you more than mere words can say.

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CHAPTER I

INTRODUCTION

1.1 Drug Awareness Education

Educating adolescents on the dangers of alcohol, drug, and other substance abuse early in their lives can prevent adoption of these unhealthy habits and promote healthier lifestyles as adults. Alcohol and drug abuse among middle school students is not uncommon, but awareness education on the risks and consequences of such abuse can decrease the number of youth who are participating in such behaviors (Centers for Disease Control and Prevention Division of Adolescent and School Health website 2011). Schools have chosen to implement programs such as D.A.R.E. to provide drug awareness education in an effort to promote drug-free schools (Ennett et al. 1994).

“Substance abuse causes serious problems, including poor health, involvement with the criminal justice system, familial and social dysfunction and impaired educational and employment opportunities” (Robert Wood Johnson Foundation Research Report 2010). Until D.A.R.E. (Drug Abuse Resistance Education) started in Los Angeles in 1983, there was no national drug awareness education program in place to combat the increasing numbers of reported gang violence incidents and abusers of drugs in the United States (Robert Wood Johnson Foundation Research Report 2010). Although many qualitative studies suggest that there is a causal relationship between drug abuse and crime, there is insufficient evidence to prove such implications (Bennett and Holloway 2009: 513-30). Despite the lack of evidence, D.A.R.E. America was organized

in 1989 to reduce gang violence, criminal activity and heavy drug use that were plaguing the communities and disturbing law enforcement personnel (Robert Wood Johnson Foundation Research Report 2010).

By 1998, more than 30 million students were participating in D.A.R.E. programs throughout the world – 25 million being in the United States (Robert Wood Johnson Foundation Research Report 2010). The program was being offered to students in grades K through 12 by local D.A.R.E. trained and certified police officers promoting a message of “0-tolerance” for drugs in over 300,000 schools across the U.S. and providing education on the health risks, poor academic performance and other negative consequences associated with drug abuse (Robert Wood Johnson Foundation Research Report 2010).

1.2 The Mississippi Delta D.A.R.E. Program

1.2.1 Importance

According to the Centers for Disease Control and Prevention’s (CDC) 2009 Youth Risk Behavior Survey (YRBS), 70 percent of Mississippi’s youth (72.5 percent of U.S. youth) self-reported that they had tried alcohol, 35.1 percent (36.8 percent U.S. youth) had tried marijuana, and 53.7 percent (46.3 percent U.S. youth) had tried tobacco (Mississippi Office of Healthy Schools 2010). The Delta Health Alliance (DHA) recognized this as an outreach opportunity to prevent negative outcomes due to alcohol and drug use and to promote more positive communities by funding and implementing the Delta Council’s D.A.R.E. program in the public middle schools of the Delta region (Finkelstein et al. 2009).

1.2.2 Implementation

The Delta Council is an economic development organization serving 18 Delta and part-Delta counties in the northwestern region of Mississippi (Delta Council website 2011). Since 2008, the DHA has funded the D.A.R.E. Program in the middle schools of the Mississippi Delta region in hopes of preventing substance abuse among young Deltans (Finkelstein et al. 2009). The Delta Council administers and oversees the operation of the drug awareness education program in the middle schools of the Mississippi Delta. The D.A.R.E. Project is now in its fourth year (at the time of this thesis).

1.2.3 Goals

The Delta Council seeks to accomplish the following goals through the implementation of the D.A.R.E. Project: (1) decrease the chances of alcohol, drug, and other substance use among middle school Deltans who are contemplating use; (2) decrease the amount of alcohol, drug, and other substance use among students who are already substance users; (3) decrease criminal activity among students; and (4) improve academic outcomes of middle school students (Finkelstein et al. 2009).

1.2.4 Curriculum

1.2.4.1 Take Charge of Your Life Curriculum

Initially (during the 2008-09 school year), the Delta Council adopted the *Take Charge of Your Life* (TCYL) curriculum which was then the D.A.R.E. America program model of choice (Finkelstein et al. 2009). From November 1999 to June 2009, Zili Sloboda and a team of colleagues from the University of Akron in Ohio were given more than \$16 million in grants from the Robert Wood Johnson Foundation (RWJF) to develop

and evaluate the *Take Charge of Your Life* curriculum (Robert Wood Johnson Foundation Research Report 2010). This drug prevention program was designed for 7th- and 9th-grade students with the intention of deterring the students from using drugs, alcohol, and tobacco during their high school years when such behavior is anticipated (Robert Wood Johnson Foundation Research Report 2010).

The TCYL curriculum targeted 7th- grade students because that is believed to be the age when adolescents begin to contemplate drug, alcohol, and tobacco use and 9th-grade students since that is a crucial point in making the decision whether or not to experiment with drugs, alcohol and tobacco (Robert Wood Johnson Foundation Research Report 2010). The curriculum consisted of ten 45-minute 7th-grade lessons and seven 9th-grade “booster” lessons - all geared toward avoiding or “delaying” the use of marijuana, alcohol, tobacco, and other illegal substances (Robert Wood Johnson Foundation Research Report 2010).

1.2.4.2 Evaluation of the Take Charge of Your Life Curriculum

Sloboda and his team conducted a five-year randomized study to evaluate the effectiveness of the TCYL curriculum by comparing data from 17,320 students - 10,028 students in the treatment group who had received the TCYL curriculum during their 7th- and 9th-grade years and 7,292 students in the control group who had not received the TCYL curriculum (Robert Wood Johnson Foundation Research Report 2010). The findings of the evaluation reflected a significant reduction in marijuana usage among 11th-grade students in the treatment group who had self-reported using marijuana in their 7th-grade year when compared to like students in the control group; however, there was a reported 3 to 4 percent increase in alcohol and tobacco usage, which rendered the program ineffective, among 11th-grade students in the treatment group who had denied

ever using alcohol or tobacco in their 7th-grade year before being introduced to the TCYL curriculum when compared to like students in the control group (Robert Wood Johnson Foundation Research Report 2010).

D.A.R.E. America decided that this curriculum was ineffective and did not meet its standards; therefore, the Delta Council chose to remove it from the 2009-2010 Mississippi Delta D.A.R.E. Program (Finkelstein et al. 2009). D.A.R.E. America then chose to implement the *keepin' it REAL* curriculum (Finkelstein et al. 2009), which was created and evaluated by a group of researchers from Pennsylvania State University and Arizona State University who created the Drug Resistance Strategies (DRS) project mainly to examine how America's middle-school youth responded to alcohol, tobacco, and other drug (ATOD) offers based on their views of drug use (Hecht et al. 2003; Hecht et al. 2008).

1.2.4.3 keepin' it REAL Curriculum

According to the Centers for Disease Control and Prevention, African American adolescents were less likely to use alcohol, tobacco, and marijuana than non-Hispanic whites – Hispanic adolescents reported usage rates between the two groups (Centers for Disease Control and Prevention, 1998). These statistics seemed to suggest that “ethnic, racial, and cultural influences played a role in prevalence of substance use and abuse” and were determining factors in the effectiveness of drug abuse intervention programs (Hecht et al., 2003). A research study, published in an article in the *Society for Prevention Research* journal, revealed that minority adolescents tend to respond better to prevention programs that feature individuals from the same ethnic group (Hecht et al. 2003).

The DRS (Drug Resistance Strategies) project researchers took the beliefs, values, ideas, images, and languages representative of Mexican American (Hispanic), European American (White), and African American (Black) cultures and incorporated them into 10 45-minute lessons that offer REAL (refuse, explain, avoid, and leave) strategies to help them refuse and avoid ATOD offers (Hecht et al. 2003; Hecht et al. 2008). Adolescents from the three culture groups are the featured actors in videos that are included in the kiR curriculum (Hecht et al. 2003). This “culturally grounded” curriculum is designed for middle school students in grades 6 through 9 and stresses the significance of the four resistance strategies by using the acronym REAL, which has been renamed *keepin’ it REAL* by students (Hecht et al. 2003).

The 10 lessons include an outline for each lesson, an activity sheet with instructions, worksheets for students that can be used in class or for homework, and games or other entertaining activities that promote interaction between the instructors and the students (“keepin’ it REAL at Penn State University: An Effective, Multicultural Middle School Drug Prevention Program”). The curriculum utilizes videos that are included in five of the 10 lessons – one video introduces the program while the other four teach the REAL resistance strategies (Hecht et al. 2003). kiR is funded by the National Institute on Drug Abuse (NIDA) and is directed by Dr. Michael Hecht and Dr. Michelle Miller-Day of the Pennsylvania State University Department of Communication Arts and Sciences (“keepin’ it REAL at Penn State University: An Effective, Multicultural Middle School Drug Prevention Program.”).

Three versions of the kiR curriculum are available - Mexican American, European American/African American (White/Black), and a multicultural version which consists of a combination of five (5) lessons from the Mexican American version and five (5) lessons

from the European American/African American version (Hecht et al. 2003). At the time of development of the kiR drug use intervention program in Arizona, the Mexican American population was the largest subgroup in the Latino culture group - justifying the need for a Mexican American version of the kiR curriculum (Hecht et al. 2003). The European American and African American populations were the largest minority ethnic groups, but neither subgroup was large enough to test the theory behind “cultural matching” in the target area (Hecht et al. 2003).

1.2.4.4 Evaluation of the keepin’ it REAL Curriculum

According to evaluations of the program over the course of its existence, kiR curriculum has been proven effective in “reducing alcohol, tobacco, and marijuana use; increasing the use of strategies to avoid these substances; and improving social norms toward substance use” (Hecht et al. 2008). These positive behavior changes occurred more in students who received the Mexican American and Multicultural versions of the kiR curriculum than in the control group of students (Hecht et al. 2003; Kulis et al. 2007).

1.3 Evaluation of the 2009-2010 Mississippi Delta D.A.R.E. Program

On September 9, 2009, the Institutional Review Board (IRB) at Delta State University granted the Delta Council IRB clearance to conduct the Delta D.A.R.E. Project study. The Delta Council launched the 2009-2010 D.A.R.E. Program and appointed Mathematica Research Policy, Inc. in Boston to evaluate the effectiveness of the program. A reported 1,897 middle school students from 20 schools in the Mississippi Delta region completed a pre-test survey, and 1,614 of those 1,897 students also completed the post-test survey (Finkelstein et al. 2009).

Findings from Mathematica’s evaluation suggested that the program was beneficial to a number of students (Finkelstein et al. 2009). It also provided evidence that students who had low scores on the pre-test showed much improvement in (1) students’ efficacy in refusing offers of alcohol, cigarettes, and marijuana; and (2) their beliefs about “social benefits” of substance use (Finkelstein et al. 2009). Some students who started with high pre-test scores showed a decrease in refusal efficacy and active decision making, which is an expected change among adolescents as they adopt different ideas and attitudes that stem from exposure to “unhealthy views and behaviors” of their peers (Finkelstein et al. 2009).

1.4 Evaluation of the 2010-2011 Mississippi Delta D.A.R.E. Program

The evaluation of the 2010-2011 Mississippi Delta D.A.R.E. Program, which is the subject of this thesis, will determine if the ideas and views of its middle school students about drug use and abuse were influenced by implementation of the program. A comparison of the response changes between the students’ pre- and post-test scores when divided into subgroups (overall, gender, semester, and age) will determine the degree of the program’s effectiveness.

CHAPTER II

EVALUATION APPROACH

2.1 Data Collection

Once the IRB requirements set forth by Delta State University were satisfied and certifications were found to be current, the Delta Council requested and was granted parental consent for student participation in the program. The Delta Council delivered pre- and post-test surveys to administrators of 33 participating middle schools in the Mississippi Delta region, and the teachers proctored the surveys.

The pre-test survey was administered to 3,261 middle school age students at the beginning of the 2010-2011 fall and spring semesters prior to the presentation of the first D.A.R.E. lesson. Local law enforcement officers who had been previously trained and certified by D.A.R.E. America were assigned to middle schools throughout the Mississippi Delta to deliver the kiR curriculum. Immediately following the conclusion of the last lesson of the program, post-test surveys were given to 2,677 middle school age students to determine if the D.A.R.E. program influenced students' perceptions of substance use by comparing outcomes of the pre- and post-tests.

The pre- and post-test surveys were nearly identical with the exception of the addition of one item on the post-test survey that allowed the students to evaluate their instructor's performance and knowledge of the curriculum. The answer sheets were de-identified to ensure that the students' responses were kept confidential and could not be traced back to the individual.

2.2 Evaluation Tool

The effectiveness of the 2010-2011 Mississippi Delta D.A.R.E. Program was determined by utilizing a pre- and post-test survey evaluation instrument that was developed by the researchers who designed the kiR curriculum. The responses of 14 survey items were coded or assigned a numerical value indicative of the student's views, beliefs, and perceptions of alcohol, tobacco, and marijuana usage (Finkelstein et al. 2009). The mean scores of the students' outlook on substance abuse before and after their participation in the Delta D.A.R.E. program were compared. Scores greater than or equal to "2" were considered positive outcomes, while scores below this number reflect more negative outcomes. Items on the pre- and post-test surveys were divided into five domains:

1. Descriptive norms. These items measured students' perceptions of drug usage by students at their school and among their friends.
2. Substance use expectancies. These items measured students' beliefs that: drinking alcohol makes parties more fun; smoking cigarettes makes people less nervous; or smoking marijuana makes it easier to be part of a group.
3. Refusal self-confidence. These items measured students' confidence that they would be able to say "no" when offered cigarettes, alcohol, and marijuana.
4. Active decision making. These items measured students' ability to solve problems or make personal decisions on their own. "When I have a problem or need to make a decision ... I get the information needed to make the best choice; I think of different ways to solve the problem; I think about what will happen."

5. Passive decision making. These items measured students' dependence on others to solve problems or make personal decisions for them. "When I have a problem or need to make a decision ... I let someone else decide for me; I do what everyone else is doing; I just let it happen" (Finkelstein et al. 2009).

2.3 Data Analysis

An analysis of the students' responses from suites of related pre- and post-test questions was used to track changes that may have occurred from the start of the program to its conclusion. The data were recorded in Excel spreadsheets and later divided into subgroups (overall, gender, age, and semester) to determine which areas or groups of students showed the most improvement. SAS 9.2 software was utilized to perform a series of paired t-tests which produced results that determined if the overall mean differences in students' scales from pre- and post-test surveys were statistically significant from zero and whether the mean differences in students' scales from pre- to post-test were significantly different across gender and semester subgroups (Finkelstein et al. 2009).

CHAPTER III
RESULTS FROM THE 2010-2011 D.A.R.E. EVALUATION

3.1 Descriptive Norms

One of the goals that the Delta Council set was to decrease the chances of alcohol, cigarette, and marijuana usage among middle school adolescents. It is important to understand the students' views and perceptions of alcohol and drug usage in order to obtain this goal. The desired range for the questions in this domain was "2" or higher, which means that the students' perception of the prevalence of drug usage among their peers should be "some" or "hardly any."

The average score on the descriptive norm scale was 1.882 on the pre-test survey and 1.8646 on the post-test survey when students were asked to guess how many of their peers had tried alcohol, cigarettes, or marijuana. As shown in Table 3.1., there were significant differences observed between pre- and post-test scores overall, within males, within the fall semester, and in the <13 age group. These scores suggest that students believed, before and after the program, that "half" or "some" of the students in their school had used alcohol, cigarettes, or marijuana at least once.

Table 3.1 Perceived Substance Usage among Peers at Pre- and Post-Test

Subgroup	Pre-Test Mean	Post-Test Mean	Change	p-value
Overall	1.8882	1.8646	-0.0572	0.0048*
Gender				
Female	1.8303	1.8292	-0.0299	0.2886
Male	1.9445	1.9112	-0.0853	0.0036*
Semester				
Fall	1.9700	1.8966	-0.0639	0.0033*
Spring	1.5549	1.7394	-0.00375	0.9463
Age Group				
<13	1.9742	1.8939	-0.0722	0.0061*
13	1.8270	1.8466	-0.0516	0.1580
>13	1.6946	1.7492	-0.00334	0.9579

Students' guess of the number of children in school who have used alcohol, cigarettes, or marijuana at least once

Pre- and post-test means for this scale include all students who took a pre- or post-test survey. Change includes only students who took both a pre- and post-test survey.

* Results from a paired t-test indicate that the change between pre-test and post-test is significantly different from 0 at the $p < 0.05$ level.

The average score on the descriptive norm scale was 2.4821 and 2.4532 on the post-test when students were asked to guess how many of their friends that they hang out with had tried alcohol, cigarettes, or marijuana. As shown in Table 3.2., there were significant differences observed between pre- and post-test scores overall, within females and within males, within the fall semester, and within the <13 and the 13 age groups.

These scores suggest that students believed, before and after the program, that “some” or “hardly any” of their friends had used alcohol, cigarettes, or marijuana at least once.

Table 3.2 Perceived Substance Usage among Peers at Pre- and Post-Test

Subgroup	Pre-Test Mean	Post-Test Mean	Change	<i>p-value</i>
Overall	2.4821	2.4532	-0.0717	<0.0001*
Gender				
Female	2.5857	2.5346	-0.0902	<0.0001*
Male	2.3814	2.3782	-0.0528	0.0533*
Semester				
Fall	2.5522	2.4829	-0.0803	<0.0001*
Spring	2.1950	2.3364	-0.00375	0.9445
Age Group				
<13	2.6029	2.5298	-0.0780	0.0005*
13	2.4093	2.4126	-0.0795	0.0087*
>13	2.1777	2.1371	-0.0236	0.6958

Students’ guess of the number of friends that student hangs out with who have used alcohol, cigarettes, or marijuana at least once

Pre- and post-test means for this scale include all students who took a pre- or post-test survey. Change includes only students who took both a pre- and post-test survey.

* Results from a paired t-test indicate that the change between pre-test and post-test is significantly different from 0 at the $p < 0.05$ level.

3.2 Substance Use Expectancies

These questions were indicators of whether or not the students believed that alcohol, cigarettes, or marijuana offered any social benefits. If the scores were low, then students “agreed” or “strongly agreed” that “drinking alcohol makes parties more fun,” “smoking cigarettes makes people less nervous,” and “smoking marijuana makes it easier

to be part of a group.” High scores indicated that students “disagreed” or “strongly disagreed,” with the statements

The average score on the substance use expectancies scale was 2.4203 on the pre-test survey and 2.4985 on the post-test survey when students were asked if drinking alcohol made parties more fun. As shown in Table 3.3., there were significant differences observed between pre- and post-test scores overall, within the fall semester, and in the <13 age group.

Table 3.3 Substance Use Expectancies of Adolescents at Pre- and Post-Test

Subgroup	Pre-Test Mean	Post-Test Mean	Change	<i>p-value</i>
Overall	2.4203	2.4985	0.0463	0.0145*
Gender				
Female	2.4457	2.5312	0.0413	0.0923
Male	2.3961	2.4853	0.0508	0.0813
Semester				
Fall	2.4641	2.5229	0.0445	0.0293*
Spring	2.2408	2.4030	0.0611	0.2231
Age Group				
<13	2.4867	2.5391	0.0503	0.0329*
13	2.3802	2.4602	0.0294	0.4028
>13	2.2512	2.3690	0.0709	0.2717

Students’ belief that drinking alcohol makes parties more fun

Pre- and post-test means for this scale include all students who took a pre- or post-test survey. Change includes only students who took both a pre- and post-test survey.

* Results from a paired t-test indicate that the change between pre-test and post-test is significantly different from 0 at the $p < 0.05$ level.

The average score on the substance use expectancies scale was 2.4203 on the pre-test survey and 2.4985 on the post-test survey when students were asked if smoking cigarettes makes people less nervous. As shown in Table 3.4, there were no significant differences observed between pre- and post-test scores overall, within genders, semesters, or age groups.

Table 3.4 Substance Use Expectancies of Adolescents at Pre- and Post-Test

Subgroup	Pre-Test Mean	Post-Test Mean	Change	<i>p-value</i>
Overall	2.3954	2.4258	0.00262	0.9020
Gender				
Female	2.4118	2.4613	0.0110	0.7080
Male	2.3807	2.3970	-0.00723	0.8152
Semester				
Fall	2.4285	2.4373	0.00443	0.8462
Spring	2.2589	2.3804	-0.0117	0.8412
Age Group				
<13	2.4570	2.4589	-0.00536	0.8439
13	2.3525	2.4085	0.0269	0.4746
>13	2.2488	2.3690	-0.0217	0.7665

Students' belief that smoking cigarettes makes people less nervous
Pre- and post-test means for this scale include all students who took a pre- or post-test survey. Change includes only students who took both a pre- and post-test survey.
* Results from a paired t-test indicate that the change between pre-test and post-test is significantly different from 0 at the $p < 0.05$ level.

The average score on the substance use expectancies scale was 2.6703 on the pre-test survey and 2.6815 on the post-test survey when students were asked if smoking

marijuana makes it easier to be part of a group. As shown in Table 3.5, there were no significant differences observed between pre- and post-test scores overall, within genders, semesters, or age groups.

Students' mean scores were above "2" on the substance use expectancies scale before and after the program. These results indicate that students do not believe that alcohol, cigarettes, and marijuana offer social benefits. In some areas there were decreases in scores between pre- and post-test surveys, but they remained within the desired range.

Table 3.5 Substance Use Expectancies of Adolescents at Pre- and Post-Test

Subgroup	Pre-Test Mean	Post-Test Mean	Change	<i>p-value</i>
Overall	2.6703	2.6815	-0.00612	0.7374
Gender				
Female	2.7275	2.7671	0.0102	0.6540
Male	2.6136	2.6030	-0.0235	0.4172
Semester				
Fall	2.6857	2.6968	-0.0104	0.5930
Spring	2.6068	2.6217	0.0268	0.6207
Age Group				
<13	2.7324	2.7268	-0.00459	0.8382
13	2.6534	2.6533	-0.0256	0.4407
>13	2.4614	2.4982	0.0360	0.5863

Students' belief that smoking marijuana makes it easier to be part of a group
Pre- and post-test means for this scale include all students who took a pre- or post-test survey. Change includes only students who took both a pre- and post-test survey.

* Results from a paired t-test indicate that the change between pre-test and post-test is significantly different from 0 at the $p < 0.05$ level.

3.3 Refusal Self-Confidence

The D.A.R.E. program emphasizes REAL strategies to help students reject alcohol, tobacco, and other drug offers. These items measure the confidence in the students' abilities to refuse alcohol and drug offers. A high score represents a strong level of confidence while lower scores indicate a weaker confidence level. A score of "3" or above was the desirable score range for this series of questions suggesting that students are "pretty sure" to "very sure" that they would be able to decline alcohol and drug offers.

The average score on the refusal self-confidence scale was 2.1231 on the pre-test survey and 2.3855 on the post-test survey when students were asked how sure they were that they would say no when offered a cigarette. As shown in Table 3.6, there were significant differences observed between pre- and post-test scores overall, within both genders, in the fall semester, and in the <13 and the 13 age groups.

Table 3.6 Students' Refusal Self-Confidence at Pre- and Post-Test

Subgroup	Pre-Test Mean	Post-Test Mean	Change	<i>p-value</i>
Overall	2.1231	2.3855	0.2107	<.0001*
Gender				
Female	2.3129	2.5488	0.1950	0.0019*
Male	1.9374	2.1942	0.2269	0.0005*
Semester				
Fall	2.0667	2.3400	0.2235	<.0001*
Spring	2.3556	2.5625	0.1094	0.3725
Age Group				
<13	2.2628	2.5219	0.2383	<.0001*
13	2.0219	2.2236	0.1899	0.0167*
>13	1.8092	2.0467	0.1380	0.2913

How sure are you that you would say no when someone tries to get you to smoke a cigarette?

Pre- and post-test means for this scale include all students who took a pre- or post-test survey. Change includes only students who took both a pre- and post-test survey.

* Results from a paired t-test indicate that the change between pre-test and post-test is significantly different from 0 at the $p < 0.05$ level.

The average score on the refusal self-confidence scale was 2.0423 on the pre-test survey and 2.3030 on the post-test survey when students were asked how sure they were that they would say no when offered beer, wine, or liquor. As shown in Table 3.7, there were significant differences observed between pre- and post-test scores overall, within both genders, in the fall semester, and in the <13 and the 13 age groups.

Table 3.7 Students' Refusal Self-Confidence at Pre- and Post-Test

Subgroup	Pre-Test Mean	Post-Test Mean	Change	p-value
Overall	2.0423	2.3030	0.2045	<.0001*
Gender				
Female	2.1933	2.4012	0.1665	0.0068*
Male	1.8949	2.1811	0.2441	<.0001*
Semester				
Fall	2.0182	2.2814	0.2123	<.0001*
Spring	2.1410	2.3867	0.1434	0.2187
Age Group				
<13	2.1851	2.4478	0.2309	<.0001*
13	1.9359	2.1279	0.1906	0.0136*
>13	1.7287	1.9459	0.1195	0.3551

How sure are you that you would say no when someone tries to get you to drink beer, wine, or liquor?

Pre- and post-test means for this scale include all students who took a pre- or post-test survey. Change includes only students who took both a pre- and post-test survey.

* Results from a paired t-test indicate that the change between pre-test and post-test is significantly different from 0 at the $p < 0.05$ level.

The average score on the refusal self-confidence scale was 2.1514 on the pre-test survey and 2.4286 on the post-test survey when students were asked how sure they were that they would say no when offered marijuana. As shown in Table 3.8, there were significant differences observed between pre- and post-test scores overall, within both genders, in the fall semester, and in the <13 and the 13 age groups.

The scores on the refusal self-confidence scale indicate that students are “somewhat” confident in their ability to decline offers of alcohol, cigarettes, and

marijuana. The students did not score within the desired range on the refusal self-confidence scale.

Table 3.8 Students' Refusal Self-Confidence at Pre- and Post-Test

Subgroup	Pre-Test Mean	Post-Test Mean	Change	<i>p-value</i>
Overall	2.1514	2.4286	0.2306	<.0001*
Gender				
Female	2.3528	2.6040	0.2285	0.0004*
Male	1.9545	2.2045	0.2328	0.0005*
Semester				
Fall	2.0928	2.3702	0.2325	<.0001*
Spring	2.3927	2.6544	0.2151	0.0847
Age Group				
<13	2.2975	2.5754	0.2396	<.0001*
13	2.0623	2.2517	0.2196	0.0068*
>13	1.7811	2.0644	0.2165	0.1142

How sure are you that you would say no when someone tries to get you to smoke marijuana?

Pre- and post-test means for this scale include all students who took a pre- or post-test survey. Change includes only students who took both a pre- and post-test survey.

* Results from a paired t-test indicate that the change between pre-test and post-test is significantly different from 0 at the $p < 0.05$ level.

3.4 Active Decision Making

The decision-making style of students affects their ability to solve problems and make important decisions. The D.A.R.E. program encourages students to think for

themselves and not depend on others to make decisions or solve problems for them. The items in this domain measure whether students take an active approach in decision making. Scores above “3” indicate that students “often” or “always” think for themselves when making an important decision. Overall means were slightly below “3” but well above “2” which indicates that there was improvement in scores after the program.

The average score on the active decision-making scale was 2.9069 on the pre-test survey and 2.9466 on the post-test survey when students were asked if they “get the information needed to make the best choice” before solving problems or making important decisions. As shown in Table 3.9., there was significant difference observed within males.

Table 3.9 Students' Active Decision-Making Approach at Pre- and Post-Test

Subgroup	Pre-Test Mean	Post-Test Mean	Change	<i>p-value</i>
Overall	2.9069	2.9466	0.0314	0.3486
Gender				
Female	3.0809	3.0548	-0.0594	0.1696
Male	2.7341	2.8627	0.1276	0.0134*
Semester				
Fall	2.9310	2.9658	0.0250	0.4864
Spring	2.8093	2.8710	0.0811	0.3830
Age Group				
<13	2.9895	3.0069	0.0442	0.3032
13	2.8413	2.9056	0.00145	0.9813
>13	2.7303	2.7192	0.0469	0.6578

When I have a problem or need to make an important decision... I get the information needed to make the best choice.

Pre- and post-test means for this scale include all students who took a pre- or post-test survey. Change includes only students who took both a pre- and post-test survey.

* Results from a paired t-test indicate that the change between pre-test and post-test is significantly different from 0 at the $p < 0.05$ level.

The average score on the active decision-making scale was 2.6445 on the pre-test survey and 2.7733 on the post-test survey when students were asked if they “think of different ways to solve the problem” when making important decisions. As shown in Table 3.10., there were significant differences observed between pre- and post-test scores overall, in the spring semester, and in the <13 age group.

Table 3.10 Students' Active Decision-Making Approach at Pre- and Post-Test

Subgroup	Pre-Test Mean	Post-Test Mean	Change	<i>p-value</i>
Overall	2.6445	2.7733	0.1114	0.0009*
Gender				
Female	2.7663	2.8672	0.0809	0.0645
Male	2.5224	2.6937	0.1435	0.4950
Semester				
Fall	2.6524	2.7869	0.0269	0.2899
Spring	2.6120	2.7200	-0.1916	0.0052*
Age Group				
<13	2.6620	2.8465	0.1894	<.0001*
13	2.6495	2.6578	0.00731	0.9059
>13	2.5604	2.6563	0.00368	0.9719

When I have a problem or need to make an important decision... I think of different ways to solve the problem.

Pre- and post-test means for this scale include all students who took a pre- or post-test survey. Change includes only students who took both a pre- and post-test survey.

* Results from a paired t-test indicate that the change between pre-test and post-test is significantly different from 0 at the $p < 0.05$ level.

The average score on the active decision-making scale was 2.7892 on the pre-test survey and 2.8210 on the post-test survey when students were asked if they “think about what will happen with each choice before doing anything.” As shown in Table 3.11., there was significant difference observed between pre- and post-test scores in the spring semester only.

Scores from survey items in this domain were within and below the desired range on the active decision making scale. These scores suggested that, even after the program,

a number of students were influenced by their peers when solving a problem or making an important decision. Overall means were slightly below “3” but well above “2” which indicates that there was improvement in scores after the program.

Table 3.11 Students’ Active Decision-Making Approach at Pre- and Post-Test

Subgroup	Pre-Test Mean	Post-Test Mean	Change	<i>p-value</i>
Overall	2.7892	2.8210	0.00447	0.8986
Gender				
Female	3.0026	2.9677	-0.0704	0.1261
Male	2.5756	2.7031	0.0836	0.1160
Semester				
Fall	2.7975	2.8535	0.0292	0.4365
Spring	2.7556	2.6933	-0.1882	0.0502*
Age Group				
<13	2.9093	2.9054	0.0109	0.8091
13	2.6683	2.7440	0.0571	0.3563
>13	2.5957	2.5483	-0.1552	0.1776

When I have a problem or need to make an important decision... I think about what will happen with each choice before doing anything.

Pre- and post-test means for this scale include all students who took a pre- or post-test survey. Change includes only students who took both a pre- and post-test survey.

* Results from a paired t-test indicate that the change between pre-test and post-test is significantly different from 0 at the $p < 0.05$ level.

3.5 Passive Decision Making

The D.A.R.E. program promotes active decision making by encouraging students to not give in to peer pressure. Mean scores at the start of the program reflected that students “rarely” took a passive approach to solve problems or make important decisions.

Scores above “3” are desirable and were noted before and after the program. Students also scored higher in this area than in any other domain.

The average score on the passive decision-making scale was 3.5157 on the pre-test survey and 3.5424 on the post-test survey when students were asked if they “let someone else decide for them” when solving problems or making important decisions. As shown in Table 3.12., there was significant difference observed between pre- and post-test scores in the 13 age groups.

Table 3.12 Students' Passive Decision-Making Skills at Pre-and Post-Test

Subgroup	Pre-Test Mean	Post-Test Mean	Change	<i>p-value</i>
Overall	3.5157	3.5424	0.00176	0.9408
Gender				
Female	3.5256	3.5864	0.0274	0.3586
Male	3.5057	3.5288	-0.0255	0.4950
Semester				
Fall	3.5239	3.5745	0.0269	0.2899
Spring	3.4824	3.4167	-0.1916	0.0034*
Age Group				
<13	3.5190	3.5233	0.0185	0.5591
13	3.5122	3.5997	0.00580	0.8890
>13	3.5107	3.5052	-0.0863	0.2249

When I have a problem or need to make an important decision... I let someone else decide for me.

Pre- and post-test means for this scale include all students who took a pre- or post-test survey. Change includes only students who took both a pre- and post-test survey.

* Results from a paired t-test indicate that the change between pre-test and post-test is significantly different from 0 at the $p < 0.05$ level.

The average score on the passive decision-making scale was 3.4680 on the pre-test survey and 3.4688 on the post-test survey when students were asked if they just “do what everyone else is doing” when solving problems or making important decisions. As shown in Table 3.13., there were significant differences observed between pre- and post-test scores in the spring semester only.

Table 3.13 Students' Passive Decision-Making Skills at Pre-and Post-Test

Subgroup	Pre-Test Mean	Post-Test Mean	Change	<i>p-value</i>
Overall	3.4680	3.4688	-0.0161	0.5246
Gender				
Female	3.5565	3.5732	-0.0104	0.7427
Male	3.3791	3.3954	-0.0222	0.5787
Semester				
Fall	3.4800	3.4990	0.0142	0.6047
Spring	3.4191	3.3499	-0.2500	<.0001*
Age Group				
<13	3.4646	3.4611	0.0195	0.5608
13	3.4802	3.4887	-0.0751	0.0847
>13	3.4519	3.4618	-0.0366	0.6489

When I have a problem or need to make an important decision... I do what everyone else is doing.

Pre- and post-test means for this scale include all students who took a pre- or post-test survey. Change includes only students who took both a pre- and post-test survey.

* Results from a paired t-test indicate that the change between pre-test and post-test is significantly different from 0 at the $p < 0.05$ level.

The average score on the passive decision-making scale was 3.3163 on the pre-test survey and 3.2677 on the post-test survey when students were asked if they “just let it happen” when solving problems or making important decisions. As shown in Table 3.14, there were significant differences observed between pre- and post-test scores overall, in the spring semester, and in the 13 age group.

The highest scores on the pre-test and post-test surveys were in the passive decision-making domain. There were no mean pre- or post-test scores below “3” on the

passive decision-making scale which indicates that students are resisting peer pressure and are not giving in to the “everybody’s doing it” façade.

Table 3.14 Students’ Passive Decision-Making Skills at Pre-and Post-Test

Subgroup	Pre-Test Mean	Post-Test Mean	Change	<i>p-value</i>
Overall	3.3163	3.2677	-0.0557	0.0556*
Gender				
Female	3.3604	3.3322	-0.0334	0.3693
Male	3.2721	3.2091	-0.0796	0.0787
Semester				
Fall	3.3382	3.2895	-0.0299	0.3386
Spring	3.2276	3.1813	-0.2558	0.0009*
Age Group				
<13	3.3499	3.3013	-0.0224	0.5484
13	3.2899	3.2176	-0.1045	0.0510*
>13	3.2434	3.2069	-0.0906	0.3236

When I have a problem or need to make an important decision... I just let it happen.
Pre- and post-test means for this scale include all students who took a pre- or post-test survey. Change includes only students who took both a pre- and post-test survey.

* Results from a paired t-test indicate that the change between pre-test and post-test is significantly different from 0 at the $p < 0.05$ level.



Figure 3.1 Comparison of Overall Pre-Test and Post-Test Scores

Pre- and post-test means for this scale include all students who took a pre- or post-test survey.

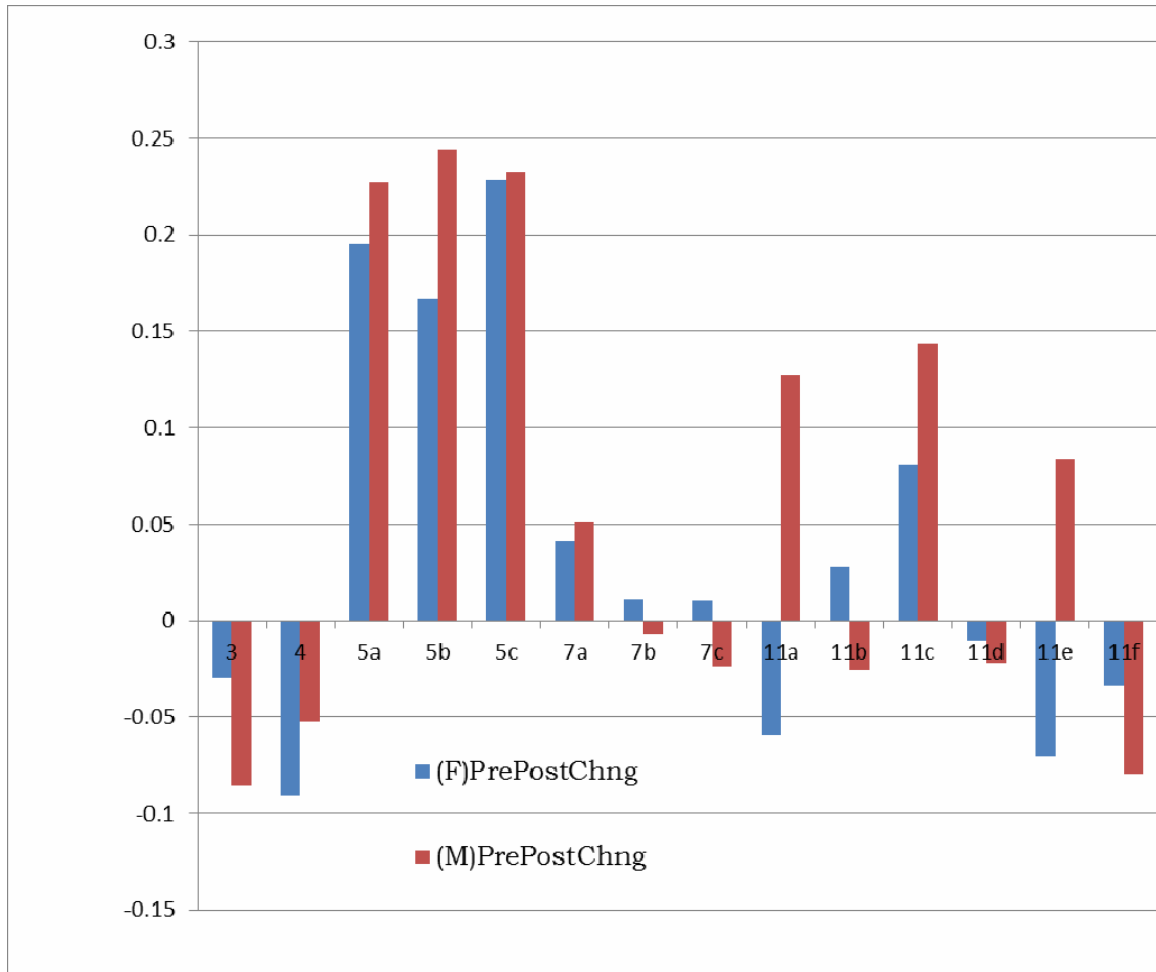


Figure 3.2 Comparison of Pre-Test and Post-Test Scores by Gender

F = Female

M = Male

Pre- and post-test means for this scale include all students who took both a pre- and post-test survey.

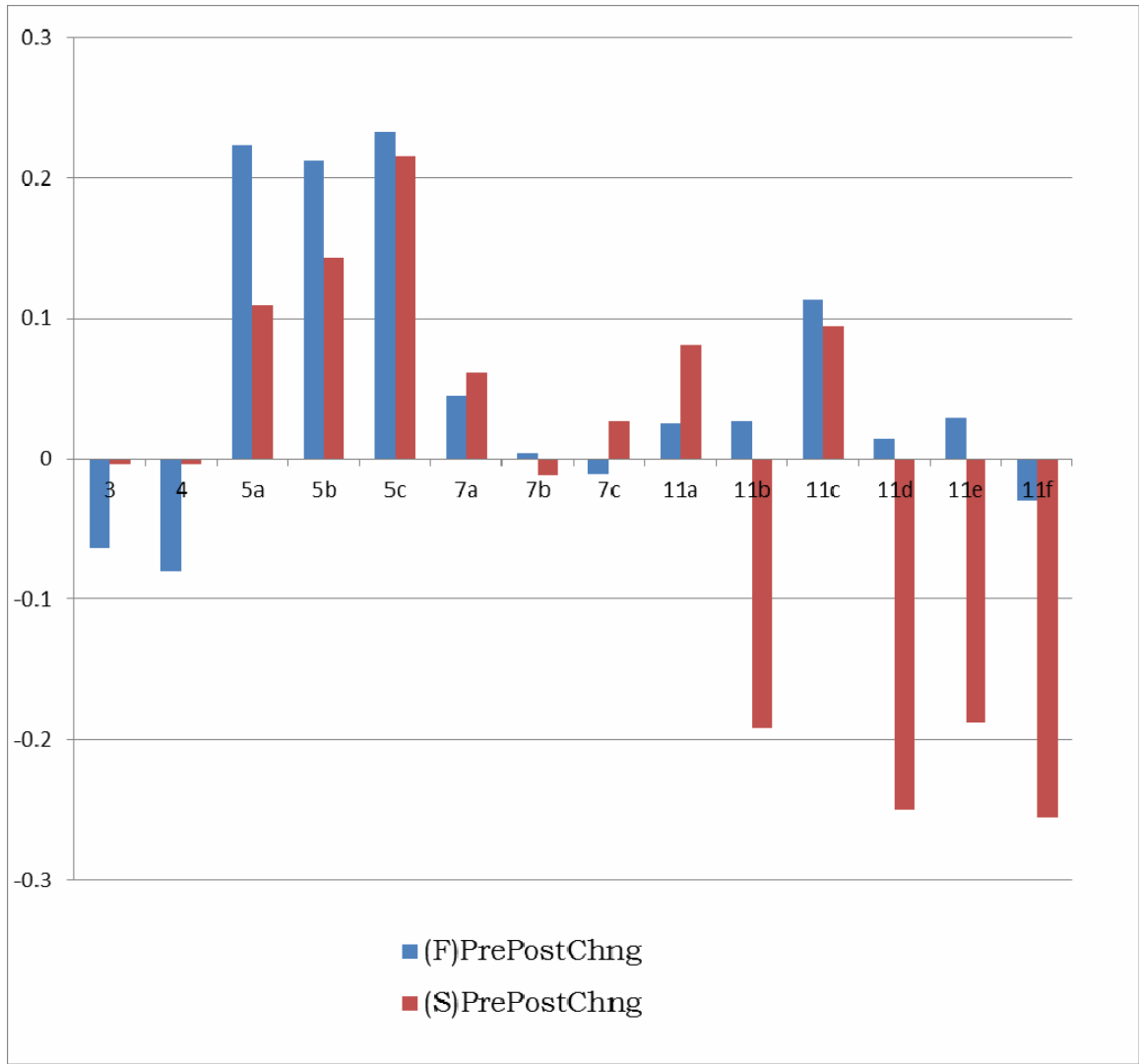


Figure 3.3 Comparison of Pre- and Post-Test Scores by Semester

F = Fall

S = Spring

Pre- and post-test means for this scale include all students who took both a pre- and post-test survey.

CHAPTER IV

DISCUSSION AND CONCLUSION

This study evaluated the overall effectiveness of the 2010-2011 Mississippi Delta D.A.R.E. program by utilizing data that were collected from surveys completed by middle school students at 33 schools in the Delta region at the beginning and end of the D.A.R.E. session. The data were analyzed by performing a series of t-tests of dependent and independent samples using SAS.

Before the commencement of the D.A.R.E. sessions, students were the strongest in three domains: (1) substance use expectancies, (2) active decision making, and (3) passive decision making. These findings imply that the middle school students of the Delta region were not convinced by peers or other influential individuals that alcohol, tobacco, and marijuana offer any social benefits. Furthermore, these students were more active than passive when having to make important decisions or solve problems.

It is worthy of noting that the students were weak in the area of refusal self-confidence before the start of the program; however, the post-test survey reflected a significant increase in scores among males and females in this domain. Unfortunately, this score increase did not cause an increase in the mean score on the refusal self-confidence scale with “3” or greater being the desired outcome.

There were significant changes in scores across all five domains throughout the pre- and post-test surveys. Some students scored low on the pre-test survey in one or more domains, but an increase in scores was noted on the post-test surveys. On the other

hand, there were high-scoring students at the beginning of the program whose scores declined as the program progressed. Then, there were students who showed no change at all between pre- and post-test surveys.

Overall, the findings from the evaluation of the 2010-2011 Mississippi Delta D.A.R.E. program suggest that the program was beneficial to some middle school students. Some students were already within the desired range at the start of the program; therefore, any increase or decrease (if within desired range) in post-test scores would reflect little to no change at the end. Little to no change does not imply that the D.A.R.E. program was ineffective. It means that the difference between pre- and post-test means was not significantly different from zero.

This evaluation presented concerns that may interfere with the validity of the results. The absence of a control group makes it difficult to determine if the changes that occurred between the pre- and post-test surveys were really significant or if they were expected to occur based on previous experiences. Also, the manner in which some of the survey items were posed was vague, and many of the response alternatives were misleading. There was no method to determine if the students answered the questions truthfully. Finally, a large number of pre- and post-test surveys were missing, because either (1) the student completed a pre-test survey and failed or refused to complete the post-test survey; (2) the D.A.R.E. officer failed to implement the program after having students complete the pre-test survey; or (3) the student completed the post-test survey but not the pre-test survey.

For future evaluations there should be modifications made to enhance the validity of the study results. A comparison group should be available to examine the significance of any changes that occur between pre- and post-test surveys. After students are given

pre-test surveys, the scores should be calculated before the instructor presents the first D.A.R.E. session to determine which domains require the most and least emphasis so that instructors are not forced to spend excessive time in areas where students are already strong.

The Delta Council should continue to implement the Mississippi Delta D.A.R.E. program throughout the middle schools of the Delta region. The program should also continue to encourage positive student interaction with D.A.R.E. instructors in settings that are non-threatening and conducive to learning. The students should be assigned reliable instructors who are enthusiastic and believe in *keepin' it REAL*.

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APPENDIX A
D.A.R.E. QUESTIONNAIRE

Students: D.A.R.E. wants to hear from you ...

The D.A.R.E. training team wants to hear from students like you. The questions below will help us learn more about your opinions and experiences. This is not a test - there are no right or wrong answers. You can skip any questions you do not want to answer or that make you feel uncomfortable. Your name will not be connected to any of your answers – we will group everyone's answers together in our reports.

For each question, fill in the circle next to your answer. If you don't find an answer that fits exactly, pick the one that comes closest.

Q1. Are you:

Male

Female

Q2. How old are you?

_____ years old

Q3. About how many kids in your school would you guess have used alcohol, cigarettes, or marijuana at least once?

Hardly any or None

Some

Half

All or Most

Q4. Now think about the friends you hang out with. How many do you think have used alcohol, cigarettes, or marijuana at least once?

Hardly any or None

Some

Half

All or Most

Q5. The next set of questions ask about decisions you might make. For each, please tell us how sure you are that you would say no when someone tries to get you to...

Check one for each row below ...

Not at All Sure

A Little Sure

Somewhat Sure

Pretty Sure

Very Sure

a. Smoke a cigarette?

- b. To drink beer, wine, or liquor?
- c. To smoke marijuana?

CONTINUE TO NEXT PAGE →

Q6. In the last 30 days, how often have you decided to stay away from some places on purpose because you knew kids your age were:

Check one for each row below ...
Never Rarely Sometimes Often Always

- a. Drinking alcohol?
- b. Smoking cigarettes?
- c. Smoking marijuana?

Q7. Below are statements about different opinions kids may have about drinking, smoking cigarettes and smoking marijuana. For each, please choose the answer that best describes how much you agree or disagree with that statement.

Check one for each row below ...
Strongly Disagree Disagree Agree Strongly Agree

- a. Drinking alcohol makes parties more fun.
- b. Smoking cigarettes makes people less nervous.
- c. Smoking marijuana makes it easier to be part of a group.

Q8. In the last 30 days, were you offered any alcohol?

- No: Go to Q9 on the next page
- Yes: Answer Q8a-8d about any alcohol you have been offered in the last 30 days ...

Q8a. When alcohol was offered to you, how often did you say “No” without giving a reason why?

Never Rarely Sometimes Often Always

Q8b. When alcohol was offered to you, how often did you decide to leave without accepting the offer?

Never Rarely Sometimes Often Always

Q8c. When alcohol was offered to you, how often did you give an explanation or excuse to turn down the offer?

Never Rarely Sometimes Often Always

Q8d. When alcohol was offered to you, how often did you use some other way to not accept the offer?

Never Rarely Sometimes Often Always

CONTINUE TO NEXT PAGE →

Q9. In the last 30 days, were you offered any cigarettes?

No: Go to Q10

Yes: Answer Q9a-9d about any cigarettes you have been offered in the last 30 days

...

Q9a. When cigarettes were offered to you, how often did you say "No" without giving a reason why?

Never Rarely Sometimes Often Always

Q9b. When cigarettes were offered to you, how often did you decide to leave without accepting the offer?

Never Rarely Sometimes Often Always

Q9c. When cigarettes were offered to you, how often did you give an explanation or excuse to turn down the offer?

Never Rarely Sometimes Often Always

Q9d. When cigarettes were offered to you, how often did you use some other way to not accept the offer?

Never Rarely Sometimes Often Always

Q10. In the last 30 days, were you offered any marijuana?

No: Go to Q11 on the next page

Yes: Answer Q10a-d about any marijuana you have been offered in the last 30 days

Q10a. When marijuana was offered to you, how often did you say "No" without giving a reason why?

Never Rarely Sometimes Often Always

Q10b. When marijuana was offered to you, how often did you decide to leave without accepting the offer?

Never Rarely Sometimes Often Always

Q10c. When marijuana was offered to you, how often did you give an explanation or excuse to turn down the offer?

Never Rarely Sometimes Often Always

Q10d. When marijuana was offered to you, how often did you use some other way to not accept the offer?

Never Rarely Sometimes Often Always

CONTINUE TO NEXT PAGE →

Q11. Below are a list of ways kids act when they have a problem or need to make an important decision. For each row, please check the box that best matches how often you act in that way.

When I have a problem or need to make an important decision ...

Check one for each row below ...
Never Rarely Sometimes Often Always

a. I get the information needed to make the best choice.

b. I let someone else decide for me.

c. I think of different ways to solve the problem.

d. I do what everyone else is doing.

e. I think about what will happen with each choice before doing anything.

f. I just let it happen.

APPENDIX B

DATA ANALYSIS FOR D.A.R.E. QUESTIONNAIRE

Scale	Numbers of Items in Survey Instrument	Items	Response Categories (Values)	Classification of Scale as a Low or High Score
Descriptive Norms	Q3, Q4	- About how many kids in your school would you guess have used alcohol, cigarettes, or marijuana at least once? - Now think about the friends you hang out with. How many do you think have used alcohol, cigarettes, or marijuana at least once?	All or Most (0) Half (1) Some (2) Hardly Any or None (3)	Low Score: Less than 2 High Score: 2 or higher
Substance Use Expectancies	Q7a, Q7b, Q7c	For each, please choose the answer that best describes how much you agree or disagree with that statement. - Drinking alcohol makes parties more fun. - Smoking cigarettes makes people less nervous. - Smoking marijuana makes it easier to be part of a group.	Strongly agree (0) Agree (1) Disagree (2) Strongly disagree (3)	Low Score: Less than 2 High Score: 2 or higher
Refusal Self-Confidence	Q5a, Q5b, Q5c	How sure are you that you would say no when someone tries to get you to... - Smoke a cigarette? - Drink beer, wine, or liquor? - Smoke marijuana?	Not at all sure (0) A little sure (1) Somewhat sure (2) Pretty sure (3) Very sure (4)	Low Score: Less than 3 High Score: 3 or higher
Active Decision Making	Q11a, Q11c, Q11e	When I have a problem or need to make an important decision... - I get the information needed to solve the problem. - I think of different ways to solve the problem. - I think about what will happen with each choice before doing anything.	Never (0) Rarely (1) Sometimes (2) Often (3) Always (4)	Low Score: Less than 3 High Score: 3 or higher
Passive Decision Making	Q11b, Q11d, Q11f	When I have a problem or need to make an important decision... - I let someone else decide for me. - I do what everyone else is doing. - I just let it happen.	Always (0) Often (1) Sometimes (2) Rarely (3) Never (4)	Low Score: Less than 3 High Score: 3 or higher