



Evaluation of the Students Today Aren't Ready for Sex (STARS) Program

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July 2004

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Prepared for

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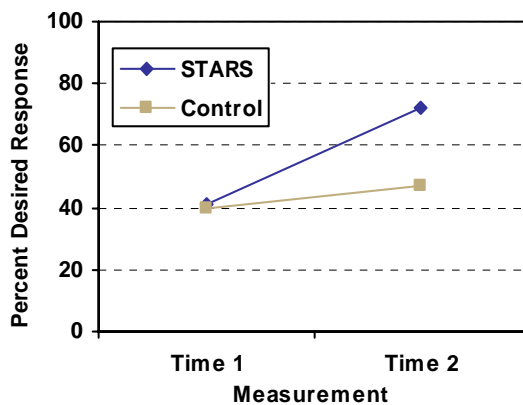
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Executive Summary

The Students Today Aren't Ready for Sex (STARS) curriculum was designed to prevent the early onset of sexual behavior among middle school students by building awareness of media influences, correcting misconceptions about sexual behavior, and building refusal skills. In an evaluation conducted by the Oregon Department of Human Services and RMC Research Corporation, Oregon students who participated in the STARS program outperformed students in control schools on measures of knowledge about sexuality and attitudes towards sexual abstinence.

The STARS evaluation assessed the survey responses of students in Grade 6 at 2 points in time during the 2002–2003 school year. The responses of a random sample of schools that implemented the STARS program (treatment schools) were compared to a matched sample of schools that did not implement the program (control schools). The sample of STARS schools surveyed was selected to be representative of all students participating in STARS across Oregon. In treatment schools, a pretest survey was administered about 2 weeks before the first session and a posttest survey was administered 4 months after the pretest to assess short-term gains in knowledge of and attitudes toward sexual abstinence. The pretest and posttest surveys were linked for each student. There were no differences between the treatment and control students prior to STARS implementation.



Percent of students who gave the desired response on the knowledge scale

The results reveal that students who participated in STARS dramatically outperformed students in control schools on questions that assessed the students' knowledge of the potential consequences of sexual behavior, appropriate prevention measures, and the low prevalence of early sexual behavior. Furthermore, the results revealed more favorable attitudes about sexual abstinence among students participating in STARS.

The evaluation also showed statistically significant but very small gains on measures of (a) how the students might respond to peer pressure to have sex in the future and (b) their intentions to remain sexually abstinent. Several factors, including limited exposure to pressure to have sex at this age and the relative short observation period, contributed to the small differences.

The evidence clearly indicates that participation in the STARS program had the intended short term impact on student knowledge and attitudes about sexual abstinence.

Purpose of This Report

This report presents the results of an independent evaluation of the Students Today Aren't Ready for Sex (STARS) program in Oregon during the 2002–2003 academic year. The report describes the methodology, findings, and conclusions derived from analysis of a student survey administered before and after implementation of the STARS program in 12 schools and also administered in 11 control schools that did not implement the STARS program.

Overview of STARS

STARS is an abstinence education teen pregnancy prevention program aimed at Grades 6 and 7 and taught by peers, Teen Leaders, who are 4 to 6 years older. These Teen Leaders deliver the message “It is best for teens not to have sex.” STARS is a skills-based program that provides young adolescents with practical skills in saying no to unwanted pressure. The STARS curriculum is typically presented once a week in a classroom setting over a 5-week period and focuses on:

- How the media influences choices about sexual involvement.
- Misconceptions regarding peer norms and behavior related to sex.
- Types of relationships and why peer pressure is the most difficult type of pressure to handle.
- Assertiveness skills that can be used to resist pressure to have sex.

STARS was adapted from the Postponing Sexual Involvement (PSI) program developed by Dr. Marion Howard at Emory University in Atlanta, Georgia.

Design and Measurement

The STARS evaluation assessed responses from students in Grade 6 at 2 points in time during the 2002–2003 school year. The schools surveyed included those whose students received the STARS curriculum (*treatment* schools) and those whose students did not receive the curriculum (*control* schools). In treatment schools, surveys were administered about 2 weeks before program implementation and again about 4 months after the last session of STARS to measure students' short-term gains in program-related knowledge and attitudes. The same students completed surveys at both times, and the 2 surveys were linked for each student. This is known as a *pre-post control group design*. The sample of treatment students surveyed was selected to be representative of all students participating in STARS across Oregon.

An evaluation team developed and pilot-tested the STARS surveys in 1997 and 1998 under contract with the STARS Foundation. The 4-page surveys assessed students':

- Knowledge about sexuality and peer beliefs and behavior.
- Attitudes toward dealing with peer pressure.
- Anticipated personal response to peer pressure to have sex.
- Behavioral intention to engage in sex.
- Use of STARS skills to refuse peer pressure to have sex.
- Role of demographic information (age, grade, gender, race/ethnicity) and other background or risk information (living arrangement, parents' education, current rank in school, educational plans, previous sexual intercourse) in predicting likelihood of sexual involvement.

Sample and Response Rate

The sample was carefully selected to ensure that the responses would be representative of the target population of Oregon students participating in the STARS program. A 2-stage stratified sample design guided sample selection. Further details of the sample selection appear in Appendix A. Participation rates at each stage of the sample selection (Stage 1 involved the schools and Stage 2 involved the students within the schools) raise some question as to whether the study sample is in fact representative of the target population. The participation rate for treatment schools was 22% (12 of 55 eligible schools) and the participation rate for control schools was 11% (11 of 100 eligible schools). The participation rate for students was considerably higher: 75% (1,006 of 1,346 students) for the treatment group and 75% (734 of 985 students) for the control group. A detailed description of the sampling procedure appears in Appendix A.

Table 1 displays differences between the target population and the final study sample in terms of geographical region and school size. Students from the Portland metropolitan area and students from small schools are somewhat overrepresented in the final sample. Table 2 displays differences between the treatment and control groups in the final sample in terms of geographical region and school size. The treatment group was more likely to include students from Willamette Valley schools and schools in other areas of the state, and the control group was more likely to include students from Portland area schools. These differences between the 2 groups underscore the importance of the Time 1 (pretest) measurement in determining the equivalency of the 2 groups with regard to the survey.

Table 1
Target Population and Final Sample by Region and School Size

Variable	Percent of Students	
	Target Population	Final Sample
Region		
Portland Metro	39	57
Willamette Valley	28	19
Other	33	23
School Size		
Large	86	73
Small	14	27

Table 2
Treatment and Control Groups in the Final Sample by Region and School Size

Variable	Percent of Students	
	Treatment Group	Control Group
Region		
Portland Metro	53	64
Willamette Valley	24	13
Other	23	24
School Size		
Large	74	71
Small	26	29

Analysis Strategy

The primary question for the STARS evaluation was “Did participation in the STARS program have an impact on student knowledge and attitudes?” To answer this question, the evaluators tested the differences between the treatment and control groups in terms of the percentages of *desired* responses at Time 2 and divided the outcomes into the following areas:

- Knowledge about sexuality, media influences, and peer norms for sexual behavior (8 items examined both individually and combined into a *knowledge scale*).
- Attitudes toward, and proper response to, peer pressure (5 items examined both individually and combined into an *attitude scale*).
- Projected personal response to pressure to have sex (3 items).
- Behavioral intention related to sexual involvement (3 items).
- Use of STARS skills to refuse peer pressure to have sex.
- Student advice for hypothetical friend considering sexual involvement.

Sample Characteristics

A total of 1,764 students completed usable surveys at Time 1, and 1,608 students completed usable surveys at Time 2. Of these students, 1,602 (91%) completed both the pretest and the posttest; their results are included in the analyses reported on in this section. Of the students included in the final sample, 902 (56%) were from treatment schools and 700 (44%) were from control schools. Table 3 displays the major demographic characteristics of the 1,602 students in the final matched sample.

Table 3
Demographic Characteristics of the Final Matched Sample

Demographic Characteristics	Percent of Sample		
	Treatment	Control	Total
Grade 6	100	100	100
Age			
10	1	1	1
11	71	70	70
12	27	28	28
13+	1	1	1
Gender			
Female	50	51	50
Male	50	49	50
Race/Ethnicity			
African American	7	4	5
Hispanic/Latino	8	6	7
White	67	71	69
Asian/Pacific Islander	5	4	5
Native American	5	5	5
Other	9	10	9

Note. Percentages may not add to 100 due to rounding. Missing data are not reflected in the percentages.

Data were also collected on the other student characteristics such as living arrangement and future plans that could influence responsiveness to the program. These results are displayed in Table 4.

Table 4
Other Characteristics of Final Matched Sample

Student Characteristic	Percent of Sample		
	Treatment	Control	Total
Self-Rank in School			
Near bottom	1	4	3
Below middle	5	5	5
In middle	38	34	36
Above middle	43	34	39
One of best	14	23	18
Future Plans			
Quit school ASAP	1	0	1
Finish high school	5	3	4
Some college	9	9	9
Finish college	52	50	51
Post college	33	38	35
Living Arrangement			
Mom and dad	61	65	63
Mom or dad plus other adult	13	12	13
Mom or dad alone	22	21	22
Neither natural parent	3	2	3

Note. Percentages may not add to 100 due to rounding. Missing data are not reflected in the percentages.

Knowledge

Knowledge about sexuality, media influences, and peer norms for sexual behavior was measured by 8 items examined both individually and combined into a *knowledge scale*. Students were asked “What do you think?” with regard to a list of statements to which they responded “True,” “False,” or “Don’t know.” The percentages of students who answered in the desired way for the items that compose the knowledge scale are displayed in Table 5 (see Appendix B for the detailed response frequencies).

Table 5
Prevalence of Desired Responses on Knowledge Scale

Survey Item/Desired Response	Percent of Students				
	Time 1		Time 2		
	T	C	T	C	
K1. A girl can get pregnant the FIRST time she has sex. (T)	56	54	92	64	***
K2. Most boys in middle school are too young to get a girl pregnant. (F)	29	27	60	38	***
K3. Over 80% of Oregon middle school students are NOT having sex. (T)	45	48	71	46	***
K4. Overall, songs, TV shows, and magazines show both the negative and positive things about kids having sex. (F)	19	17	25	19	
K5. AIDS and other sexually transmitted diseases (STDs) don't affect many teens. (F)	59	62	78	68	**
K6. Used right, condoms are 100% effective in preventing pregnancy and sexually transmitted diseases (STDs). (F)	40	37	71	55	***
K7. Most teens think it is best to wait to have sex until they are older. (T)	47	52	68	53	***
K8. Abstinence is the only 100% sure way to avoid getting pregnant or getting sexually transmitted diseases (STDs). (T)	16	11	60	15	***
Total knowledge scale (items K1–K3, K5, K6, K8)	41	40	72	47	***

Note. Question: "What do you think?" Response options: "True," "False," "Don't know." In Survey Item/Desired Response column: (T) = True; (F) = False. "Don't know" response and no response were treated as undesirable responses. In the Percent of Students column: T = Treatment group; C = Control group. No Time 1 differences were significant.

* $p < .05$. ** $p < .01$. *** $p < .001$.

At Time 1 there were no statistically significant group differences on individual items or the total knowledge scale. Students' responses regarding their knowledge related to sexual behavior and peer pressure were remarkably similar initially, regardless of whether students were in the STARS treatment group or the control group. Thus the control group students did not differ in knowledge from the treatment group students prior to the program.

At Time 2 the STARS treatment group scored significantly higher than the control group on all but 1 item and on the total knowledge scale. The gap in knowledge between the groups after the program on the total scale was large (effect size = .99). The knowledge scale scores increased only slightly for the control group by Time 2.

Figure 1 presents the average percentages of students who gave the desired responses on the knowledge scale items at Time 1 and Time 2 by group. The figure illustrates the dramatic increase in knowledge about sexual behavior and peer pressure among STARS participants and the minimal change among control group students.

These findings suggest that participation in STARS dramatically improved students' knowledge about sexual behavior and peer pressure. The observed gains were apparently due to participation in the STARS program and not other factors because students who were not exposed to the program showed only minimal improvement in knowledge over the same time period.

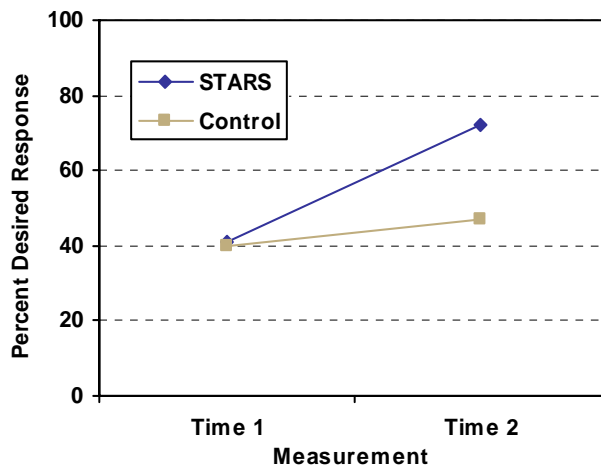


Figure 1
Percent of students who gave the desired response on the knowledge scale

The modest improvement in knowledge for the control students might have reflected increased familiarity with the survey, cross-contamination with the treatment group, or increased maturity over time.

Attitudes

Attitudes toward peer pressure about sexual behavior were measured by 5 survey items and examined both individually and combined into an *attitude scale*. Students were asked “What do you think?” with regard to a list of statements to which they responded “True,” “False,” or “Don’t know.” The percentages of students who answered in the desired way for the items that compose the attitude scale are displayed in Table 6. Detailed response percentages appear in Appendix B.

The group means were remarkably similar initially (i.e., at Time 1); none of the differences were significant. The equivalence of the 2 groups’ responses at Time 1 provides evidence that the students in the STARS treatment group did not differ from the students in the control group in ways that might have influenced their responses to the surveys.

At Time 2, the treatment group scored significantly higher on 2 of 4 items and on the total scale. After participation in the STARS program, the treatment group had moderately more positive attitudes about sexual behavior (effect size = .32) than the control group.

Table 6
Prevalence of Desired Responses on Attitude Scale

Survey Item/Desired Response	Percent of Students				
	Time 1		Time 2		
	T	C	T	C	
A1. You ALWAYS have the right to say “NO” when someone asks you to do something sexual that you don’t want to do, no matter who that person is. (T)	92	95	96	95	
A2. When someone asks you to do something you don’t want to do, it is best to give reasons and excuses to put them off. (F)	18	17	42	21	***
A3. When you want to be respected, it is important to give lots of reasons for what you feel. (F)	10	10	13	9	
A4. If someone keeps pressuring you after you say “NO” a couple of times, it is good to ask them why they keep pressuring you. (T)	69	70	91	73	***
A5. No matter how you say “NO,” most people will get their feelings hurt and probably be mad at you. (F)	33	36	39	34	
Total attitude scale (A1–A5)	38	40	48	40	***

Note. Question: “What do you think?” Response options: “True,” “False,” “Don’t know.” In Survey Item/Desired Response column: (T) = True; (F) = False. “Don’t know” response and no response were treated as undesirable responses. In the Percent of Students column: T = Treatment group; C = Control group. No Time 1 differences were significant.

* $p < .05$. ** $p < .01$. *** $p < .001$.

Figure 2 shows the percentages of students who answered in the desired way on the total attitude scale. There was no difference between the groups’ responses before the program, but after participation in the program, the STARS group gave a modestly higher percentage of the desired responses on the attitude scale.

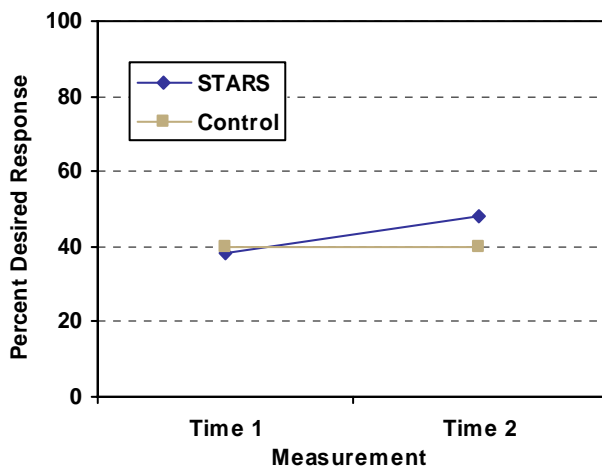


Figure 2
Percent of students who gave the desired response on the attitude scale

These results suggest that the STARS program had a positive influence on attitudes about sexual behavior though the effect was not as dramatic as the change in knowledge.

Response to Pressure

Four questions asked the students how they would respond to peer pressure regarding sexual behavior. Three of the questions were related

to the scenario: “What if someone you like a lot wants you to have sex, and you don’t feel you are ready. What would you do?” and strategies considered included:

- I would say “NO” without making excuses or giving reasons.
- If this person kept pressuring me, I would say “NO” again and tell them how the pressure makes me feel.
- If this person still pressured me, I would suggest something else or walk away even if the person was unhappy or angry.

The desired response to 3 of the 4 questions was “Yes, I would do this” (indicating that the respondent would use the resistance strategy). Other possible responses included “Maybe,” “No,” and “Don’t Know.” Missing responses were treated as “Don’t Know.” A fourth question, “If you wanted to have sex with someone but they said “NO,” would you keep asking in different ways?” might have been confusing to students and was dropped from the scale due to a very low item-total correlation.

Table 7 compares the percentages of students who responded in the desired way for the treatment and control groups on the individual items and the total response to pressure scale. Again, no significant differences between the groups’ responses were evident at Time 1, but there were also no differences at Time 2 on individual items or the total scale. Figure 3 illustrates these findings for the total response to pressure scale.

Table 7
Prevalence of Desired Responses on Response to Pressure Scale

Survey Item/Desired Response	Percent of Students			
	Time 1		Time 2	
	T	C	T	C
N1. I would say “NO” without making excuses or giving reasons.	53	57	58	54
N2. If this person kept pressuring me, I would say “NO” again and tell them how the pressure makes me feel.	56	59	65	58
N3. If this person kept pressuring me, I would suggest something else or walk away, even if the person was unhappy or angry.	60	66	67	65
N4. If you wanted to have sex with someone but they said “NO,” would you keep asking in different ways? (N)	73	73	75	75
Total response to pressure scale (Items N1–N4)	61	64	67	63

Note. Question related to N1–N3 desired responses: “What if someone you like a lot wants you to have sex, and you don’t feel you are ready. What would you do?” Other possible responses included “Maybe,” “No,” and “Don’t Know.” “Don’t know” response and no response were treated as undesirable responses. N = No. T = Treatment group; C = Control group. No Time 1 or Time 2 differences were significant.

A subsequent analysis of covariance (ANCOVA) using Time 1 scores as covariates to control for initial status yielded a significant difference between the treatment and control groups ($p < .05$). Because the difference in the group means was, however, very small (effect size = .08), this finding should not be overinterpreted. A large number of students participated in the evaluation and even a small difference reached statistical significance.

These results suggest that the STARS program had little short-term impact on students' responses to questions about a scenario in which they might be exposed to peer pressure concerning sexual behavior.

Behavioral Intention

Students' behavioral intention related to sexual involvement was measured by 3 survey items that asked about the likelihood of future sexual behavior. Table 8 shows the percentages of students who responded in the desired way by group and time. The responses of the treatment and control groups did not differ on any of the individual questions or the total behavioral intention scale at Time 1 or Time 2. Figure 4 shows these results for the total behavioral intent scale.

These findings confirm that the treatment and control groups were initially equivalent in behavioral intention, but also suggest that no measurable change in behavioral improvement occurred as a result of exposure to the STARS curriculum for the treatment group. Although these results provide no evidence to suggest that the STARS curriculum influenced the students' intentions to become sexually involved, they do indicate that a majority of the students in both groups were willing to at least state their preference for waiting for sex until a later time. Thus, with most students giving the desired response at Time 1, there was relatively little room for showing short-term improvement on this outcome.

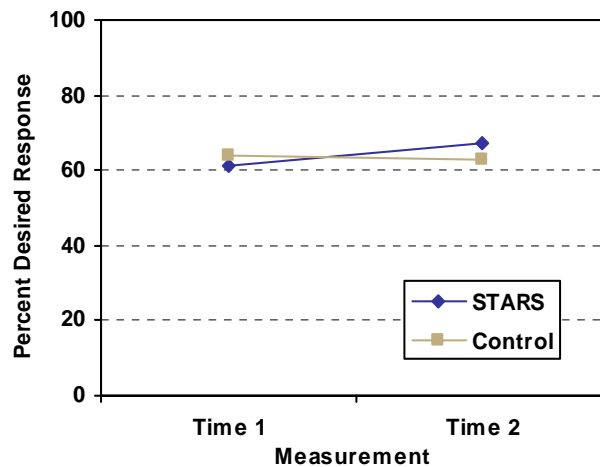


Figure 3
Percent of students who gave the desired response to statements about how to respond to peer pressure concerning sexual behavior.

Table 8
Prevalence of Desired Responses on Behavioral Intent Scale

Survey Item/Desired Response	Percent of Students			
	Time 1		Time 2	
	T	C	T	C
N2. It is OK to have sex before marriage.	83	85	86	84
F2. Before you start high school (in the next 2 or 3 years): If someone wanted to have sex with you, what would you do?	82	84	80	79
F3. How likely do you think it is that you will have sex while you are a teenager?	71	75	77	73
Total behavioral intention scale (N2, F2, F3)	79	81	81	79

Note. T = Treatment group; C = Control group. "Don't know" response and no response were treated as undesirable responses. No Time 1 or Time 2 differences were significant.

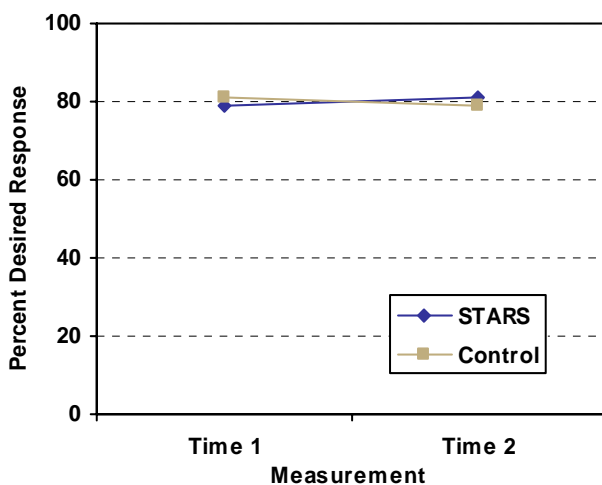


Figure 4
Percent of students who gave the desired response to statements about behavioral intent.

An analysis of covariance (ANCOVA) using Time 1 scores as covariates to control for initial status yielded a significant group difference ($p < .05$), but again the difference in the group means at Time 2 was very small (effect size = .10) and this finding should not be overinterpreted.

Refusal Skills

Students' use of STARS skills to refuse peer pressure to have sex was measured by survey items posing 4 situations: (a) becoming sexually involved when you did not want to, (b) smoking cigarettes, (c) drinking alcohol, and (d) using drugs (other than alcohol). Students were asked whether they had experienced these situations involving peer pressure in the past 30 days and, if so, whether they had refused to participate. STARS teaches refusal skills, which could make saying no easier when facing peer pressure.

Table 9 shows the number of students exposed to each situation and the percentages of students who refused peer pressure in those situations. In each case, a higher percentage of students who participated in the STARS program reported refusing compared to control students. The observed group differences were not, however, significant.

Table 9
Prevalence of Desired Responses on Refusal Skills Items

Survey Item	Treatment		Control	
	<i>n</i>	%	<i>n</i>	%
In the past 30 days, have you been pressured to:				
R1r. If Yes [to becoming sexually involved], did you refuse?	38	76	26	54
R2r. If Yes [to smoking cigarettes], did you refuse?	43	63	36	50
R3r. If Yes [to drinking alcohol], did you refuse?	47	34	36	28
R4r. If Yes [to using drugs], did you refuse?	26	69	17	47

Note. Desired response in each scenario was “Yes.” “Don’t know” response and no response were treated as undesirable responses.

Fortunately, relatively few students in either group were exposed to any of these situations. As a consequence, however, the results from these items are more difficult to interpret and the small number of respondents limits the statistical power to detect group differences. Thus even though there was more than a 20 percentage point difference between the treatment and control groups on 2 of the refusal skills items, none of the differences reached statistical significance.

These inconclusive results provide little evidence that participation in the STARS program helped students who had recently experienced peer pressure refuse to become sexually involved when they did not want to. Nor is there sufficient evidence to indicate that STARS helped students refuse participation in other undesirable behaviors.

The surveys also measured the students’ advice to a hypothetical friend considering sexual involvement. The evaluators qualitatively analyzed the content of the comments made by students in the treatment and control groups. Similar responses were grouped into categories based on the kinds of reasons the students offered for waiting. Many responses contained multiple reasons and thus were coded under more than 1 category.

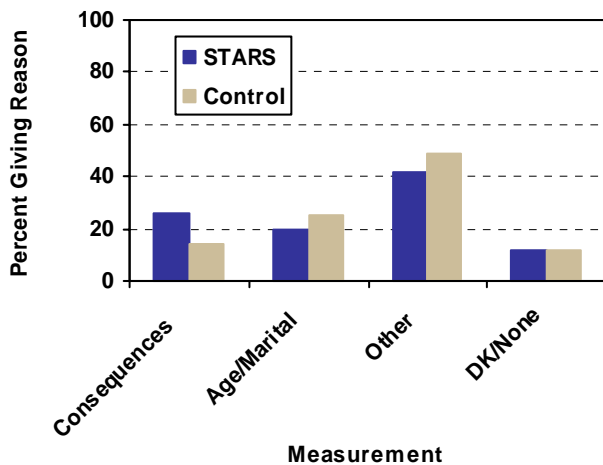


Figure 5
Percent of students who advised delaying sexual behavior to a hypothetical friend.

Figure 5 shows the percentages of students who responded in each thematic category by group. There is a statistically different pattern in the responses between the treatment and control groups ($p < .001$). The STARS treatment group students were more likely to suggest specific consequences such as pregnancy or the risk of sexually transmitted diseases. The control group students were more likely to suggest that the friend was too young or should wait until he or she married. Thus exposure to the STARS program appears to shift students' rationales for delaying sex toward more concrete consequences.

Conclusions and Limitations

The evidence clearly indicates that participation in the STARS program had the intended impact on student knowledge about sexuality, peer beliefs, and behavior. A dramatic increase in knowledge among students in the treatment group and little or no change in knowledge among equivalent students in the control group lend support to the conclusion that the exposure to STARS accounts for the group difference. That the STARS program also had a measurable impact on attitudes about sexual behavior is another important finding. Educational programs typically discover that it is much easier to increase knowledge than influence attitudes.

At the same time, it is difficult to conclude much about the impact of the STARS program had much effect on future intentions related to sexual involvement or skills related to handling unwanted pressure to become sexually involved. Several possibilities should be considered:

- The STARS program might not be effective at promoting these particular attitudes and skills. The amount of attention given to these skills and attitudes and the types of activities used in those modules should be critically examined.
- The measures used in this study might not be sensitive to the impact of STARS (i.e., changes might have occurred but the measures might have failed to detect these effects). In future evaluations, the items in these scales should be reexamined relative to the content of the STARS program. The general lack of exposure to peer pressure about sex at this age poses a significant measurement challenge.

- More time might be needed before the desired effects can be observed. This possibility argues for a longer evaluation period and perhaps a third wave of data collection to detect program impact over a longer period of time.
- These attitudes and skills might be particularly resistant to change. Perhaps a longer, more intensive, or more varied intervention is needed to effect such changes.

In all likelihood, some combination of all these factors is likely at work.

Appendix A Methodology

Sample Selection and Participation Rates

Evaluation staff first contacted STARS specialists for Oregon's 6 STARS regions and created a list of the total population of schools (55) planning to implement the STARS program between 2/1/2002 and 5/1/2003. A 2-stage stratified sample design guided sample selection. Schools were selected in Stage 1, and students were selected in Stage 2. Oregon Department of Education data were used to create estimates of student population size for the target grade in each school. Schools were selected in stage 1 in the following way:

1. The target population of schools was stratified by population-based geographic region (Portland Metro, Willamette Valley, and Other) and by total school size (total enrollment). Schools with 137+ students were considered *large* and schools with fewer than 137 students were considered *small*. This cutoff was chosen because it represents the median student size of the target population.
2. Target sample sizes were created for each of the 6 strata (3 regions, 2 school sizes) based on the desired sample size and population proportions within the 6 strata.
3. Schools that implemented the STARS program before 1/31/2003 were randomly selected for the treatment group, and schools that implemented the STARS curriculum after that date were randomly selected for the control group. The selection of schools took place for both groups within strata until the target sample size for the strata was obtained.

Students were selected within each school based on attendance the day of survey administration and parents' permission to participate. Table A1 summarizes the results of the sampling process.

Figure A1 summarizes the school and student participation rates. The participation rates at each of the 2 stages of sample selection (schools and students within schools) provide a useful gauge of the sample representativeness and the equivalency of the treatment and control groups. In Stage 1, 11 of the 55 eligible schools assigned to the treatment group agreed to participate, resulting in a participation rate of 20%. Eleven of 100 eligible schools assigned to the control group agreed to participate, resulting in a participation rate of 11%. This low participation rate raises concern as to whether the schools are representative of the target population. Several schools changed the dates on which they presented the STARS curriculum or failed to notify administrators when they planned to implement the STARS program and had to be dropped from the sample after being selected. The resulting differences between the final treatment sample and the target population by geographic location were, however, modest.

**Table A1
Schools and Students by Sample Strata**

Stratum	Percent of Target Population ¹	Percent of Total Sample Within Study Condition		Number of Students by School			
		Treatment Group	Control Group	Treatment Group		Control Group	
Portland Metro	39	53	63	Beaumont Middle	105	Sellwood Middle	93
				Gray Middle	160	Spring Mtn Elem	80
				Kellogg Middle	101	Twality Middle	312
				King Elementary	46		
				Redland	102		
Willamette Valley, Large	23	17	0	Seven Oak Middle	165		
Willamette Valley, Small	5	7	13	Chapman Elem	41	Alea Elem	19
				Willamina Middle	30	Butte Creek Elem	48
						Perrydale Elem	31
Other, Large	24	10	9	Columbia Jr. High	60	Warrenton Grade	65
				Astoria Middle	34		
Other, Small	9	14	15	Talent Middle	132	Gilchrist	19
						Lincoln Elem	44
						Stella Mayfield Middle	30
						Yoncalla Elem	23
TOTALS	100%	100%	100%		976		762

Note. Percentages may not add to 100 due to rounding.

¹Target Population = 17,469 students in 155 schools.

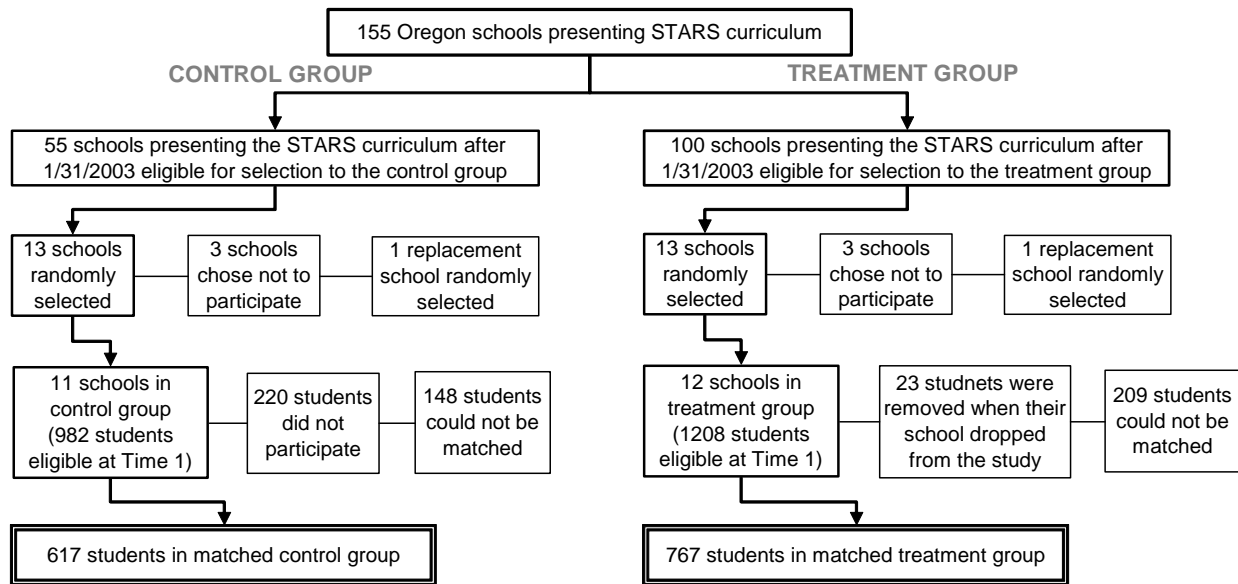


Figure A1
School and student participation

Student participation rates were considerably higher: 80% (976 of 1,208) for the treatment group and 78% (762 of 982) for the control group. There is little reason to believe that student participation was meaningfully biased because most of the eligible students who did not participate in both surveys were primarily missing because of random reasons such as being absent on the day of administration. Some students did not participate because their parents' refused to give permission.

Matching and Attrition

There was relatively little attrition in the total sample between the 2 waves of the survey. A total of 1,764 students completed Time 1 surveys and 1,608 students completed Time 2 surveys, a difference of only 156. Thus, attrition was not an issue for this evaluation.

Because the survey was administered anonymously, there was no common identifier with which to link the pretest and posttest responses for each individual. Students were asked to provide their date of birth and mother's initials (based on maiden name), some students had trouble remembering these items or were inconsistent in what they wrote down. Before the evaluation team could proceed with the analysis, it was necessary to match the 2 sets of responses using a 4-stage matching process:

1. Exact match on school, date of birth, mother's initials (approximately 50%).
2. Exact match on school and date of birth, mother's first initial the same, and gender matches.
3. Exact match on school and mother's initials, date of birth matches on 2 of 3 positions, and gender matches.
4. Eliminate any duplicate matches.

An overall match rate of 80% was achieved. Table A2 summarizes the characteristics of the matched and unmatched groups.

Table A2
Demographic Characteristics of the Matched and Unmatched Groups

Demographic Characteristics	Percent of Sample		
	Unmatched	Matched	Total
Treatment School	59	55	56
Control School	42	45	44
Grade Level			
Grade 6	99	100	100
Grade 7+	1	0	0
Age			
10	2	1	1
11	62	70	69
12	33	28	29
13+	3	1	1
Gender			
Female	42	50	49
Male	58	50	51
Race/Ethnicity			
African American	8	5	6
Hispanic/Latino	10	7	8
White	60	68	67
Asian/Pacific Islander	2	5	4
Native American	8	5	6
Other	13	9	10

Note. Percentages may not add to 100 due to rounding. Missing data are not reflected in the percentages.

There were statistically significant differences on age, gender, and race due in part to the large number of students surveyed. In general these differences were small and not statistically significant, but the lower match rate for males could influence the results and should be noted.

Analysis Strategy

Two criteria were used in considering the significance of the findings:

- Statistical significance as summarized by a probability value of < .05. Probability value indicates that an observed finding or mean difference (i.e., between Time 1

and Time 2 scores or between treatment and control groups) is unlikely to have been due merely to chance or coincidence.

- Practical significance as summarized by an effect size of .15 or greater. Effect size measures the magnitude of the difference between means, and .15 is an accepted standard defining a small effect size.

Did participation in the STARS program have an impact on student knowledge and attitudes? This question is primary for this evaluation. To answer this question, the treatment and control group responses at Time 2 were compared. Outcomes were divided into the following areas:

1. Knowledge about sexuality, media influences, and peer norms for sexual behavior (8 items examined both individually and combined into a knowledge scale).
2. Attitudes toward, and proper response to, peer pressure (5 items examined both individually and combined into an attitude scale).

The 13 items used to measure these first 2 outcomes were asked in a way so students could respond “True,” “False,” or “Don’t know.” Survey responses were recoded so that students were assigned desirable or undesirable responses (a dichotomous outcome). “Don’t know” responses were always coded as undesirable. These 13 items were also combined into 2 mean scales in order to summarize the information across logical domains. The knowledge scale combined the first 8 items, and the attitude scale combined the subsequent 5 items. The component items for both scales are displayed in Table 6. To test for significant differences between groups in specific items the Kolmogrov-Smirnov Z test was used (a nonparametric technique). Independent-samples *t*-tests were used to test for differences between groups for the 2 scales.

3. Projected personal response to pressure to have sex (3 items).

These 3 items were considered as dichotomous outcomes, with “Yes” responses coded as desirable and “Maybe,” “Don’t know,” and “No” responses coded as undesirable. Kolmogrov-Smirnov Z tests were used to test for differences between groups.

4. Behavioral intention related to sexual involvement (3 items).

Question 1 asked for a “True” or “False” response to the statement “I want to wait until I am older to have sex” and was recoded as a dichotomous outcome to depict desirable and undesirable responses (similar to the strategy outlined above). Questions 2 and 3 asked about the likelihood of having sex before high school and while a teenager, respectively. Responses were recoded as a dichotomous outcome, with “Definitely would not,” “Certainly would not,” and “Won’t” and “Probably would not” and “Won’t” (respectively) considered desirable responses, and other possible responses considered undesirable. Kolmogrov-Smirnov Z-tests were used to test for differences between groups.

5. Use of STARS skills to refuse peer pressure.

These items were asked with a logical skip pattern so that the items asking about refusal were directed only to those students who had reported exposure to the types of pressure asked about in the previous question. Thus analysis for the items related to refusal was limited to the students who had reported the type of pressure indicated in the previous question (which was only 3% to 5% of the total sample, depending on the type of pressure). These items were also recoded as dichotomous outcomes, with “Yes” considered a desirable response, and “No” and “Don’t know” considered undesirable responses. Kolmogorov-Smirnov Z-tests were used to test for differences between groups.

6. Student advice for a hypothetical friend considering sexual involvement.

To ease analysis of the open ended comments, content analysis of the students’ comments were limited to a random sample of 360 students (23%). Comments were divided into several themes that could be summarized as follows:

- Don’t do it.
- I wouldn’t, but it’s up to you.
- Not my decision; up to you.
- Ask your parents or other adult.
- Go ahead.
- Some qualified version of go ahead (e.g., if you do, use a condom; only if you’re really ready; etc.).

Answers that did not fit these categories typically were equivalent to “Don’t know” or “I don’t want to deal with that” and were considered missing data. A second content analysis was done with students who said “Don’t do it.” The reasons provided were coded into the following areas:

- You’re too young/you should wait.
- You could get a disease/pregnant.
- You should be married.
- Other miscellaneous consequences.

Because the overwhelming majority of students provided a “Don’t do it” response, differences in reasons provided by those students between groups were analyzed. Each reason was coded as dichotomous, so that each student was coded as one who either had or had not provided a given reason. Analyses were conducted as specified, using Kolmogorov-Smirnov Z-tests to determine whether the frequency with which each reason was provided was different between groups.

Appendix B
Student Survey Item Frequencies

Table B1
Percent of Students Responding to Each Response Alternative: *What do you think* Items

Survey Item/Desired Response	Time 1						Time 2					
	Treatment			Control			Treatment			Control		
	T	F	D	T	F	D	T	F	D	T	F	D
K1. A girl can get pregnant the FIRST time she has sex. (T)	56	21	23	54	21	25	92	5	3	64	17	19
K2. Most boys in middle school are too young to get a girl pregnant. (F)	53	29	18	55	27	18	31	60	9	44	38	18
K3. Over 80% of Oregon middle school students are NOT having sex. (T)	45	12	42	48	10	42	71	7	22	46	14	41
K4. Overall, songs, TV shows, and magazines show both the negative and positive things about kids having sex. (F)	49	19	32	56	17	28	60	25	15	58	19	23
K5. AIDS and other sexually transmitted diseases (STDs) don't affect many teens. (F)	9	59	32	8	62	30	9	78	13	7	68	25
K6. Used right, condoms are 100% effective in preventing pregnancy and sexually transmitted diseases (STDs). (F)	27	40	34	25	37	38	14	71	15	16	55	29
K7. Most teens think it is best to wait to have sex until they are older. (T)	47	27	26	52	25	23	68	13	19	53	24	23
K8. Abstinence is the only 100% sure way to avoid getting pregnant or getting sexually transmitted diseases (STDs). (T)	16	13	71	11	12	77	60	10	30	15	16	69
A1. You ALWAYS have the right to say "NO" when someone asks you to do something sexual that you don't want to do, no matter who that person is. (T)	92	3	5	95	2	3	96	1	2	95	2	3
A2. When someone asks you to do something you don't want to do, it is best to give reasons and excuses to put them off. (F)	66	18	16	70	17	13	47	42	11	70	21	9
A3. When you want to be respected, it is important to give lots of reasons for what you feel. (F)	72	10	19	74	10	17	74	13	13	76	9	15
A4. If someone keeps pressuring you after you say "NO" a couple of times, it is good to ask them why they keep pressuring you. (T)	69	13	18	70	14	16	91	4	5	73	12	15
A5. No matter how you say "NO", most people will get their feelings hurt and probably be mad at you. (F)	44	33	23	45	36	20	42	39	19	47	34	20
O1. It is OK to have sex before marriage. (F)	34	39	26	31	40	29	32	44	24	35	40	25
O2. I want to wait until I am older to have sex. (T)	83	4	13	85	4	11	86	5	9	84	5	12
O3. I think it is OK to have sex because my friends are doing it. (F)	1	92	7	2	92	6	2	92	6	3	90	7

Note. T = True; F = False; D = Don't know.

Percent of Students Responding to Each Response Alternative: *What would you do in the future* Items

Table B2

F1. Before you start high school (in the next 2 or 3 years), do you think that someone might try to get you to have sex?

	Treatment					Control				
	Sure won't happen	Probably won't happen	Not sure	Probably will happen	Sure will happen	Sure won't happen	Probably won't happen	Not sure	Probably will happen	Sure will happen
Time 1	17	22	39	17	5	18	24	34	18	6
Time 2	16	22	38	18	6	19	28	29	16	8

Table B3

F2. Before you start high school (in the next 2 or 3 years): If someone wanted to have sex with you, what would you do?

	Treatment					Control				
	Definitely would not	Probably would not	Not sure	Probably would	Sure would	Definitely would not	Probably would not	Not sure	Probably would	Sure would
Time 1	66	16	13	2	2	72	12	13	2	1
Time 2	67	14	14	3	2	63	16	14	4	3

Table B4

F3. How likely do you think it is that you will have sex while you are a teenager?

	Treatment					Control				
	Certain I won't	Probably won't	Not sure	Probably will	Certain I will	Certain I won't	Probably won't	Not sure	Probably will	Certain I will
Time 1	49	22	21	6	2	52	23	19	5	1
Time 2	52	24	15	5	2	49	24	17	6	3

Percent of Students Responding to Each Response Alternative: *What would you do now* Items

**Table B5
What if someone you liked a lot wants you to have sex and you don't feel you are ready. What would you do?**

Survey Item	Time 1								Time 2							
	Treatment				Control				Treatment				Control			
	Y	M	N	D	Y	M	N	D	Y	M	N	D	Y	M	N	D
N1. I would say "NO" without making excuses or giving reasons.	53	19	14	13	57	20	12	12	58	22	10	10	54	24	12	10
N2. If this person kept pressuring me, I would say "NO" again and tell them how the pressure makes me feel.	56	20	11	14	59	23	8	10	65	21	6	8	58	23	11	9
N3. If this person still pressured me, I would suggest something else or walk away even if the person was unhappy or angry.	60	17	7	15	66	17	6	11	67	19	5	9	65	19	6	9
N4. If you wanted to have sex with someone but they said "NO," would you keep asking in different ways?	2	5	73	20	4	5	73	18	4	5	75	16	5	4	75	17

Note. Y = Yes; M = Maybe; N = No; D = Don't know.

Percent of Students Responding to Each Response Alternative: *What did you do in the past* Items

Table B6
In the past 30 days, have you ever been pressured to:

Survey Item	Time 1						Time 2					
	Treatment			Control			Treatment			Control		
	N	Y	D	N	Y	D	N	Y	D	N	Y	D
R1. Get sexually involved when you didn't want to?	91	3	6	90	2	8	89	5	6	91	4	5
R1r. If Yes, did you refuse?	8	79	13	15	69	15	21	76	3	23	54	23
R2. Smoke cigarettes?	90	6	4	92	4	4	91	6	3	91	6	3
R2r. If Yes, did you refuse?	36	48	16	36	59	5	23	63	14	31	50	19
R3. Drink alcohol?	90	5	5	91	4	5	90	6	4	90	6	4
R3r. If Yes, did you refuse?	55	39	5	38	42	19	53	34	13	56	28	17
R4. Use drugs (other than alcohol)?	94	2	4	93	3	4	93	3	3	94	3	4
R4r. If Yes, did you refuse?	40	40	20	13	56	31	23	69	8	29	47	24

Note. N = No; Y = Yes; D = Don't know.