

Evaluation of The Wise Guys Male Responsibility Curriculum: A Report on a Study of Participant-Control Comparisons

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January 2009

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ABSTRACT

Although teen pregnancy rates, along with reported abortions and fetal losses, had been declining since the late 1990s, the most recent data (for 2006) show an increase. Yet, while it is accepted that males are often the initiators of teen sexual activity, pregnancy prevention programs generally target females. To fill this void the Wise Guys program was developed by The Family Life Council and implemented in the early 1990s. The evaluation reported here is a rigorous comparison of Wise Guys participants in Guilford County (NC) middle schools to a corresponding group of controls on general knowledge of sex and reproductive behavior, knowledge of STD transmission, and more desirable attitudes toward sex and appropriate behavior in sexual relationships. Comparisons are also made on behavioral outcomes, including initiation of sexual activity, and use of condoms and contraception by sexually active adolescents.

During the four-semester period of Fall 2005 through Spring 2007 the Wise Guys curriculum was delivered to more than 1100 males in Guilford County (NC) Schools (GCS). The analysis reported here is restricted to 298 male participants in grades 7 through 9, and 228 corresponding controls, who met the criteria for inclusion in this participant-control evaluation study.

The results of this evaluation demonstrate that the middle school male students who participated in the Wise Guys program achieved significantly increased general knowledge of sex and reproductive behavior, significantly increased knowledge of STD transmission and more desirable attitudes toward sex and appropriate behavior in sexual relationships than the comparable group of male students who received only the Standard Course of Study.

Regression analyses confirmed that participation in the Wise Guys program was a stronger predictor of knowledge increases and attitude change than age, race, grade-in-school, or pre-test knowledge and attitude scores. Favorable behavioral changes were also evident among sexually active Wise Guys participants. Although there was no evidence that participants either delayed initiation of sexual intercourse or initiated sexual intercourse at an increased rate following their participation in Wise

Guys, sexually active participants reported significantly higher rates of condom use at six-months follow-up, and a significantly higher percentage of sexually active participants reported using contraception “every time” they have sexual intercourse. Regression analyses confirmed that participation in the Wise Guys program was a stronger predictor of these outcomes than age, race, grade-in-school or pre-test knowledge and attitude scores. The data from this study appear to support the basic KAB assumptions. The effects of attrition and its relevance for educational boosters is discussed, along with the importance of outreach for male programming, and the prospects for utilizing Wise Guys in other settings.

Acknowledgement: This study was funded by Grant FPRPA006008 from the Office of Population Affairs, Office of Family Planning, U.S. Department of Health and Human Services, Washington DC.

Suggested Citation: Gruchow, HW. Evaluation of The Wise Guys Male Responsibility Curriculum: A Report on a Study of Participant-Control Comparisons. University of North Carolina at Greensboro, Greensboro, NC 27214. January, 2009.

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SUMMARY OF FINDINGS

Participation in the multi-session Wise Guys Male Responsibility Curriculum by male middle school students is associated with increased knowledge, desirable attitude changes, and changes in the use of condoms and contraception. The details of these changes are documented in the analysis described here of 298 male participants in grades 7 through 9 of Guilford County (NC) Public Schools, and 228 randomly selected controls.

KNOWLEDGE

Participation in the Wise Guys program was associated with acquisition of greater general knowledge of reproductive biology and appropriate behavior in intimate relationships. It was also associated with acquisition of greater specific knowledge about STDs.

General knowledge scores increased in participants from 57.7 percent on pre-test to 77.8 percent on post-test, and then decayed slightly to 73.4 percent at follow-up. In comparison the corresponding general knowledge scores for controls decreased slightly from 63.5 percent on pre-test to 62.3 percent on posttest, then increased modestly to 67.2 percent at follow-up. The differences between participants and controls at all three data points were statistically significant ($p \leq .01$).

STD Knowledge scores showed a pattern identical to the General Knowledge scores over the three data points. The STD Knowledge average increased in participants from 72.8 percent on pre-test to 88.6 percent on post-test, and then decayed very slightly to 88.2 percent at follow-up. In comparison the corresponding STD Knowledge scores for controls decreased slightly from 76.7 percent on pre-test to 73.3 percent on posttest, then increased modestly to 79.6 percent at follow-up. The differences between participants and controls at all three data points were statistically significant ($p \leq .021$).

ATTITUDES

Participation in the Wise Guys program was associated with acquisition of more desirable attitudes regarding roles, responsibilities and behavior toward partners in intimate relationships.

Desirable Attitude scores showed a pattern similar to the General Knowledge and STD Knowledge scores over the three data points, except that the pre-test attitude scores for participants were higher than for controls. The Desirable Attitude average increased in participants from 63.5 percent on pre-test to 71.2 percent on post-test, and then decayed slightly to 68.4 percent at follow-up. In comparison the corresponding Desirable Attitude scores for controls increased slightly from 59.8

percent on pre-test to 60.0 percent on posttest, then increased modestly to 62.0 percent at follow-up. The pre-test scores for multi-session participants were not significantly different from those of controls, but the post-test and follow-up differences were significant ($p \leq .012$).

Regression Analyses confirmed that participation in the Wise Guys program was a stronger predictor of knowledge increases and attitude change than age, race, grade-in-school, or pre-test knowledge and attitude scores.

Item Analyses documented the effectiveness of the Wise Guys program in increasing knowledge and changing attitudes across the broad range of topics covered by the curriculum.

BEHAVIOR

Participation in the Wise Guys program was associated with desirable behavior changes in relation to use of condoms and contraception by sexually active participants.

Condom use increased from pre-test to post-test in a similar fashion for both the participant and control groups, but from post-test to follow-up there was a greater rate increase among sexually active participants than among controls (30.3% to 50.0%, and 23.0 % to 25.0%, respectively).

Contraceptive use increased strongly (26.5% to 52.9%) from post-test to follow-up among sexually active participants. A similar increase did not occur among controls (15.4% to 17.9%).

INTRODUCTION

Although teen pregnancy rates, along with reported abortions and fetal losses, had been declining since the late 1990s, the most recent data (for 2006) show an increase. There are more than 750,000 teen pregnancies in the United States each year(1,2). Nearly one in twenty American girls become pregnant during their high school years, and unintended births to adolescents, which account for about 40% of teenage pregnancies, cost more than \$1.3 billion in direct health care expenditures each year (3,4). The unfortunate reality is that our teen pregnancy rate is the highest in the industrialized western world(5). The rates of STDs among teens are also increasing(6,7). Data from the Youth Risk Behavior Survey indicate that in some communities premarital sex is common among teenage males, with more than one-in-four having their first intercourse before age thirteen (8). Yet, while it is accepted that males are often the initiators of teen sexual activity, pregnancy prevention programs generally target females (9).

To fill this void the *Wise Guys* program was developed by The Family Life Council (FLC) (10). The centerpiece of the program is the Wise Guys Male Responsibility Curriculum for middle-school age males, which was developed with the Center for Population Options (now Advocates for Youth) (11). Beginning in 1990 a five-year grant from the N.C. Department of Health, Environment and Natural Resources supported implementation of the program in a variety of community settings, and in Guilford County Schools. The program consists of the Male Responsibility Curriculum delivered by trained educators, with parental review of content and active parental consent for their son(s) to participate, and review and approval of content by school administration. It also includes interactive sessions with participants, an awards ceremony, and incentives for participation in follow-up data collection. In addition, FLC provides training in Wise Guys for educators across the United States.

The program has the following objectives:

1. to provide young men with the knowledge about sexuality they need for good decision-making;
2. to encourage respect for themselves and others;
3. to help young men understand the importance of responsibility, especially in the area of sexual behavior;
4. to help young men communicate with their parents; and
5. to prevent partner violence by encouraging healthy relationships.

The program acknowledges young males as “whole” individuals with a variety of needs and desires. Participatory lessons and activities focus on assisting young males to ask themselves the questions: Who am I? Where am I going? and How do I get there?

Locally, Family Life Council Health Educators deliver the Wise Guys curriculum in the twenty-two middle schools of the Guilford County (NC) School System, as well as in several private and alternative schools, and community sites. Growing out of the contribution the Wise Guys program has made to its local community has been the contributions it has made nationwide. Wise Guys has become a resource used across the country. Because so many teen pregnancy prevention programs are aimed at young females, the Wise Guys program has received national recognition for its success in focusing on males.

Since 1995, over 2,300 professionals throughout the nation have been trained in the Wise Guys curriculum. The program has been implemented in over 350 communities in 32 states and the District of Columbia. It has been recommended by a number of national organizations, including The Urban Institute, Sociometrics, Advocates for Youth, and the Child Welfare League of America; and has been approved and sponsored by many State Departments of Public Health. In 2001, the Family Life Council’s Wise Guys program was given a special Program Honor Award by The National Campaign to Prevent Teen Pregnancy in recognition of its “pioneering work in involving males in preventing teen pregnancy”.

An earlier evaluation of The Wise Guys curriculum demonstrated improved knowledge among middle school males exposed to the curriculum (12). The evaluation reported here is a rigorous comparison of Wise Guys participants to a corresponding group of controls on general knowledge of sex and reproductive behavior, knowledge of STD transmission, and more desirable attitudes toward sex and appropriate behavior in sexual relationships. Comparisons are also made on behavioral outcomes, including initiation of sexual activity, and use of condoms and contraception by sexually active adolescents.

METHODS

Delivery Of The Curriculum

The Wise Guys curriculum is delivered in classrooms in weekly sessions averaging 45 minutes over an 8 – 12 week period. In most cases the timing of these sessions coincides with designated non-class periods, such as study halls or activity periods. The curriculum is offered fall and spring semesters. The schedules for individual schools are worked out between the Wise Guys Program Educator and school guidance counselors.

The *Wise Guys* curriculum includes topics such as: self esteem, communication, values, goal setting, puberty, anatomy, reproduction, abstinence, contraception, sexually transmitted infections, healthy relationships and dating violence.

All sessions of the curriculum in Guilford County Schools are delivered by trained Family Life Council Health Educators. These educators receive specialized training from FLC supervisory staff and trainers, and are supervised in the classroom for several weeks before they are allowed to deliver the curriculum on their own. The educators use a variety of activities and methods to involve the students and to keep them engaged in the lesson. Methods such as group discussion, role-play, lecture, small group exercises, and video presentations are used. The aim is for classes to be interactive and participatory.

During the four-semester period of Fall 2005 through Spring 2007 the Wise Guys curriculum was delivered to more than 1100 males in Guilford County (NC) Schools (GCS). The analysis reported here is restricted to 298 male participants in grades 7 through 9, and 228 corresponding controls, who met the criteria for inclusion in this participant-control evaluation study. (See *Study Inclusion Criteria* below.)

Approval Protocols

Curriculum Content

The annual review process begins with the GCS Family Life and HIV/AIDS Resource Review Committee. This committee has final authority to approve or reject and materials or content in the

curriculum delivered in schools. Since 1992 GCS has approved *Wise Guys* as suitable for seventh and eighth grade male students.

Study Inclusion Criteria

Active Parental Consent and Student Assent

Each student is required to have a signed parent's permission form on file before being allowed to participate in the Wise Guys program of instruction. All parents have an opportunity to review the curriculum and ask questions of *Wise Guys* staff before giving their permission, and several schools offer parent meetings at the beginning of this process so that parents as a group may meet with *Wise Guys* staff and gain the knowledge needed for an informed decision. All participants in *Wise Guys* are informed that their participation is voluntary, and that they may withdraw from participation at any time.

Student Selection

The method of student selection for participation in Wise Guys varies between schools. Students are selected for participation in one of three ways: 1) a representative mix of students; 2) those classified as "at-risk;" 3) peer leaders; or 4) an entire grade level. A representative mix was the most common. *Wise Guys* educators and school counselors decide on a site-specific basis which method will be used to select students for the program.

For this study controls were randomly chosen from students selected for the Wise Guys program in the nine schools. The method by which controls were chosen was by blind drawing of students' names from a box that contained the names of all students at that school selected for the Wise Guys program. Selection was by the counselors in each school blindly drawing students' names from the box. Students designated as controls were offered the opportunity to participate in the program after their pre-test, post-test and 6-month follow-up data were collected. Participants and controls also received the state-mandated "Healthy Living" Standard Course of Study required of all students.

For participants an additional criterion for inclusion in this study was participation in at least four of the weekly Wise Guys sessions.

Human Subjects

In addition to the annual reviews by the GCS Family Life and HIV/AIDS Resource Review Committee, the Wise Guys protocols have received Expedited Review and approval from the UNCG Institutional Review Board.

Evaluation

Test Administration

Pre-tests are administered during the first class meeting; post-tests are administered during the last class meeting. Six-month follow-up tests are administered each semester in specially called sessions. Students who participated in the Wise Guys program during the previous semester are contacted through their school counselors and invited to participate in the follow-up session. Their participation is voluntary. Snacks are provided as incentives.

The Wise Guys health educator distributes the test questionnaires at the appropriate time, then reads each item aloud to the class, allowing an appropriate length of time for students to formulate and record their responses. After administration, the questionnaires are gathered, and a log is made that includes the name and coded identifier of each student who completed the questionnaire. The coded identifier is the only indentifying information on the questionnaire. The log is maintained in a secured place. A back-up copy of each questionnaire is made, and the originals are sent to the evaluation team for entry into computer files.

Data Management

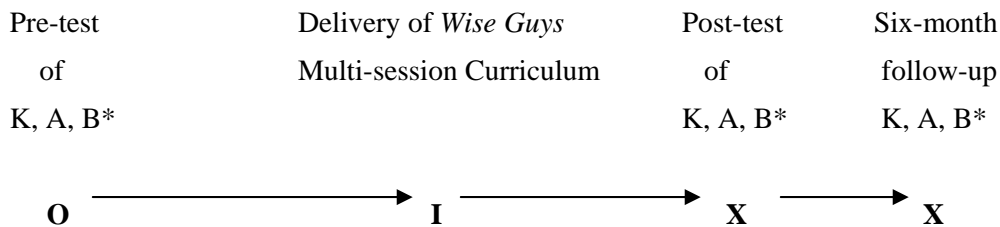
The evaluation protocol is designed to insure that the evaluation process poses no risks to the individual participant. Evaluation responses contain coded identifiers to track participants from pre- to post-tests to six-month follow-up, but the information is confidential. The completed evaluation forms are maintained in secure locations and are not accessible to anyone but the principal investigator or his designee. The computerized database contains the coded identifiers in order to link evaluation records obtained at the different data points, but does not contain the students' names or other personal identifying information. The database is maintained in password-accessible secured computer files. Only the Principal Investigator, or his designees, has access to these files. Published reports contain only aggregated data—no individual information is released.

Outcome Data

Evaluation Plan

Outcome data collected from the young males completing *Wise Guys* program is identical for all three data points. The instrument assesses knowledge, attitudes and behavior pertaining to social and sexual relationships. A variety of response formats were used, including scaled (Likert-type) items, True/False items, scenarios that ask for agreement or disagreement on appropriateness of behavior in hypothetical situations, and multiple choice items that inquire about respondent behavior.

SCHEMATIC OF KAB EVALUATION PLAN



*K, A, B = knowledge, attitudes and behaviors.

DATAPOINTS: **O** = baseline data point; **I** = intervention; **X** = post-intervention data points.

Variables

The Wise Guys evaluation form includes general knowledge items that assess knowledge of sex and reproduction, STD knowledge items that assess knowledge of STD transmission; attitudinal items that assess attitudes toward sex and appropriate behavior in sexual relationships; and self-reported sexual behaviors. There are also items that elicit information about communication patterns and reasons for not having sex. These items are identical on the assessment forms for all three data points: pre-test, post-test and 6-month follow-up. Only analyses of the items on general knowledge, STD knowledge, attitudes and selected self-reported sexual behaviors are reported on here.

General Knowledge

Individual Items

Thirteen items on the evaluation form assess general knowledge. These items varied in their response formats. Eight were true/false items; five were 5-point Likert-scale items which ranged from “Strongly Disagree” to Strongly Agree.” For analysis responses to the true/false items were labeled as

“correct” or “incorrect.” In addition, the Likert-scale items were coded into dichotomous outcomes. If the correct response was to agree with a statement, “Strongly Agree” and “Agree” responses were coded as “correct.” Similarly, if the correct response was to disagree with a statement, “Strongly Disagree” and “Disagree” were coded as “correct.”

The Cronbach’s Alpha values for these thirteen items on pre-test were .551 for controls and .624 for participants (13). Despite these modest values the table of single item deletions did not indicate any discordant knowledge items that could be deleted to increase the Alpha values.

Composite Item

The Composite General Knowledge variable was constructed by summing the number of correct responses to the 13 individual items, then dividing the sum by 13 to obtain a percentage.

STD Knowledge

Individual Items

Eight items assess knowledge of STD transmission. The response format of these items was to place a check next to any of the methods that could transmit STDs. For analysis responses were labeled as “correct” or “incorrect.”

Composite Item

The value of the composite STD Knowledge variable was the sum of correct responses divided by eight, expressed as a percentage.

Desirable Attitudes

Individual Items

Fourteen items on the evaluation form assess attitudes. These items varied in their response formats. Eleven were 5-point Likert-scale items which ranged from “Strongly Disagree” to “Strongly Agree;” and three were scenarios where response options were to “Agree” or “Disagree” with the behavior described. For analyses the Likert-scale items were coded into dichotomous outcomes. If the desirable response was to agree with a statement, “Strongly Agree” and “Agree” responses were coded as “desirable.” Similarly, if the desirable response was to disagree with a statement, “Strongly

Disagree” and “Disagree” were coded as “desirable.” For the three scenarios the desirable response, either to “Agree” or “Disagree” with the behavior described, was coded “correct” and the alternative response was coded “incorrect.”

The Cronbach’s Alpha values for these fourteen items on pre-test were .536 for controls and .761 for participants. The table of single item deletions did not indicate any discordant attitude items that could be deleted to increase the Alpha values.

Composite Item

In constructing the composite Desirable Attitude variable the number of correct responses was divided by fourteen, and expressed as a percentage.

Statistical Analyses

The data generated by the evaluation instruments were entered into computer files for analysis. The Statistical Package for the Social Sciences (SPSS) (14) software was used to analyze the data. Appropriate statistical tests were used to document associations between variables and to highlight findings in the data.

To assess the effectiveness of the *Wise Guys* program the following sets of analyses were done:

PART 1: four participant-control comparisons across data points on knowledge and attitude change;

PART 2: twelve regression statements that assess predictors of knowledge and attitude outcomes across data points;

PART 3: analyses of the individual items across data points that assess general knowledge, STD knowledge and attitude;

PART 4: three participant-control comparisons across data points on initiation of sexual intercourse and condom use.

These analyses provide an evaluation of the curriculum in terms of both its shorter and longer term effectiveness, the potential rate of decay of program impact as time after participation lengthens, and factors that influence its effectiveness.

RESULTS

Overview of Curriculum Delivery

A total of 298 male participants in grades 7 through 9, and 228 corresponding controls met the criteria for inclusion in this participant-control evaluation study.

**Table 1: Guilford County (NC) Males in Study
 Grades 7, 8 & 9: Fall 2005 through Spring 2007**

	Frequency	Percent
Participants	298	56.7
Control	228	43.3
Total	526	100.0

The Wise Guys curriculum is delivered in Guilford County Public Schools in 8-10 weekly sessions of approximately one hour each. The number of sessions is determined in consultation with school principals and counselors. Generally, the same content is covered regardless of the number of sessions, but the time allotted to each subject is adjusted to fit the number of sessions. For this study attendance at a minimum of four sessions was the criterion for inclusion in the participant group. As shown in Table 2, over 90 percent of participants attended six or more sessions.

**Table 2: Numbers of Classes Attended, Guilford County (NC) Males,
 Grades 7-9: Fall 2005 through Spring 2007**

Numbers of Classes Attended	Participants (%) N=298
4	2.3
5	7.0
6	9.4
7	24.2
8	34.6
9	15.8
10	6.7
Total	100.0

Pre-test, post-test and six-month follow-up participation rates are shown in Table 3. Post-test and follow-up rates were higher among participants than among controls, while the follow-up rate was higher among controls. In both groups there was significant attrition from pre-test to post-test to follow-up. Pre-test to post-test attrition was relatively modest (14.1%) among participants, but substantial (38.2%) among controls. In contrast, at the 6-month follow-up data point attrition was substantially higher among participants (51.7%) than controls (33.8%).

Table 3: Pre-test, Post-test and Follow-up Participation, Guilford County (NC) Males, Grades 7-9: Fall 2005 through Spring 2007

		Pre-test	Post-test	Follow-up
Participants	Count	298	256	144
	Percent	100.0%	85.9%	48.3%
Controls	Count	228	141	151
	Percent	100.0%	61.8%	66.2%
Total	Count	526	397	295
	Percent	100.0%	75.5%	56.1%

Demographic Comparisons

Participants and controls were racially similar, as the breakdown in Table 4 shows. The Chi-Square test for homogeneity ($p=.428$) shows that the percentages of Non-White and White respondents in each group were not statistically significantly different. However, there were significant differences for Age ($p<.000$) and Grade ($p<.000$). Controls were older than participants, and more controls were in eighth grade. These differences in age and grade are addressed in the regression analyses (Part 2).

Table 4: Demographic Comparisons of Participants and Controls, Guilford County (NC) Males, Grades 7-9: Fall 2005 through Spring 2007

Demographic Variables		Participants % N=298	Controls % N=228
Race	Non-White	51.3	54.8
	White	48.7	45.2
	Total	100.0	100.0
Chi-Square = .629; 1 df; $p = .428$			
Age (years)	12	52.0	37.7
	13	45.6	51.3
	14	2.3	11.0
	Total	99.9	100.0
Chi-Square = 22.388; 2 df; $p < .000$			
Grade	7	93.3	85.1
	8	4.7	14.9
	9	2.0	0.0
	Total	100.0	100.0
Chi-Square = 20.327; 2 df; $p < .000$			

Outcomes: Knowledge and Attitudes

Part 1: Participant-Control Comparisons Across Data Points On Knowledge And Attitude Change

- 1) *pre-test comparisons* of participant and control groups on general knowledge, STD knowledge and Desirable Attitudes;
- 2) *pre-test-to-post-test change* comparisons of participant and control groups on general knowledge, STD knowledge and Desirable Attitudes;
- 3) *post-test-to-follow-up change* comparisons of participant and control groups on general knowledge, STD knowledge and Desirable Attitudes;
- 4) *pre-test-to-post-test-to-follow-up change* comparisons of participant and control groups on general knowledge, STD knowledge and Desirable Attitudes;

Pre-Test Comparisons

The pre-test comparisons that included all of the participants and controls showed that at pre-test the controls had a higher average composite General Knowledge score than participants (Table 5). That is, they had a higher average percentage of correct responses to the thirteen knowledge items than participants (62.5% vs. 52.8%). This difference was statistically significant ($p < .000$). Also at pre-test the controls had a higher average composite STD Knowledge score than participants (75.6% vs. 71.3%). This difference was also statistically significant ($p < .000$). Finally at pre-test the controls had a slightly higher average percentage of more desirable responses to the attitude items than participants (58.7% vs. 56.1%). However, this difference was not statistically significant ($p = .145$). The higher composite General Knowledge and STD Knowledge scores of controls are addressed in the regression analyses (Part 2).

Table 5: Pre-test Comparisons of Participants and Controls on General Knowledge, STD Knowledge and Attitude Items, Guilford County (NC) Males, Grades 7-9: Fall 2005 through Spring 2007

GENERAL KNOWLEDGE	GROUP CODE	N	Mean	Std. Deviation	t	Sig. (2-tailed)
Average Percent Correct (13 items)	Participants	298	.5281	.19243	5.940	<.000
	Controls	228	.6248	.17483		
STD KNOWLEDGE	GROUP CODE	N	Mean	Std. Deviation	t	Sig. (2-tailed)
Average Percent Correct (8 items)	Participants	298	.7127	.13383	3.758	<.000
	Controls	228	.7560	.12758		
ATTITUDE	GROUP CODE	N	Mean	Std. Deviation	t	Sig. (2-tailed)
Average Percent Desirable (14 items)	Participants	298	.5611	.23154	1.461	.145
	Controls	228	.5874	.16255		

Pre-Test → Post-Test Changes

General Knowledge Items

Comparison of pre-test-to-post-test changes in General Knowledge scores was limited to the 256 participants and 141 controls on whom pre-test *and* post-test data were available. For these respondents, as for the total group, controls had a significantly ($p<.000$) higher pre-test General Knowledge score (62.68% vs. 56.61%) (Table 6). However, on post-test participants had a higher average percentage of correct responses to the thirteen knowledge items than controls (76.05% vs. 63.18%). This difference was also statistically significant ($p<.000$), and represents a reversal of the pre-test comparison, with the participants having the higher scores on post-test. The pre-to-post change in average knowledge scores for the participants was significantly higher than the minimal change seen in the control group.

Table 6: Pre-test, Post-Test and Pre-Test to Post-Test Changes in General Knowledge, Guilford County (NC) Males, Grades 7-9: Fall 2005 through Spring 2007

PRE-TEST KNOWLEDGE	GROUP CODE	N	Mean	Std. Deviation	t	Sig. (2-tailed)
Average Percent Correct (13 items)	Participants	256	.5661	.13633	3.860	.000
	Controls	141	.6268	.17224		
POST-TEST KNOWLEDGE	GROUP CODE	N	Mean	Std. Deviation	t	Sig. (2-tailed)
Average Percent Correct (13 items)	Participants	256	.7605	.16105	7.427	.000
	Controls	141	.6318	.17294		
PRE-TEST TO POST-TEST KNOWLEDGE CHANGE	GROUP CODE	N	Mean	Std. Deviation	t	Sig. (2-tailed)
Average Percentage Change (13 items)	Participants	256	.1944	.19637	8.854	.000
	Controls	141	.0049	.21742		

STD Knowledge

Comparison of pre-test-to-post-test changes in STD Knowledge scores was limited to the 256 participants and 141 controls on whom pre-test *and* post-test data were available. For these respondents, as for the total group, controls had a significantly ($p=.004$) higher pre-test STD Knowledge score (76.51% vs. 72.71%) (Table 7). However, on post-test participants had a higher average percentage of correct responses to the eight STD Knowledge items than controls (88.87% vs. 73.94%). This difference was also statistically significant ($p<.000$), and represents a reversal of the pre-test comparison, with the participants having the higher scores on post-test.

While participants had a higher average percentage of correct answers to the STD knowledge questions on post-test compared to the pre-test, the control average actually dropped slightly between

pre- and post-tests, contributing to the pre-test to post-test reversal. The pre-to-post change in average STD knowledge scores for the participants was statistically significantly higher ($p < .000$) than the negative change seen in the control group.

Table 7: Pre-Test, Post-Test and Pre-Test to Post-Test Changes in STD Knowledge, Guilford County (NC) Males, Grades 7-9: Fall 2005 through Spring 2007

PRE-TEST STD KNOWLEDGE	GROUP CODE	N	Mean	Std. Deviation	t	Sig. (2-tailed)
Average Percent Correct (8 items)	Participants	256	.7271	.12582	2.906	.004
	Controls	141	.7651	.12272		
POST-TEST STD KNOWLEDGE	GROUP CODE	N	Mean	Std. Deviation	t	Sig. (2-tailed)
Average Percent Correct (8 items)	Participants	256	.8887	.16951	8.825	.000
	Controls	141	.7394	.14523		
PRE- TO POST-TEST STD KNOWLEDGE CHANGE	GROUP CODE	N	Mean	Std. Deviation	t	Sig. (2-tailed)
Average Percentage Change (8 items)	Participants	256	.1616	.19507	9.584	.000
	Controls	141	-.2057	.16937		

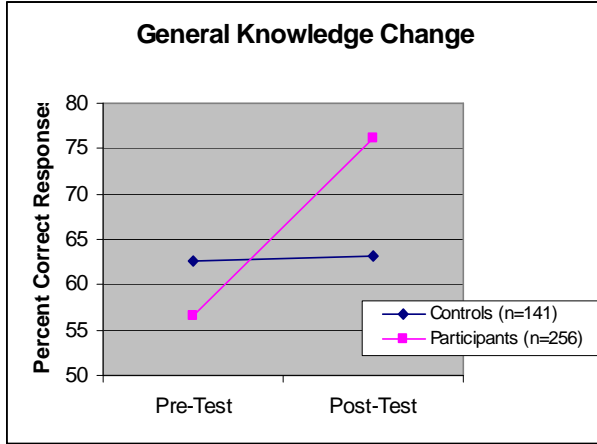
Desirable Attitudes

Comparison of pre-test-to-post-test changes in Desirable Attitude scores was limited to the 256 participants and 141 controls on whom pre-test *and* post-test data were available. For these respondents, as for the total group, there was not a significant difference ($p = .613$) (Table 8). However, on post-test participants had a significantly higher ($p < .000$) average percentage of correct responses to the fourteen Attitude items than controls (69.89% vs. 59.98%). This difference represents a reversal of the pre-test comparison, with the participants having the higher scores on post-test. The pre-to-post changes were also significantly different ($P = .000$), with participants having a higher change score than controls.

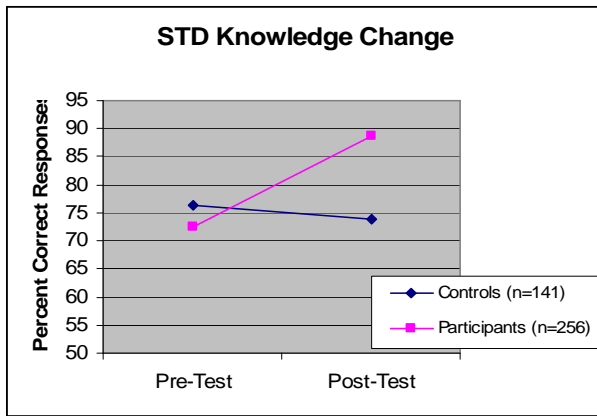
**Table 8: Pre-Test, Post-Test and Pre-Test to Post-Test Changes in Attitudes,
Guilford County (NC) Males, Grades 7-9: Fall 2005 through Spring 2007**

PRE-TEST ATTITUDES	GROUP CODE	N	Mean	Std. Deviation	t	Sig. (2-tailed)
Average Percent Desirable (14 items)	Participants	256	.6041	.18222	.613	.540
	Controls	141	.5927	.16659		
POST-TEST ATTITUDES	GROUP CODE	N	Mean	Std. Deviation	t	Sig. (2-tailed)
Average Percent Desirable (14 items)	Participants	256	.6989	.18740	5.130	.000
	Controls	141	.5998	.17844		
PRE- TO POST-TEST ATTITUDE CHANGE	GROUP CODE	N	Mean	Std. Deviation	t	Sig. (2-tailed)
Average Percentage Change (14 items)	Participants	256	.0949	.20265	4.143	.000
	Controls	141	.0071	.20082		

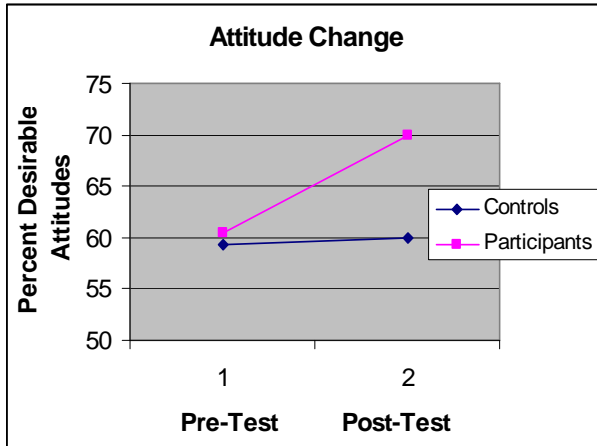
CHARTS DEPICTING PRE-TEST TO POST-TEST
 KNOWLEDGE, STD KNOWLEDGE AND ATTITUDE CHANGES



	pre-test	post-test
Controls	62.7	63.2
Participants	56.6	76.1



	pre-test	post-test
Controls	76.3	73.8
Participants	72.5	88.8



	pre-test	post-test
Controls	59.3	60
Participants	60.4	69.9

Pre-Test → Post-Test → 6-Month Follow-up Changes

Pre-Test-to-Post-Test-to-Follow-up comparisons are limited to the 121 participants and 106 controls in the study group who responded at all three data points. The pattern of Pre-Test-to-Post-Test changes in General Knowledge, STD Knowledge and Desirable Attitudes for these respondents were identical to those of the larger group described above.

General Knowledge

General knowledge scores increased in participants from 57.7 percent on pre-test to 77.8 percent on post-test, and then decayed slightly to 73.4 percent at follow-up. In comparison the corresponding general knowledge scores for controls decreased slightly from 63.5 percent on pre-test to 62.3 percent on posttest, then increased modestly to 67.2 percent at follow-up. Only the pre-test scores for controls were higher than those of participants. The differences between participants and controls at all three data points were statistically significant ($p \leq .01$).

Table 12: Pre-test, Post-Test and Follow-up General Knowledge Scores for Guilford County (NC) Males, Grades 7-9: Fall 2005 through Spring 2007

	GROUP CODE	N	Mean	Std. Deviation	t	Sig. (2-tailed)
Pre-Test Knowledge Average	Participants	121	.5766	.13328	2.934	.004
	Controls	106	.6350	.16619		
Post-Test Knowledge Average	Participants	121	.7781	.15957	6.950	.000
	Controls	106	.6226	.17750		
Follow-Up Knowledge Average	Participants	121	.7343	.17457	2.604	.010
	Controls	106	.6727	.18112		

STD Knowledge

STD Knowledge scores showed a pattern identical to the General Knowledge scores over the three data points. The STD Knowledge average increased in participants from 72.8 percent on pre-test to 88.6 percent on post-test, and then decayed very slightly to 88.2 percent at follow-up. In comparison the corresponding STD Knowledge scores for controls decreased slightly from 76.7 percent on pre-test to 73.3 percent on posttest, then increased modestly to 79.6 percent at follow-up. Only the pre-test scores for controls were higher than those of participants. The differences between participants and controls at all three data points were statistically significant ($p \leq .021$).

Table 13: Pre-test, Post-Test and Follow-up STD Knowledge Scores for Guilford County (NC) Males, Grades 7-9: Fall 2005 through Spring 2007

	GROUP CODE	N	Mean	Std. Deviation	t	Sig. (2-tailed)
Pre-Test STD Knowledge Average	Participants	121	.7283	.12361	2.315	.021
	Controls	106	.7665	.12449		
Post-Test STD Knowledge Average	Participants	121	.8864	.16298	7.348	.000
	Controls	106	.7335	.14848		
Follow-Up STD Knowledge Average	Participants	121	.8822	.15419	4.340	.000
	Controls	106	.7960	.14364		

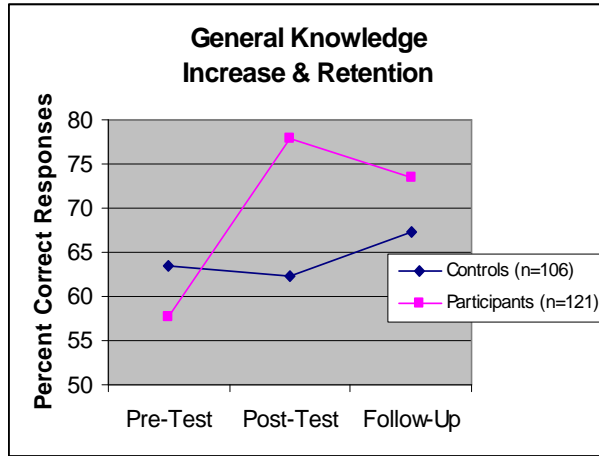
Desirable Attitudes

Desirable Attitude scores showed a pattern similar to the General Knowledge and STD Knowledge scores over the three data points, except that the pre-test attitude scores for participants were higher than for controls. The Desirable Attitude average increased in participants from 63.5 percent on pre-test to 71.2 percent on post-test, and then decayed slightly to 68.4 percent at follow-up. In comparison the corresponding Desirable Attitude scores for controls increased slightly from 59.8 percent on pre-test to 60.0 percent on posttest, then increased modestly to 62.0 percent at follow-up. The pre-test scores for multi-session participants were not significantly different from those of controls, but the post-test and follow-up differences were significant ($p \leq .012$).

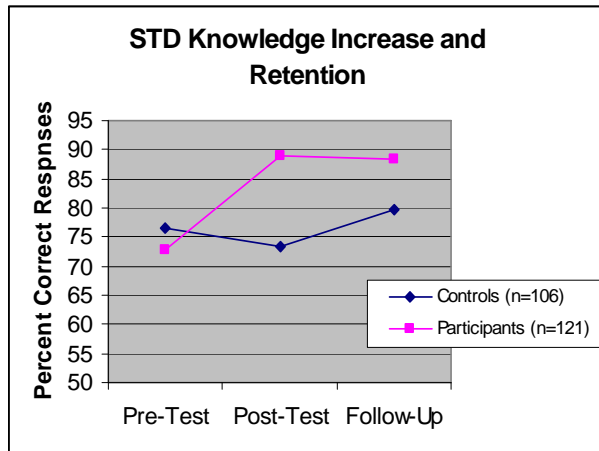
Table 14: Pre-test, Post-Test and Follow-up Desirable Attitude Scores for Guilford County (NC) Males, Grades 7-9: Fall 2005 through Spring 2007

	GROUP CODE	N	Mean	Std. Deviation	t	Sig. (2-tailed)
Pre-test desirable attitude average	Participants	121	.6352	.17296	1.644	.102
	Controls	106	.5984	.16272		
Post-test desirable attitude average	Participants	121	.7119	.18209	4.708	.000
	Controls	106	.5997	.17571		
Follow-up desirable attitude average	Participants	121	.6842	.19050	2.523	.012
	Controls	106	.6199	.19231		

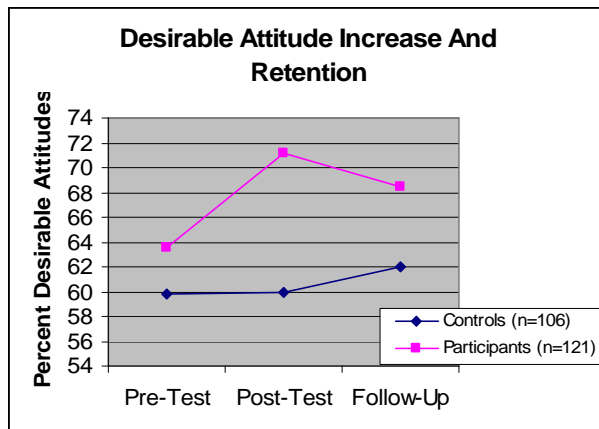
CHARTS DEPICTING PRE-TEST, POST-TEST AND FOLLOW-UP
 KNOWLEDGE, STD KNOWLEDGE AND ATTITUDE CHANGES



	Pre-Test	Post-Test	Follow-Up
Controls (n=106)	63.5	62.3	67.3
Participants (n=121)	57.7	77.8	73.4



	Pre-Test	Post-Test	Follow-Up
Controls (n=106)	76.6	73.4	79.6
Participants (n=121)	72.9	88.8	88.3



	Pre-Test	Post-Test	Follow-Up
Controls (n=106)	59.8	60	62
Participants (n=121)	63.5	71.2	68.4

PART 2: TWELVE REGRESSION STATEMENTS THAT ASSESS PREDICTORS OF KNOWLEDGE AND ATTITUDE OUTCOMES ACROSS DATA POINTS;

Multivariate Outcome Predictors

To estimate outcome predictors controlling for the potential confounding effects of covariates, a series of stepwise linear regression equations were analyzed. For all regression analyses age was an ordinal variable (coded ≤ 12 , 13, 14+); grade was an ordinal variable (coded 7, 8, 9); race was a dichotomous variable (coded 1=Non-White and 2=White); group was a dichotomous variable (coded 1=participants and 2=controls); the dependent variables, which were the composite General Knowledge Scores, STD Knowledge Scores and Desirable Attitude Scores, were continuous variables.

In the stepwise regression method used here each predictor (independent) variable enters the equation separately, with the strongest predictor entering first, the next strongest second, and so on, until all predictor variables significantly associated with the dependent variable are in the equation. As each predictor variable is added to the equation a new model is generated that indicates the strength of association with the dependent variable for each independent variable, controlling for the other variables in the equation.

A separate table is generated for each model that specifies the strengths of association with the dependent variable for the excluded variables, controlling for the variables already in the equation. So the last model in each analysis includes in the equation all of the predictor variables significantly associated with the dependent variable. Variables excluded from the last model are those not significantly associated with the dependent variable.

The following twelve regression statements were analyzed:

1. Dependent Variable: Pre-Test General Knowledge
Predictors: age, grade, race, group (participant/control)
2. Dependent Variable: Pre-Test STD Knowledge
Predictors: age, grade, race, group (participant/control)
3. Dependent Variable: Pre-Test Desirable Attitudes
Predictors: age, grade, race, group (participant/control)
4. Dependent Variable: Post-Test General Knowledge
Predictors: age, grade, race, group (participant/control), pre-test general knowledge
5. Dependent Variable: Post-Test STD Knowledge
Predictors: age, grade, race, group (participant/control), pre-test STD knowledge
6. Dependent Variable: Post-Test Desirable Attitudes
Predictors: age, grade, race, group (participant/control), pre-test desirable attitudes
7. Dependent Variable: Pre-Test to Post-Test Change in General Knowledge
Predictors: age, grade, race, group (participant/control), pre-test general knowledge
8. Dependent Variable: Pre-Test to Post-Test Change in STD Knowledge
Predictors: age, grade, race, group (participant/control), pre-test STD knowledge
9. Dependent Variable: Pre-Test to Post-Test Change in Desirable Attitudes
Predictors: age, grade, race, group (participant/control), pre-test desirable attitudes
10. Dependent Variable: Post-Test to Follow-up Change in General Knowledge
Predictors: age, grade, race, group (participant/control), pre-test general knowledge
11. Dependent Variable: Post-Test to Follow-up Change in STD Knowledge
Predictors: age, grade, race, group (participant/control), pre-test STD knowledge
12. Dependent Variable: Post-Test to Follow-up Change in Desirable Attitudes
Predictors: age, grade, race, group (participant/control), pre-test desirable attitudes

#1 Outcome (Dependent) Variable: Pre-Test General Knowledge Score

Predictors: age, grade, race, group (participant/control)

Grade (7, 8, 9) and Group (participants=1/controls=2) were the only significant predictors of pre-test General Knowledge Scores (Table 15A). The coefficient for Grade is negative indicating that lower grade-in-school is associated with higher General Knowledge Scores. The association with Group is positive, and consistent with the higher General Knowledge Scores on pre-test for the controls compared to the participants.

Table 15A: Standardized Regression Coefficients for Statistically Significant Independent Variable Predictors of Pre-test General Knowledge Scores (Regression Statement #1)

Model		Standardized Coefficients Beta	t	Sig.
1	(Constant)		12.083	.000
	Grade	-.348	-.489	.000
2	(Constant)		12.235	.000
	Grade	-.372	-.490	.000
	Group	.284	7.227	.000

Neither Age nor Race were significant independent predictors of pre-test General Knowledge Scores, nor were they significant predictors after controlling for Grade and Group. Therefore they were excluded from the regression statement (Table 15B).

Table 15B: Variables Excluded from Regression Statement #1

Model		t	Sig.
1	Group	7.227	.000
	Age	1.207	.228
	Race	.049	.961
2	Age	.009	.993
	Race	.253	.801

Both Model 1 (Grade, alone) and Model 2 (Grade and Group) explained statistically significant ($p=.000$) amounts of variance in Pre-Test General Knowledge Scores (Table 15C).

Table 15C: Model Summary for Regression Statement #1

Model	R	R Square	Change Statistics	
			R Square Change	Sig. F Change
1	.348	.121	.121	.000
2	.448	.201	.080	.000

#2 Outcome (Dependent) Variable: Pre-Test STD Knowledge Score

Predictors: age, grade, race, group (participant/control)

Grade (7, 8, 9) and Group (participants=1/controls=2) were the only significant predictors of pre-test STD Knowledge Scores (Table 16A). The coefficient for Grade is negative indicating that lower grade-in-school is associated with higher STD Knowledge Scores. The association with Group is positive, and consistent with the higher STD Knowledge Scores on pre-test for the controls compared to the participants.

Table 16A: Standardized Regression Coefficients for Statistically Significant Independent Variable Predictors of Pre-test STD Knowledge Scores (Regression Statement #2)

Model		Standardized Coefficients Beta	t	Sig.
1	(Constant)		12.342	.000
	Grade	-.250	5.909	.000
2	(Constant)		12.292	.000
	Grade	-.266	6.377	.000
	Group	.185	4.438	.000

Neither Age nor Race were significant independent predictors of pre-test STD Knowledge Scores, nor were they significant predictors after controlling for Grade and Group. Therefore they were excluded from the regression statement (Table 16B).

Table 16B: Variables Excluded from Regression Statement #2

Model		t	Sig.
1	GROUP CODE	4.438	.000
	Age	.273	.785
	Race	1.131	.259
2	Age	1.065	.287
	Race	1.275	.203

Both Model 1 (Grade, alone) and Model 2 (Grade and Group) explained statistically significant ($p=.000$) amounts of variance in pre-test STD Knowledge Scores (Table 16C).

Table 16C: Model Summary for Regression Statement #2

Model	R	R Square	Change Statistics	
			R Square Change	Sig. F Change
1	.250	.062	.062	.000
2	.311	.096	.034	.000

#3 Outcome (Dependent) Variable: Pre-Test Desirable Attitude Score

Predictors: age, grade, race, group (participant/control)

Grade (7, 8, 9), Race (Non-White==1/White=2) and Group (participants=1/controls=2) were significant predictors of pre-test Desirable Attitude Scores (Table 17A). The coefficient for Grade is negative indicating that lower grade-in-school is associated with higher Desirable Attitude Scores. The associations with Race and Group are positive, indicating higher Desirable Attitude Scores on pre-test by Whites and controls, respectively.

Table 17A: Standardized Regression Coefficients for Statistically Significant Independent Variable Predictors of Pre-test Desirable Attitude Scores (Regression Statement #3)

Model		Standardized Coefficients		
		Beta	t	Sig.
1	(Constant)		14.705	.000
	Grade	-.439	11.195	.000
2	(Constant)		13.793	.000
	Grade	-.430	11.008	.000
	Race	.118	3.020	.003
3	(Constant)		13.687	.000
	Grade	-.439	11.267	.000
	Race	.121	3.114	.002
	Group	.106	2.730	.007

Age was not a significant predictor of pre-test Desirable Attitude Scores., either independently or after controlling for Grade, Race and Group. Therefore it was excluded from the regression statement (Table 17B).

Table 17B: Variables Excluded from Regression Statement #3

Model		t	Sig.
1	Group	2.622	.009
	Age	1.041	.299
	Race	3.020	.003
2	Group	2.730	.007
	Age	1.079	.281
3	Age	1.587	.113

All three models: Model 1 (Grade, alone); Model 2 (Grade and Race); and Model 3 (Grade, Race and Group) explained statistically significant ($p=.000$) amounts of variance in Pre-Test Desirable Attitude Scores (Table 17C).

Table 17C: Model Summary for Regression Statement #3

Model	R	R Square	Change Statistics	
			R Square Change	Sig. F Change
1	.439	.193	.193	.000
2	.455	.207	.014	.003
3	.467	.218	.011	.017

#4 Outcome (Dependent) Variable: Post-Test General Knowledge Score

Predictors: age, grade, race, group (participant/control), pre-test general knowledge

Grade (7, 8, 9), Group (participants=1/controls=2), pre-test General Knowledge, and Age were significant predictors of Post-Test General Knowledge Scores (Table 18A). The coefficient for Group is negative indicating that higher post-test General Knowledge scores are associated with participation in the Wise Guys program. The association between pre-test and post-test General Knowledge Scores is positive, indicating that higher pre-test scores predict higher post-test scores. The negative coefficient for Grade reflects the fact that seventh graders in this study had higher post-test general knowledge scores than eight and ninth graders. Including Grade in the equation controls for this difference in the analysis. Similarly, the association with Age is also negative and consistent with the higher pre-test General Knowledge Scores for seventh graders.

Table 18A: Standardized Regression Coefficients for Statistically Significant Independent Variable Predictors of Post-test General Knowledge Scores (Regression Statement #4)

Model		Standardized Coefficients Beta	t	Sig.
1	(Constant)		12.135	.000
	Grade	-.407	-10.199	.000
2	(Constant)		13.589	.000
	Grade	-.377	-9.305	.000
	Group	-.346	8.016	.000
3	(Constant)		10.320	.000
	Grade	-.318	-8.018	.000
	Group	-.390	-10.152	.000
	General Knowledge	.158	3.859	.000
4	(Constant)		9.725	.000
	Grade	-.299	-7.380	.000
	Group	-.376	-9.675	.000
	General Knowledge	.158	3.875	.000
	Age	-.086	2.270	.024

Race was not significant independent predictor of Post-Test General Knowledge scores, even after controlling for Grade, Group, Age, Race and Pre-Test General Knowledge scores. Therefore it was excluded from the regression statement (Table 18B).

Table 18B: Variables Excluded from Regression Statement #4

Model		t	Sig.
1	Group	-9.305	.000
	Age	-3.575	.000
	Race	1.789	.074
	General Knowledge	0.767	.443
2	Age	-2.239	.026
	Race	1.670	.096
	General Knowledge	3.859	.000
3	Age	-2.271	.024
	Race	1.649	.100
4	Race	1.690	.092

All four models: Model 1 (Grade, alone); Model 2 (Grade and Group); Model 3 (Grade, Group, and pre-test General Knowledge Scores) ; and Model 4 (Grade, Group, pre-test General Knowledge Scores, and Age) explained statistically significant ($p \leq .024$) amounts of variance in post-test General Knowledge Scores (Table 18C).

Table 18C: Model Summary for Regression Statement #4

Model	R	R Square	Change Statistics	
			R Square Change	Sig. F Change
1	.407	.166	.166	.000
2	.533	.284	.119	.000
3	.551	.304	.020	.000
4	.558	.311	.007	.024

#5 Outcome (Dependent) Variable: Post-Test STD Knowledge Score

Predictors: age, grade, race, group (participant/control), pre-test STD knowledge

Group (participants=1/controls=2); Grade (7, 8, 9); and pre-test STD Knowledge Scores were significant predictors of post-test STD Knowledge Scores (Table 19A). The coefficient for Group is highest and negative indicating that higher STD Knowledge Scores are associated with participation in the Wise Guys program. The negative coefficient for Grade reflects the fact that seventh graders in this study had higher post-test STD knowledge scores than eight and ninth graders. Including Grade in the equation controls for this difference in the analysis. The coefficient for pre-test STD knowledge is positive, indicating that higher pre-test scores predict higher post-test scores.

Table 19A: Standardized Regression Coefficients for Statistically Significant Independent Variable Predictors of Post-test STD Knowledge Scores (Regression Statement #5)

Model		Standardized Coefficients Beta	t	Sig.
1	(Constant)		39.026	.000
	Group	-.425	-10.594	.000
2	(Constant)		14.206	.000
	Group	-.399	-10.488	.000
	Grade	-.303	-7.968	.000
3	(Constant)		10.771	.000
	Group	-.426	-11.127	.000
	Grade	-.263	-6.709	.000
	STD Knowledge	.145	3.661	.000

Age and Race were not significant predictors of post-test STD knowledge, either independently or after controlling for the other variables in the equation (Table 19B).

Table 19B: Variables Excluded from Regression Statement #5

Model		t	Sig.
1	Age	-2.808	.005
	Grade	-7.968	.000
	Race	-.601	.490
	STD Knowledge	5.547	.000
2	Age	-1.085	.278
	Race	-.013	.990
	STD Knowledge	3.661	.000
3	Age	-1.030	.303
	Race	0.68	.946

All three models: Model 1 (Group, alone); Model 2 (Group and Grade); and Model 3 (Group, Grade, and STD Knowledge) explained statistically significant ($p \leq .000$) amounts of variance in post-test STD Knowledge Scores (Table 19C).

Table 19C: Model Summary for Regression Statement #5

Model	R	R Square	Change Statistics	
			R Square Change	Sig. F Change
1	.425	.181	.181	.000
2	.522	.272	.091	.000
3	.539	.291	.019	.000

#6 Outcome (Dependent) Variable: Post-Test Desirable Attitude Score

Predictors: age, grade, race, group (participant/control), pre-test desirable attitudes

Grade (7, 8, 9), Group (participants=1/controls=2) and pre-test Desirable Attitudes were significant predictors of post-test Desirable Attitude Scores (Table 20A). The coefficient for Group is negative indicating that higher post-test Desirable Attitude Scores were associated with participation in the Wise Guys program. The coefficient for pre-test Desirable Attitudes is positive, indicating that higher pre-test scores predict higher post-test scores. The negative coefficient for Grade reflects the fact that seventh graders in this study had higher post-test Desirable Attitude scores than eight and ninth graders. Including Grade in the equation controls for this difference in the analysis.

Table 20A: Standardized Regression Coefficients for Statistically Significant Independent Variable Predictors of Post-test Desirable Attitude Scores (Regression Statement #6)

Model		Standardized Coefficients	t	Sig.
		Beta		
1	(Constant)		11.763	.000
	Grade	-.403	-9.914	.000
2	(Constant)		12.903	.000
	Grade	-.376	-9.769	.000
	Group	-.306	7.957	.000
3	(Constant)		7.943	.000
	Grade	-.264	-6.306	.000
	Group	-.331	8.821	.000
	Desirable Attitudes	.246	5.881	.000

Age and Race were not significant predictors of post-test Desirable Attitude Scores, either independently or after controlling for the other variables in the equation (Table 20B).

Table 20B: Variables Excluded from Regression Statement #6

Model		t	Sig.
1	Group	-7.957	.000
	Age	-2.930	.004
	Race	.782	.434
	Desirable Attitudes	4.592	.000
2	Age	-1.729	.084
	Race	.995	.320
	Desirable Attitudes	5.881	.000
3	Age	-1.461	.145
	Race	1.362	.174

All three models: Model 1 (Grade, alone); Model 2 (Grade and Group); and Model 3 (Grade, Group and Desirable Attitudes) explained statistically significant ($p \leq .000$) amounts of variance in post-test Desirable Attitude Scores (Table 20C).

Table 20C: Model Summary for Regression Statement #6

Model	R	R Square	Change Statistics	
			R Square Change	Sig. F Change
1	.403	.162	.162	.000
2	.505	.255	.093	.000
3	.550	.303	.048	.000

#7 Outcome (Dependent) Variable: Pre-Test to Post-Test Change in General Knowledge Score

Predictors: age, grade, race, group (participant/control), pre-test general knowledge

Group (participants=1/controls=2), pre-test General Knowledge Score, Grade (7, 8, 9) and Age were significant predictors of pre-test to post-test change in General Knowledge Scores (Table 21A). The coefficient for Group is highest and negative indicating that greater pre-test-to-post-test changes in General Knowledge Scores were associated with participation in the Wise Guys program. The coefficient for Pre-test General Knowledge Scores is also negative, indicating that lower pre-test General Knowledge Scores were associated with greater pre-test-post-test changes. The negative Grade and Age coefficients indicate that greater pre-test-to-post-test changes occurred among seventh grade respondents, and students who were younger, respectively. Including these variables in the equation controls for these differences.

Table 21A: Standardized Regression Coefficients for Statistically Significant Independent Variable Predictors of Pre-Test to Post-Test Changes in General Knowledge Scores (Regression Statement #7)

Model		Standardized Coefficients Beta	t	Sig.
1	(Constant)		10.839	.000
	Group	-.478	-12.260	.000
2	(Constant)		12.815	.000
	Group	-.417	-10.784	.000
	General Knowledge	-.247	-6.387	.000
3	(Constant)		10.079	.000
	Group	-.361	-9.694	.000
	General Knowledge	-.369	-9.295	.000
	Grade	-.305	-7.891	.000
4	(Constant)		9.375	.000
	Group	-.348	-9.230	.000
	General Knowledge	-.370	-9.353	.000
	Grade	-.287	-7.280	.000
	Age	-.077	-2.080	.038

Race was not a significant predictor of pre-test-to-post-test changes in General Knowledge Scores, either independently, or after controlling for the other variables in the equation (Table 21B).

Table 21B: Variables Excluded from Regression Statement #7

Model		t	Sig.
1	Age		.006
	Grade		.000
	Race		.951
	Desirable Attitudes		.000
2	Age		.000
	Race		.000
	Desirable Attitudes		.894
3	Age		.038
	Race		.551
4	Race		.521

All four models: Model 1 (Group, alone), Model 2 (Group and General Knowledge), Model 3 (Group, General Knowledge, and Grade), and Model 4 (Group, General Knowledge, Grade and Age) explained statistically significant ($p \leq .038$) amounts of variance in pre-test-to-post-test changes in General Knowledge Scores (Table 21C).

Table 21C: Model Summary for Regression Statement #7

Model	R	R Square	Change Statistics	
			R Square Change	Sig. F Change
1	.478	.228	.228	.000
2	.535	.286	.057	.000
3	.603	.364	.078	.000
4	.608	.369	.005	.038

#8 Outcome (Dependent) Variable: Pre-Test to Post-Test Change in STD Knowledge

Predictors: age, grade, race, group (participant/control), pre-test STD knowledge

Group (participants=1/controls=2), pre-test STD Knowledge Scores and Grade (7, 8, 9) were significant predictors of pre-test-to-post-test changes in STD Knowledge Scores (Table 22A). The coefficient for Group is highest and negative indicating that greater pre-test-to-post-test changes were associated with participation in the Wise Guys program. The coefficient for pre-test STD knowledge is negative, indicating that greater pre-test-to-post-test changes were associated with lower pre-test scores. The negative coefficient for Grade reflects the fact that seventh graders in this study had greater pre-test-to-post-test changes than eight and ninth graders. Including Grade in the equation controls for this difference in the analysis.

Table 22A: Standardized Regression Coefficients for Statistically Significant Independent Variable Predictors of Pre-Test to Post-Test Changes in STD Knowledge Scores (Regression Statement #8)

Model		Standardized Coefficients Beta	t	Sig.
1	(Constant)		12.293	.000
	Group	-.480	-12.349	.000
2	(Constant)		15.749	.000
	Group	-.419	-11.669	.000
	STD Knowledge	-.370	-10.295	.000
3	(Constant)		10.771	.000
	Group	-.387	-11.127	.000
	STD Knowledge	-.438	-12.187	.000
	Grade	-.238	-6.709	.000

Race and Age were not significant predictors of pre-test-to-post-test changes in STD knowledge, either independently or after controlling for the other variables in the equation (Table 22B).

Table 22B: Variables Excluded from Regression Statement #8

Model		t	Sig.
1	Race	-1.395	.164
	Grade	-3.007	.003
	Age	.025	.980
	STD Knowledge	-10.295	.000
2	Race	-2.421	.016
	Grade	-6.709	.000
	Age	.453	.651
3	Race	-1.030	.303
	Age	.068	.946

All three models: Model 1 (Group, alone), Model 2 (Group and STD Knowledge) and Model 3 (Group, STD Knowledge, and Grade) explained statistically significant ($p \leq .000$) amounts of variance in pre-test-to-post-test changes in STD Knowledge Scores (Table 22C).

Table 22C: Model Summary for Regression Statement #8

Model	R	R Square	Change Statistics	
			R Square Change	Sig. F Change
1	.480	.231	.231	.000
2	.603	.364	.133	.000
3	.645	.416	.052	.000

#9 Outcome (Dependent) Variable: Pre-Test to Post-Test Change in Desirable Attitude Score

Predictors: age, grade, race, group (participant/control), pre-test desirable attitudes

Group (participants=1/controls=2), pre-test Desirable Attitude Scores, and Grade were significant predictors of pre-test-to-post-test changes in Desirable Attitude Scores (Table 23A). The coefficient for Group is highest and negative indicating that greater pre-test-to-post-test changes were associated with participation in the Wise Guys program. The coefficient for pre-test Desirable Attitude Scores is negative, indicating that greater pre-test-to-post-test changes were associated with lower pre-test scores. The negative coefficient for Grade reflects the fact that seventh graders in this study had greater pre-test to post-test changes than eight and ninth graders. Including Grade in the equation controls for this difference in the analysis.

Table 23A: Standardized Regression Coefficients for Statistically Significant Independent Variable Predictors of Pre-Test to Post-Test Changes in Desirable Attitude Scores (Regression Statement #9)

Model		Standardized Coefficients	t	Sig.
		Beta		
1	(Constant)		7.033	.000
	Group	-.385	-9.389	.000
2	(Constant)		9.859	.000
	Group	-.369	-9.358	.000
	Desirable Attitudes	-.260	-6.606	.000
3	(Constant)		7.943	.000
	Group	-.338	-8.821	.000
	Desirable Attitudes	-.383	-8.973	.000
	Grade	-.270	-6.306	.000

Age and Race were not significant predictors of pre-test-to-post-test changes in Desirable Attitude Scores, either independently or after controlling for the other variables in the equation (Table 23B).

Table 23B: Variables Excluded from Regression Statement #9

Model		t	Sig.
1	Age	-1.417	.157
	Grade	-2.320	.021
	Race	1.511	.131
	Desirable Attitudes	-6.606	.000
2	Age	-2.552	.011
	Grade	-6.306	.000
	Race	.974	.330
3	Age	-1.461	.145
	Race	1.362	.174

All three models: Model 1 (Group, alone), Model 2 (Group and pre-test Desirable Attitude Score), and Model 3 (Group, pre-test Desirable Attitude Score, and Grade) explained statistically significant ($p \leq .000$) amounts of variance in pre-test-to-post-test changes in Desirable Attitude Scores (Table 23C).

Table 23C: Model Summary for Regression Statement #9

Model	R	R Square	Change Statistics	
			R Square Change	Sig. F Change
1	.385	.148	.148	.000
2	.464	.215	.068	.000
3	.522	.273	.057	.000

#10 Outcome (Dependent) Variable: Post-Test to Follow-up Change in General Knowledge Score

Predictors: age, grade, race, group (participant/control), pre-test general knowledge

Group (participants=1/controls=2), Grade (7, 8, 9) and pre-test General Knowledge Scores were significant predictors of post-test-to-follow-up changes in General Knowledge Scores (Table 24A). The coefficient for Group is positive indicating that controls showed greater post-test-to-follow-up increases in General Knowledge Scores than Wise Guys participants. However, the follow-up scores for participants were still significantly higher than those of controls. This seeming paradox is considered further in the Discussion section. The coefficient for Grade is also positive, indicating greater post-test-to-follow-up increases for students in grades eight and nine than for students in grade seven. The coefficient for pre-test General Knowledge Scores is negative, indicating that lower pre-test scores were associated with higher post-test-to-follow-up changes in General Knowledge Scores.

Table 24A: Standardized Regression Coefficients for Statistically Significant Independent Variable Predictors of Post-Test to Follow-Up Changes in General Knowledge Scores (Regression Statement #10)

Model		Standardized Coefficients Beta	t	Sig.
1	(Constant)		-10.071	.000
	Group	.343	8.8218	.000
2	(Constant)		-8.787	.000
	Group	.317	7.959	.000
	Grade	.289	7.254	.000
3	(Constant)		-6.260	.000
	Group	.356	8.617	.000
	Grade	.236	5.505	.000
	General Knowledge	-.141	-3.196	.001

Age and Race were not significant predictors of post-test-to-follow-up changes in General Knowledge, either independently or after controlling for the other variables in the equation (Table 24B).

Table 24B: Variables Excluded from Regression Statement #10

Model		t	Sig.
1	Age	3.183	.002
	Grade	7.254	.000
	Race	-.584	.559
	General Knowledge	-5.627	.000
2	Age	1.629	.104
	Race	-1.275	.203
	General Knowledge	-3.196	.001
3	Age	1.602	.110
	Race	-1.202	.230

All three models: Model 1 (Group, alone), Model 2 (Group and Grade), and Model 3 (Group, Grade and pre-test General Knowledge Scores) explained statistically significant ($p \leq .001$) amounts of variance in post-test-to-follow-up changes in General Knowledge Scores (Table 24C).

Table 24C: Model Summary for Regression Statement #10

Model	R	R Square	Change Statistics	
			R Square Change	Sig. F Change
1	.343	.117	.117	.000
2	.448	.200	.083	.000
3	.465	.216	.016	.001

#11 Outcome (Dependent) Variable: Post-Test to Follow-up Change in STD Knowledge Score

Predictors: age, grade, race, group (participant/control), pre-test STD knowledge

Group (participants=1/controls=2), Grade (7, 8, 9) and pre-test STD Knowledge Scores were significant predictors of post-test-to-follow-up changes in STD Knowledge Scores (Table 25A). The coefficient for Group is positive indicating that controls showed greater post-test-to-follow-up increases in STD Knowledge Scores than Wise Guys participants. However, the follow-up scores for participants were still significantly higher than those of controls. This seeming paradox is considered further in the Discussion section. The coefficient for Grade is also positive, indicating greater post-test-to-follow-up increases for students in grades eight and nine than for students in grade seven. The coefficient for pre-test STD Knowledge Scores is negative, indicating that lower pre-test scores were associated with higher post-test-to-follow-up changes in STD Knowledge Scores.

Table 25A: Standardized Regression Coefficients for Statistically Significant Independent Variable Predictors of Post-Test to Follow-Up Changed in STD Knowledge Scores (Regression Statement #11)

Model		Standardized Coefficients	t	Sig.
		Beta		
1	(Constant)		-9.614	.000
	Group	.333	7.966	.000
2	(Constant)		-7.448	.000
	Group	.312	7.680	.000
	Grade	.244	5.997	.000
3	(Constant)		-5.282	.000
	Group	.333	8.079	.000
	Grade	.213	5.060	.000
	STD Knowledge	-.110	-2.580	.010

Age and Race were not significant predictors of post-test-to-follow-up changes in STD Knowledge, either independently or after controlling for the other variables in the equation (Table 25B).

Table 25B: Variables Excluded from Regression Statement #11

Model		t	Sig.
1	Age	2.485	.013
	Grade	5.997	.000
	Race	.178	.859
	STD Knowledge	-4.075	.000
2	Age	1.159	.247
	Race	-.358	.720
	STD Knowledge	-2.580	.010
3	Age	1.117	.264
	Race	-.417	.677

All three models: Model 1 (Group, alone), Model 2 (Group and Grade), and Model 3 (Group, Grade and pre-test STD Knowledge Scores) explained statistically significant ($p \leq .010$) amounts of variance in post-test-to-follow-up changes in General Knowledge Scores (Table 25C).

Table 25C: Model Summary for Regression Statement #11

Model	R	R Square	Change Statistics	
			R Square Change	Sig. F Change
1	.333	.111	.111	.000
2	.412	.170	.059	.000
3	.425	.181	.011	.010

#12 Outcome (Dependent) Variable: Post-Test to Follow-up Change in Desirable Attitude Score

Predictors: age, grade, race, group (participant/control), pre-test desirable attitudes

Group (participants=1/controls=2), Grade (7, 8, 9) and pre-test Desirable Attitude Scores were significant predictors of post-test-to-follow-up changes in Desirable Attitude Scores (Table 26A). The coefficient for Group is positive indicating that controls showed greater post-test-to-follow-up increases in Desirable Attitude Scores than Wise Guys participants. However, the follow-up scores for participants were still significantly higher than those of controls. This seeming paradox is considered further in the Discussion section. The coefficient for Grade is also positive, indicating greater post-test-to-follow-up increases for students in grades eight and nine than for students in grade seven. The coefficient for pre-test Desirable Attitude Scores is negative, indicating that lower pre-test scores were associated with higher post-test-to-follow-up changes in Desirable Attitude Scores.

Table 26A: Standardized Regression Coefficients for Statistically Significant Independent Variable Predictors of Post-Test to Follow-Up Changes in Desirable Attitude Scores (Regression Statement #12)

Model		Standardized Coefficients Beta	t	Sig.
1	(Constant)		-9.423	.000
	Group	.316	7.497	.000
2	(Constant)		-8.428	.000
	Group	.291	7.202	.000
	Grade	.283	7.001	.000
3	(Constant)		-5.642	.000
	Group	.303	7.498	.000
	Grade	.228	5.057	.000
	Desirable Attitudes	-.120	-2.668	.008

Age and Race were not significant predictors of post-test-to-follow-up changes in Desirable Attitude Scores, either independently or after controlling for the other variables in the equation (Table 26B).

Table 26B: Variables Excluded from Regression Statement #12

Model		t	Sig.
1	Age	2.854	.004
	Grade	7.001	.000
	Race	-.661	.509
	Desirable Attitudes	-5.451	.000
2	Age	1.334	.183
	Race	-1.331	.184
	Desirable Attitudes	-2.668	.008
3	Age	1.196	.232
	Race	-1.492	.136

All three models: Model 1 (Group, alone), Model 2 (Group and Grade), and Model 3 (Group, Grade and pre-test Desirable Attitude Scores) explained statistically significant ($p \leq .008$) amounts of variance in post-test-to-follow-up changes in General Knowledge Scores (Table 26C).

Table 26C: Model Summary for Regression Statement #12

Model	R	R Square	Change Statistics	
			R Square Change	Sig. F Change
1	.316	.100	.100	.000
2	.423	.179	.079	.000
3	.436	.190	.011	.008

Table 27: Summary of Regression Analyses

OUTCOMES		STATISTICALLY SIGNIFICANT PREDICTORS (ranked in order of importance; independent of other variables in the equation)
Pre-test	General Knowledge	Grade (I)* / Group
	STD Knowledge	Grade (I) / Group
	Desirable Attitude	Grade (I) / Race / Group
Post-Test	General Knowledge	Group / Pre-Test General Knowledge / Age (I)
	STD Knowledge	Group / Pre-Test STD Knowledge
	Desirable Attitude	Pre-Test Desirable Attitudes / Group / Race
Pre-Test to Post-Test Change	General Knowledge	Group / Pre-Test General Knowledge / Grade (I) / Age (I)
	STD Knowledge	Group / Pre-Test STD Knowledge / Grade (I)
	Desirable Attitude	Group / Pre-Test STD Knowledge / Grade (I) / Race
Post-Test to Follow-up Change	General Knowledge	Group / Grade / Pre-test General Knowledge / Race
	STD Knowledge	Group / Grade / Pre-test STD Knowledge
	Desirable Attitude	Group / Grade / Pre-test Desirable Attitudes

*(I) signifies an inverse relationship.

PART 3: ANALYSES OF THE INDIVIDUAL ITEMS ACROSS DATA POINTS THAT ASSESS GENERAL KNOWLEDGE, STD KNOWLEDGE AND ATTITUDE

Item Analyses

Item analyses were performed to test the consistency of the findings seen in the analyses of the composite knowledge and attitude items. Comparisons are on pre-test-to-post-test changes. The item analyses support the findings of increased knowledge and desirable attitudes associated with participation in the Wise Guys curriculum. Item analysis tables are on the next three pages.

General Knowledge Items

Participants: There were pre-test to post-test increases in all thirteen General Knowledge items. The average increase was 19.4 percentage points.

Controls: There were pre-test to post-test increases in six General Knowledge items, that averaged 4.6 percentage points. Six other items decreased and there was no change in one item.

STD Knowledge Items

Participants: There were pre-test to post-test increases in six of the eight STD Knowledge items. The average increase was 23.1 percentage points.

Controls: There were pre-test to post-test increases in two STD Knowledge items, that averaged 4.6 percentage points. Five other items decreased and there was no change in one item.

Attitude Items

Participants: There were pre-test to post-test increases in all fourteen Desirable Attitude items. The average increase was 19.4 percentage points.

Controls: There were increases in five Desirable Attitude items, that averaged 7.4 percentage points. Eight other items decreased and there was no change in one item.

Table 28A: WISE GUYS Evaluation Item Analysis—GENERAL KNOWLEDGE*

Survey Item	Group	Measure	Pre-	Post-	Δ
Q1k	control	% correct	75.9	75.2	-0.4
	intervention		73.0	94.5	21.5
Q2k	control	% correct	38.3	37.6	-0.7
	intervention		37.5	79.7	42.2
Q3k	control	% correct	61.0	61.0	0
	intervention		58.2	84.4	26.2
Q4k	control	% correct	62.4	70.9	8.5
	intervention		61.3	91.0	29.7
Q5k	control	% correct	84.4	74.5	-9.9
	intervention		85.5	93.0	7.5
Q6k	control	% correct	78.7	74.5	-4.2
	intervention		82.4	88.7	6.3
Q8k	control	% correct	52.5	61.0	8.5
	intervention		53.9	71.9	8.0
Q11k	control	% correct	61.7	66.0	4.3
	intervention		67.6	71.9	4.3
Q20k	control	% correct	46.8	48.9	2.1
	intervention		46.4	77.3	30.9
Q21k	control	% correct	51.1	46.8	-4.3
	intervention		43.8	77.3	33.5
Q22k	control	% correct	29.8	32.6	2.8
	intervention		27.0	66.0	39.0
Q30k	control	% correct	89.4	87.9	-1.5
	intervention		87.9	89.5	1.6
Q31k	control	% correct	83.0	84.4	1.4
	intervention		83.6	84.8	1.2

*Respondents with pre-test and post-test data: controls n=141; participants n=256.

Table 28b: WISE GUYS Evaluation Item Analysis—STD KNOWLEDGE*

Survey Item	Group	Measure	Pre-	Post-	Δ
STDa	control	% correct	87.9	78.0	-9.9
	intervention		82.8	87.5	4.7
STDb	control	% correct	81.6	88.7	7.1
	intervention		73.8	92.6	18.8
STDc	control	% correct	92.2	94.3	2.1
	intervention		93.8	92.2	-1.6
STDd	control	% correct	90.8	90.8	0
	intervention		82.0	93.4	11.4
STDe	control	% correct	100	90.1	-9.9
	intervention		100	92.6	-7.4
STDf	control	% correct	84.4	83.7	-0.7
	intervention		73.0	93.4	20.4
STDg	control	% correct	21.3	12.8	-8.5
	intervention		22.7	80.9	58.2
STDh	control	% correct	59.3	53.2	-6.1
	intervention		53.5	78.5	25.0

*Respondents with pre-test and post-test data: controls n=141; participants n=256.

Table 28C: WISE GUYS Evaluation Item Analysis—DESIRABLE ATTITUDES*

Survey Item	Group	Measure	Pre-	Post-	Δ
Q7a	control	% desirable	46.8	36.2	-10.6
	intervention		41.8	51.2	9.4
Q9a	control	% desirable	33.3	38.3	5.0
	intervention		36.3	59.0	22.7
Q10a	control	% desirable	73.8	73.6	-0.2
	intervention		67.2	75.0	7.8
Q12a	control	% desirable	55.3	53.9	-1.4
	intervention		60.5	68.0	7.5
Q13a	control	% desirable	25.5	22.0	-3.5
	intervention		24.6	32.4	7.8
Q14a	control	% desirable	75.2	70.9	-4.3
	intervention		81.6	82.8	1.2
Q15a	control	% desirable	49.6	67.4	17.8
	intervention		47.3	63.7	16.4
Q16a	control	% desirable	66.7	66.0	-0.3
	intervention		73.8	77.3	3.5
Q17a	control	% desirable	18.4	24.1	5.7
	intervention		26.6	50.0	23.4
Q18a	control	% desirable	53.2	57.4	4.2
	intervention		52.7	63.7	11.0
Q19a	control	% desirable	63.8	63.1	-0.7
	intervention		69.9	81.3	11.4
Q24a	control	% desirable	91.5	95.7	4.2
	intervention		89.1	94.1	5.0
Q25a	control	% desirable	92.9	87.9	-5.0
	intervention		87.1	92.2	5.1
Q26a	control	% desirable	83.7	83.7	0
	intervention		87.1	87.9	0.8

* Respondents with pre-test and post-test data: controls n=141; participants n=256.

Outcomes: Behaviors

Three self-reported behaviors are measurable with the data gathered by the Wise Guys evaluation instruments: initiation of sexual intercourse, use of condoms to prevent unplanned pregnancy and frequency of contraception.

Initiation of Sexual Intercourse

The question, “Have you ever had sexual intercourse (made love, gone all the way)?” is on the Wise Guys evaluation instruments for all three data points: pre-test, post-test and 6-month follow-up. Thirty-one control and 57 intervention respondents answered this question affirmatively on pre-test. These represented fourteen percent and twenty percent of the control and intervention pre-test respondents, respectively.

Of the sexually active pre-test respondents, 16 of 31 control (52%) and 41 of 57 (72%) of participants reported that they were under 13 years of age the first time they had sex. The reported mean ages of first intercourse among these sexually active respondents were 10.7 and 11.6 years for participants and controls, respectively. These numbers represent 14 percent of participants and 7 percent of controls.

Among the smaller numbers of respondents with data for all three data points, the percentages of positive responses to the question of “Ever” having had sexual intercourse increased at each data point (Table 29). Although at each data point the rate for participants was higher than that for controls, the increases for participants and controls were roughly parallel. The Chi-square test for goodness-of-Fit indicated that the rate of increase in initiation of sexual activity among controls from pre-test to follow-up was significantly higher than the rate of increase among participants ($X^2 = 6.37$, 2 d.f., $p < .05$).

Table 29: Respondents with Three Data Points Who Reported “Ever” Having Had Sexual Intercourse, Guilford County (NC) Males in Study, Grades 7, 8 & 9: Fall 2005 through Spring 2007

Numbers and (Percentages) of Respondents Reporting “Ever” Having Sexual Intercourse			
	PRE-TEST	POST-TEST	FOLLOW-UP
PARTICIPANTS (N=137)	20 (14.6)	23 (16.8)	37 (27.0)
CONTROLS (N=106)	4 (3.8)	8 (7.5)	20 (18.8)

Use of Condoms to Prevent Unplanned Pregnancy

The question, “What did you or your partner use or do to stop a pregnancy the last time you had sexual intercourse?” is on the Wise Guys evaluation instruments for all three data points: pre-test, post-test and 6-month follow-up. A list of six options was provided for in response. Two of the options included condoms: “used birth control pills with condom (rubber)” and “used a condom (rubber) alone.” The rate of positive responses to the combined condom options increased substantially from post-test to follow-up in both the participant and control groups.

At each data point the rates of condom use for participants were higher than those for controls (Table 30A). However, because of the small numbers there are no statistically significant differences in the tabulated data between participants and controls in these rates.

Table 30A: Sexually Active Respondents with Three Data Points Who Reported Using Condoms the “Last Time” They had Sexual Intercourse, Guilford County (NC) Males in Study, Grades 7, 8 & 9: Fall 2005 through Spring 2007

Numbers and (Percentages) of Respondents Reporting Using Condoms the Last Time They had Sexual Intercourse			
	PRE-TEST	POST-TEST	FOLLOW-UP
PARTICIPANTS	8/20 (40.0)	9/23 (39.1)	22/37 (59.5)
CONTROLS	0/4 (0.0)	1/8 (12.5)	6/20 (30.0)

Another way of looking at the condom use data is by assessing the rates of conversion to condom use among sexually active participants and controls (Table 30B). The numbers are too low for pre-test to post-test comparisons. However, compared to controls the rates of conversion of sexually active participants to condom use are 50 percent ($42.9/28.6 = 1.5$) and 65 percent ($41.2/25 = 1.65$) higher among non-users at post-test and among those who initiated sexual activity after post-test, respectively.

Table 30B: Sexually Active Respondents with Three Data Points Who Reported Using Condoms the “Last Time” They had Sexual Intercourse, Guilford County (NC) Males in Study, Grades 7, 8 & 9: Fall 2005 through Spring 2007

	Sexually Active Respondents at Post-Test Who Reported NOT Using Condoms at Post-Test, But Who Reported Using Them at Follow-Up	Respondents Who Initiated Sexual Activity After Post-Test, And Who Reported Using Condoms at Follow-Up
PARTICIPANTS	6/14 (42.9)	7/17 (41.2)
CONTROLS	2/7 (28.6)	3/12 (25.0)

Frequency of Contraception

The question, “How often have you or your partner(s) used or done something to stop a pregnancy?” is on the Wise Guys evaluation instruments for all three data points: pre-test, post-test and 6-month follow-up. A 5-point Likert-like scale ranging from “never” to “every time” was provided for response.

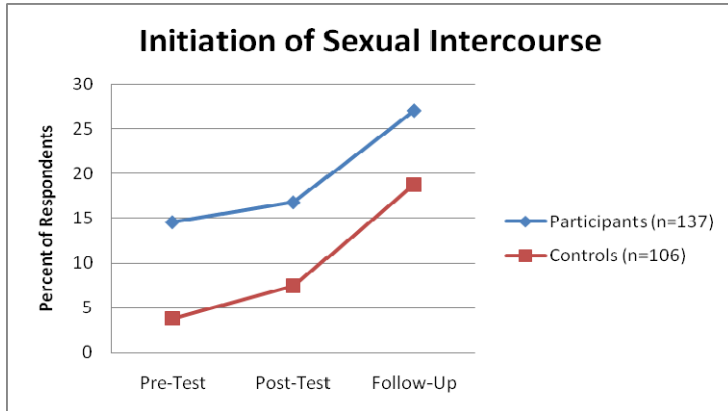
Among participants the rate of “every time” responses was essentially flat from pre-test to post-test (Table 31). However, the small numbers of sexually active respondents in the control group contributed to no significant differences in rates of contraception use at pre-test and post-test. However, from post-test to follow-up there was a strong increase in contraception use among participants. A similar increase did not occur among controls. This difference at follow-up was statistically significant ($X^2 = 7.10$, 1 d.f., $p < .05$).

Condom use by itself could not be measured separately because the numbers of respondents were too low for reliable estimates.

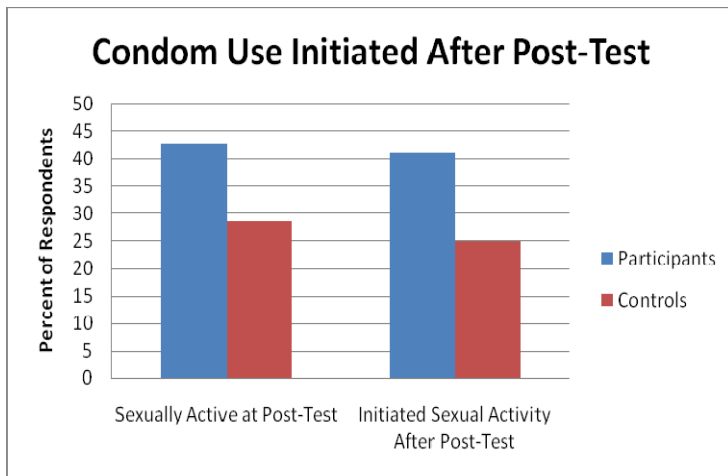
Table 31: Sexually Active Respondents with Three Data Points Who Reported Using Contraception Every Time They Have Sexual Intercourse, Guilford County (NC) Males in Study, Grades 7, 8 & 9: Fall 2005 through Spring 2007

Numbers and (Percentages) of Respondents Reporting Using Contraception Every Time They Have Sexual Intercourse			
	PRE-TEST	POST-TEST	FOLLOW-UP
PARTICIPANTS	9/20 (45.0)	11/23(47.8)	23/43 (53.5)
CONTROLS	2/4 (50.0)	2/8 (25.0)	5/20 (25.0)

CHARTS DEPICTING RATES OF INITIATION OF SEXUAL INTERCOURSE, INITIATION OF
 CONDOM USE AFTER POST-TEST, AND USE OF CONTRACEPTION "EVERY TIME"

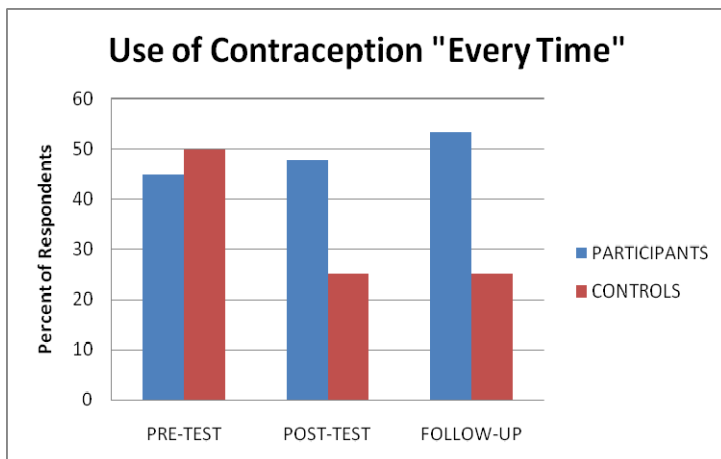


Percent of:	Pre-Test	Post-Test	Follow-Up
Participants (n=137)	14.6	16.8	27.0
Controls (n=106)	3.8	7.5	18.8



Percent of:	Sexually Active at Post-Test	Initiated Sexual Activity After Post-Test
Participants	42.9	41.2
Controls	28.6	25

The numbers of participants and controls vary in these cells. Refer to Table 30B.



Percent of:	Pre-Test	Post-Test	Follow-Up
Participants	45	47.8	53.5
Controls	50	25	25

The numbers of participants and controls vary in these cells. Refer to Table 31.

Regression Analyses of Behavioral Outcomes
Condom Use

The strongest predictor of condom use “the last time you had sexual intercourse” was participation in the Wise Guys curriculum. Age was also a significant predictor, with older students more likely to have used a condom. Grade and Race were also in the equation, but they were not significant predictors.

Table 32: Standardized Regression Coefficients for Independent Variables with Statistically Significant associations with Condom Use

Model		Standardized Coefficients	t	Sig.
		Beta		
1	(Constant)	-.503	5.208	.000
	Group	.527	3.632	.001
	Age	.289	2.179	.036

Contraception

The strongest and only statistically significant predictor of contraception use “every time” was participation in the Wise Guys curriculum. Age, Grade and Race were also in the equation, but they were not significant predictors.

Table 32: Standardized Regression Coefficients for Independent Variables with Statistically Significant associations with Contraception

Model		Standardized Coefficients	t	Sig.
		Beta		
1	(Constant)		4.723	.000
	GROUP CODE	-.463	-3.261	.002

DISCUSSION

This evaluation demonstrates that the middle school male students in this study who participated in the Wise Guys program attained significantly increased general knowledge of sex and reproductive behavior, significantly increased knowledge of STD transmission and more desirable attitudes toward sex and appropriate behavior in sexual relationships than the comparable group of male students who received only the Standard Course of Study.

These statistically significant increases in knowledge and desirable attitudes among participants occurred despite the facts that the controls included more older students, and that controls had significantly higher General Knowledge and STD Knowledge scores on pre-tests.

There is an apparent paradox in the results comparing post-test to follow-up scores on general knowledge, STD knowledge and attitude scores in that controls had greater increases in these scores. The reasons for the greater score increases by controls might be related to the greater room for improvement provided by their lower starting points with lower post-test scores, combined with the knowledge gained from their peers (including participants) and from instruction in the Healthful Living Standard Course of Study provided to all students. Nevertheless, participants still had significantly higher scores on follow-up.

Regression analyses confirmed that participation in the Wise Guys program was a stronger predictor of knowledge increases and attitude change than age, race, grade-in-school, or pre-test knowledge and attitude scores. The Item Analyses documented the effectiveness of the Wise Guys program in increasing knowledge and changing attitudes across the broad range of topics covered by the curriculum.

Favorable behavioral changes were also evident among sexually active Wise Guys participants. Although at all three data points a higher percentage of participants than controls reported having had sexual intercourse, the pre-test to follow-up rate of increase in initiation of sexual activity was higher among controls. There was no evidence that participants initiated sexual intercourse at an increased rate following their participation in Wise Guys. Moreover, sexually active participants reported higher rates of condom use at all three data points, with a notably strong increase between post-test

and six-months follow-up. Also at follow-up, a significantly higher percentage of sexually active participants reported using contraception “every time” they have sexual intercourse. Regression analyses confirmed that participation in the Wise Guys program was a stronger predictor of condom use and contraception than age, race, grade-in-school or pre-test knowledge and attitude scores.

The overall rate of sexually active students in this study, combining intervention and control groups, was just under 17 percent. There are no national data for this age group for comparison. The Youth Risk Behavior Survey conducted by the CDC obtains data on sexual activity only from high school students. However, the rate of students reporting their first intercourse before age 13 in this study (10.8%) is comparable to the estimated YRBS rate for teens (10.1 %, with a possible range of between 8.6 and 12 percent). (17)

A persistent challenge for all longitudinal studies is the loss of participants at data points beyond the baseline. Generally the longer the duration of a study the greater the attrition (15). This reduces not only the statistical power of the outcome assessments, but also the credibility of the study because continuing participants may differ from drop-outs in ways pertinent to the outcomes (16). In this study incentives were offered to students in the control group to take the pre-test and post-test, and to both participant and control students to take the six-month follow-up evaluation. Yet even with these inducements there was modest attrition at post-test, and pronounced attrition at six-month follow-up. Further exploration of strategies for reducing attrition is warranted.

The significance of attrition goes beyond the immediate challenge it presented to this evaluation. It is relevant to the long term impact of educational outreach programs, such as Wise Guys, in that their success is likely to be improved with booster interventions (18). The post-test-to-follow-up decays in the effects of the Wise Guys intervention that are evident in the data presented here attest to the need for follow-up interventions. The barriers to achieving effective long-term follow-up for booster interventions are the same barriers that contribute to low attrition rates. Mainly they are that substantial resource investments are required, typically person-hours to follow-up lost participants, and/or tangible incentives to participants to stay in contact (19). Without special funding most community and clinical non-profits cannot afford to do this.

The conceptual framework of the Wise Guys program has theoretical roots in the Health Belief Model and in the theories of Reasoned Action and Planned Behavior. These are cognitive theories of behavior, which in addition to knowledge, identify attitudes, cues to action, and environmental enabling/facilitating factors as influences in bringing about desired behavior (20). However, because sexual behavior is usually not directly observed, and we are not fully aware of the cues to action and enabling factors that influence sexual behavior, these theories are of limited utility as a template for evaluating the Wise Guys program. The measured variables in this study consisted of only knowledge, attitudes and self-reported behavior. The operational model is thereby simplified to the expectation that by increasing knowledge we can change attitudes and influence behavior (KAB). Although this framework is common to many (perhaps most) health promotion and health education efforts, it is widely recognized to be incomplete, and includes assumptions about relationships between knowledge, attitudes and behavior that may be tenuous (21). Despite these limitations the results of this study appear to support the basic KAB assumptions.

However, in one important respect our focus on measurement of knowledge, attitudes and behavior ignores a key aspect of the Wise Guys program that contributes to its success. As an educational program delivered in schools and community sites, Wise Guys is an outreach program. It is delivered to young men where they are. In the KAB model outreach is probably best characterized as an enabling factor, not an outcome. Empirically, outreach has been shown to be an essential characteristic of successful male programming (22). Unfortunately, outreach is often seen by administrators and providers of community and clinic services as draining resources away from other more pressing activities. Further studies and discussions are needed to characterize and measure outreach, so that ways can be found to effectively and efficiently integrate it into existing programming.

The results reported here for the Wise Guys program were achieved under favorable circumstances. Participants had active parental consent; the curriculum was delivered in a classroom setting by trained educators; the program had the formal approval of the school administration, and received support from school principals and guidance counselors. It is not possible to extrapolate directly from these results to what can be expected in other groups of adolescent males. Settings and circumstances will inevitably differ, and so, therefore, will results. However, these results provide a benchmark of

what can be achieved, and they provide a rationale for implementing the program with the expectation that it can have favorable impacts on adolescent male knowledge, attitudes and behaviors.

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