

Evaluation of Abstinence Only Education in Iowa

Year Five Report

Edward J. Saunders, Ph.D., M.P.H.

Miriam J. Landsman, Ph.D., M.S.W.

Nancy M. Graf, B.A.

Brad Richardson, Ph.D.

University of Iowa School of Social Work
National Resource Center for Family Centered Practice
100 Oakdale Campus, W206 OH
Iowa City, Iowa 52242-5000

October, 2003

*Iowa Department of Public Health
Hoover State Office Building
Des Moines, IA 50309*

Table of Contents

	Page Number
INTRODUCTION	5
BACKGROUND	5
METHODOLOGY	8
Bethany Education Program.....	8
Empower Education Program.....	8
Empower Community Program.....	8
I-35 Educational Program.....	9
Linn County Education Program.....	9
Linn County Community Program.....	10
Instruments.....	10
RESULTS	11
BETHANY CHRISTIAN SERVICES EDUCATION PROGRAM	
PRETEST-POSTTEST 2002-2003	12
A. Demographics of Program Participants (N=91).....	12
B. Pretest-Posttest Comparisons.....	13
C. Responses to Program Objectives.....	16
D. Comparison of Gender and Grade.....	18
E. Summary and Discussion.....	21
BETHANY CHRISTIAN SERVICES EDUCATION PROGRAM	
POSTTEST ONLY 2002-2003	23
A. Demographics of Program Participants (N=490).....	23
B. Responses to Program Objectives	24
C. Summary and Discussion	25
EMPOWER PELLA EDUCATION PROGRAM PRETEST POSTTEST 2002-2003	26
A. Demographics of Program Participants (N=127).....	26
B. Pretest-Posttest Comparisons.....	27
C. Responses to Program Objectives.....	30
D. Comparison of Gender and Grade.....	32
E. Summary and Discussion.....	34
I-35 JUNIOR HIGH SCHOOL EDUCATION PROGRAM	
PRETEST-POSTTEST 2002-2003	36
A. Demographics of Program Participants (N=137).....	36
B. Pretest-Posttest Comparisons.....	37
C. Responses to Program Objectives.....	40
D. Comparison of Gender and Grade.....	42
E. Summary and Discussion.....	45
LINN COUNTY EDUCATION PROGRAM PRETEST-POSTTEST 2002-2003	46
A. Demographics of Program Participants (N=725).....	46
B. Pretest-Posttest Comparisons.....	47
C. Responses to Program Objectives.....	50
D. Comparison of Gender and Grade.....	52
E. Summary and Discussion.....	55

	Page Number
EMPOWER COMMUNITY PROGRAM PRETEST POSTTEST 2002-2003.....	57
A. Demographics of Program Participants (N=358).....	57
B. Pretest-Posttest Comparisons.....	59
C. Responses to Program Objectives.....	63
D. Comparison of Gender and Grade.....	65
E. Summary and Discussion.....	68
LINN COUNTY COMMUNITY PROGRAM 2002-2003.....	69
A. Demographics of Program Participants.....	69
B. Responses to Evaluation Questions	69
CONCLUSION: SUMMARY AND COMPARISON ABSTINENCE ONLY PROGRAMS.....	71
COMPARISON OF ABSTINENCE ONLY AND ADOLESCENT PREGNANCY PREVENTION	77
REFERENCES.....	81
APPENDIX A: SAMPLE DATA COLLECTION INSTRUMENTS	83

List of Tables

	Page Number
Table 1. Bethany Christian Services Pretest-Posttest Comparison.....	14
Table 2. Bethany Christian Services Behavioral Questions.....	16
Table 3. Bethany Christian Services Program Objectives.....	16
Table 4. Bethany Christian Services Content Items.....	17
Table 5. Bethany Christian Services Means by Gender.....	18
Table 6. Bethany Christian Services Means by Grade.....	20
Table 7. Bethany Christian Services Posttest Only Content Items.....	24
Table 8. Empower Pella Pretest-Posttest Comparison.....	28
Table 9. Empower Pella Behavioral Questions.....	29
Table 10. Empower Pella Program Objectives.....	30
Table 11. Empower Pella Content Items.....	30
Table 12. Empower Pella Means by Gender.....	32
Table 13. Empower Pella Means by Grade.....	33
Table 14. I-35 Junior High School Pretest-Posttest Comparison.....	38
Table 15. I-35 Junior High School Behavioral Questions.....	40
Table 16. I-35 Junior High School Program Objectives.....	40
Table 17. I-35 Junior High School Content Items.....	41
Table 18. I-35 Junior High School Means by Gender.....	42
Table 19. I-35 Junior High School Means by Grade.....	44
Table 20. Linn County Pretest-Posttest Comparison.....	48
Table 21. Linn County Behavioral Questions.....	50
Table 22. Linn County Program Objectives.....	50
Table 23. Linn County Content Items.....	51
Table 24. Linn County Means by Gender.....	52
Table 25. Linn County Means by Grade.....	54
Table 26. Empower Community Site Demographics.....	58
Table 27. Empower Community Pretest-Posttest Comparison.....	60
Table 28. Empower Community pretest-Posttest Comparison by Site.....	62
Table 29. Empower Community Behavioral Questions.....	63
Table 30. Empower Community Program Objectives.....	63
Table 31. Empower Community Content Items.....	64
Table 32. Empower Community Means by Gender.....	65
Table 33. Empower Clarinda Community Means by Grade.....	67
Table 34. Significance of Results Across Programs for 1999, 2000, 2001, and 2002.....	73
Table 35. Affirmative Responses to Behavioral Questions Across Programs.....	76
Table 36. 2003 Mean Scores for Abstinence Only and APP Program.....	78

INTRODUCTION

This report presents evaluation results from the fifth year of the Abstinence Education Program, Iowa Department of Public Health. This program, funded through Section 510 of Title V (Maternal and Child Health Block Grant) of the Social Security Act, has as its primary goal to reduce the incidence of teen pregnancy and sexually transmitted diseases through abstinence only education. To achieve this goal, four education programs and two community programs have received funding to provide abstinence only education in Iowa. The evaluation of the education and community programs has been conducted by the National Resource Center for Family Centered Practice, University of Iowa School of Social Work.

Background

Teenage pregnancy continues to be a major public health concern both in Iowa and across the nation. While trends show a decline in the rate of teen births, percentages of teen births to unmarried teens are higher than in the previous decade (Ventura, Matthews, and Hamilton, 2001). Teen births have been shown to be more prevalent in some segments of the population (Trent and Crowder, 1997), but teen births do occur in every socioeconomic and ethnic group. In each case, the teen parents and their children are at risk.

A number of problems continue to be associated with teenage pregnancy, both for the parent and the child. The pregnancy itself carries higher risk. Teen mothers are less likely to receive early prenatal care and more likely to smoke during pregnancy. Babies born to teenage mothers are more likely to be born early, have a low birth weight, and die within the first year. Teen parents demonstrate a lack of skills and knowledge about child development and childcare, poor life skills, and limited social supports. Adolescent mothers are less likely to complete their education, giving them a poorer background with which to enter the labor force and increasing the chance that they and their children will fall into poverty. Financial instability also increases the potential for receiving public assistance. The stresses of teen parenting, with the mixture of poor life skills, little parenting knowledge and immaturity, sometimes result in child abuse and neglect. (Alan Guttmacher Institute, 1994; Kirby, Short, Collins, Rugg, Kolbe, Howard, Miller, Sonenstein, and Zabin, 1994; Maynard, 1997; Kids Count, 1998; National Campaign to Prevent Teen Pregnancy, 1997, 2002; Ventura, Matthews, and Hamilton, 2001; Sawhill, 2001)

Recent national statistics show that the rate of births to teens 15 to 19 years old has fallen from a recent high of 62.1/1000 in 1991 to 45.3/1000 in 2001 (Ventura, Hamilton and Sutton, 2003), and preliminary data for 2002 show this trend continuing, with a rate of 42.9/1000 (Hamilton, Martin, and Sutton, 2003)). Iowa trends show a similar decrease from 42.6/1000 in 1991 to 33.0/1000 in 2001 (Martin, Hamilton, Ventura, Menacker, Park, and Sutton, 2002). While the decline represents a welcome reversal of an increase in teen births experienced in the late 1980's, it is countered by a continuing rise in the percentage of births to unmarried 15 to 19 year olds, which rose nationally from 67% in 1990 to 78.9% in 2001 (Martin et. al. 2002). Similarly, the percentage

of births to all Iowa unmarried teens (aged 12 to 19) rose from 80.1% in 1996 to 85.7% in 2002. Births to teens as a percentage of total births in Iowa have declined from 11.0% in 1995 to 9.1% in 2002. While the total number of births to teens in Iowa has declined from 4096 in 1996 to 3,420 in 2002, this still represents over 3,400 children in the state who are at risk. In addition, the percentage of teens in Iowa who are sexually active remains high, with 42.9% of high school students surveyed reporting that they have had intercourse and 33.7% reporting that they are currently sexually active. (Grunbaum et al., 2002). Census data (U.S. Census Bureau, 2001) indicate that there are 226,420 youth in Iowa between 14 and 19 years of age, which would mean that there are currently over 75,000 teens in Iowa who are sexually active. These numbers underscore the continuing presence of teen pregnancy in the nation and in Iowa.

The continued problem of “children having children” has encouraged health and human services providers to create an array of prevention programs to combat this problem. During the last 20 years, the use of abstinence-only education programs to address this problem has increased dramatically. Forty-seven states, including Iowa, currently receive Title V funding for abstinence education programs (Pfau and Lee, 1999). More than 700 abstinence education programs are funded under Section 510, sponsoring classes and activities, and providing information throughout the country. (Devaney, Johnson, Maynard and Trenholm, 2002)

Evaluation of abstinence education programs is still developing. A number of evaluations of adolescent pregnancy programs have been undertaken in recent years (Franklin, Grant, Corcoran, Miller, and Bultman, 1997; Manlove et al, 2002), but few published studies focus specifically on abstinence education (Pfau and Lee, 1999). Frequently, descriptions of large national programs and their evaluation methodology and results can be found (Kirby et al., 1994; Kirby et al, 1997; Franklin and Corcoran, 2000, Kirby et al, 2001). In other cases single site projects are evaluated (see examples in Franklin et al., 1997; Frost and Forrest, 1995; Kirby et al., 1994; Lieberman et al., 2000; Barnett and Hurst, 2003).

Cross-site evaluation of a number of distinct pregnancy prevention programs across a state, as designed and implemented under this grant, are becoming more common as efforts to monitor programs improve (United States General Accounting Office, 1998). This cross-site approach allows a similar evaluation methodology over a number of varying programs, thus making it easier to compare results from diverse sites and avoid problems of differing evaluation methodology and data collection often found in secondary analyses of multiple programs.

Kirby et al. (1994) did look specifically at three evaluations of abstinence education programs but concluded that there was not sufficient evidence of an effect on either attitudes or behavior to warrant conclusions on the programs’ effectiveness. In a comprehensive review of evaluation research on programs to prevent teen pregnancy, Kirby (2001) again finds inconclusive evidence on abstinence education programs. States are currently conducting evaluations on their programs, although evaluation methodology varies greatly among the states (Pfau and Lee, 1999). A few states are using only secondary analysis of existing national and state data, and

only 26 states indicated that they are using a pretest-posttest survey methodology. A federally funded evaluation of abstinence programs is currently in process (DHHS, 2000; Devaney et al, 2002).

Rickel (1989) states that the evaluation of prevention programs should center on changes in knowledge, attitudes and behavior. Miller, Card, Paikoff and Peterson (1992) suggest that the focus of evaluating attitudes should be on consistent attitudes, as these are the primary determinants of a teenager's behavior. They also suggest that the best way to measure teens' attitudes is to do so anonymously with appropriate and straightforward questions. In their experience, teens would readily answer questions honestly to provide credible and useful information if these two guidelines were followed. Frost and Forrest (1995) present data showing that self-report data on knowledge gained by students were remarkably accurate when checked against specific questions gathered in phone interviews with respondents.

Several authors offer a number of guidelines for use in self-administered questionnaires. They suggest that all items used in a self-administered questionnaire must be simple and self-explanatory. The items and instructions should use clear language to avoid any confusion. The format of the questionnaire should be straightforward and easy to follow so that respondents do not skip questions. (Card, 1993; Bourque and Fielder, 1995; Fink and Kosecoff, 1998; Leung, 2001)

In addition to measuring attitudes toward abstinence and sexuality, it is important to look at sexual behavior directly in order to assess the effect of a program (Kirby et al., 1994). It is also important to look at the reasons for sexual activity. The 1992 National Health and Social Life Survey reported that 4% of females report that their first sexual intercourse was forced, and an additional 25% described their first intercourse as unwanted. In another report, Youth Risk Behavior Surveillance 2001, data from 26 states showed that an average of 11.1% of girls in grades nine through twelve had been forced to have sexual intercourse during the previous year (Centers for Disease Control and Prevention, 2002). Given that abstinence education is based on the concept of choosing when to be sexually active, this needs to be taken into consideration in reporting of rates (Abma, Driscoll, and Moore, 1998).

The evaluation of the Abstinence Education programs in Iowa involves a pretest-posttest survey of attitudes and behavior over several sites. The program designs and evaluation instruments are described below.

Methodology

The abstinence-only initiative in Iowa involves both community and educational programs at several sites. During the past year the Empower project involved an educational program in Pella and a community program in Atlantic, Clarinda, Eagle Grove, Knoxville, and Pleasantville. The Linn County project involved an educational program in the College Community Middle School and a community program throughout the county. The Bethany project involved three types of educational programs in several schools. The I-35 project involved an educational program at the middle school.

Bethany Educational Program

Bethany Christian Services of Northwest Iowa, a child welfare organization, offered an abstinence curriculum with a sports-themed approach entitled "A.C. Green's Game Plan Abstinence Program." Through a simple question and answer format, the program helped students discover that abstinence until marriage is the safest, healthiest lifestyle. Students were taught that their choices today have significant implications for their future, affecting how successfully they will accomplish their goals and dreams. "Game Plan" was implemented in two schools and one residential facility and presented to seven classes of students between the ages of 10 and 17. Each session was held one hour per day for eight days and used a pretest-posttest evaluation.

During this past grant year, Bethany staff also offered one-time abstinence only informational/education sessions in school classrooms, after-school programs and youth clubs or groups. After receiving some initial abstinence education, students submitted questions to the presenter who responded on topics including abstinence, adolescent pregnancy, healthy relationship, contraceptive failure rates, and STDs. The focus of these sessions is on the consequences of premarital sexual activity and the benefits of abstinence until marriage. Thirty one-hour presentations were given to 14 different groups comprised of youth from 11 years of age through 18 years. These one-time presentations were evaluated using the posttest only form.

Empower Educational Program

The Empower project presented an education program to middle school students in sixth through eighth grade. The focus of the Empower curriculum is to lead students to discover the risks and consequences of premarital sexual activity. The program equips them with the tools needed to remain abstinent until marriage. This past year, this program was offered in seven schools with length of the program ranging from two to six sessions for an hour per session. Students who participated ranged in age from 11 to 14 years.

Empower Community Program

The Empower project included five sites in their community program during the past year and used three different curricula for their abstinence education classes. The Atlantic site presented the "Managing Pressures" curriculum to 6th and 8th graders in five sessions. Sixth grade students at the Clarinda site

also received five sessions of the “Managing Pressures” curriculum, while Clarinda 8th graders received six sessions of “Choosing the Best.” Twelve sessions of the “Choosing the Best” program were presented to 8th graders in Eagle Grove, while the Empower curriculum was utilized for Knoxville 7th graders and Pleasantville 6th graders.

I-35 Educational Program

A curriculum for all sixth through eighth graders called CPR (“Creating Positive Relationships”) was offered again this year. This curriculum is information- and skills-based, providing visuals and activities that engage the students. The focus of the curriculum is on the whole person (physical, emotional, social, and mental aspects) as well as the benefits and consequences of remaining abstinent until marriage. Classes for CPR met for six days and lasted approximately 45 minutes. There were eight classes of students aged 12-14 who participated in the program this year. A high school curriculum will be added in 2003-2004.

Linn County Educational Program

The Abstinence Education Initiative (AEI) has focused on integrating the activities of individual efforts in Linn County to address problems caused by increasing sexual activity of adolescents. The primary education program is presented in the College Community School district using the “Creating Positive Relationships (CPR)” and “Choosing the Best” curricula. The schools offer abstinence education to sixth through eighth graders that is focused on equipping students with refusal skills, essential health-related understandings, peer support strategies, improved decision-making skills and character development. The program is provided as a required exploratory class for middle school students and as an elective for high school students. This past year, the program reached youth aged 11 through 16 years at two schools in six classrooms. Each class met an hour per day and ran for 15 days.

In addition to the primary education component, AEI members worked together to provide a number of programs to youth, so that teens received the basic abstinence message while enjoying different emphases and types of presentations. The groups involved and the programs they offered included:

- ♦ Concerned About Teen Sexuality (CATS): a peer-to-peer program stressing abstinence. They offered skits and talks on STD’s, the reality of teen parenting, building strong relationship, media influence, and benefits of abstinence only until marriage. They reached 14 schools in 73 classrooms; student ages ranged from 13 years old to 17 years.
- ♦ Youth for Christ (YFC): The Pacesetters program met weekly for two hours with students aged 11 to 13 on a voluntary basis at a middle school in Cedar Rapids. The focus of activities was on positive attitude, courage with esteem, stressing excellence through truth, encouragement and self-respect.
- ♦ Jane Boyd Community House: a character education programming was offered after school to children in grades K through five reaching students from five different schools.
- ♦ Linn County Medical Society Alliance: offered the Baby Think It Over program (a realistic parenting simulation) to students aged 14 through 19 in 20 different schools in Linn and Jones counties. This innovative teaching tool promotes a student’s choice to remain abstinent until marriage.

Linn County Community Program

The AEI Coalition focuses on integrating the abstinence education activities of its members to address the problems caused by sexual activities among adolescents in Linn County and the surrounding area. The Coalition provided support for the abstinence education programs of the Young Parents Network (YPN) that reached students in grades seven through twelve in Linn, Jones, Benton, Iowa and Cedar counties. The YPN pregnancy prevention curriculum focuses on the development the following life skills: communication, decision making, goal setting and personal accountability.

The Linn County community program also includes a questionnaire administered about every three years to a sample of students from middle and high schools throughout the county. The survey focuses on sexual attitudes and behavior and was most recently conducted in September, 2002.

Instruments

Several instruments were used to gather information on the program outcomes (see Appendix A for examples). All instruments included demographic information on the participants. Most programs used a pretest and posttest. Pretests and posttests were matched using the following demographic information: age, grade, race, first letter of the first name, first letter of the last name, and day, month and year of birth.

The first 8 questions on the pretest were opinion questions with a five-point answer scale. The ninth question dealt with having postponed sexual behavior and offered “yes” or “no” responses. The next five questions concerned reasons for not postponing sexual behavior and offered “yes” or “no” responses. The last question asked the respondent to state intentions to postpone having sex and used a five-point answer scale.

The majority of the posttest was identical to the pretest. Five questions were inserted at the beginning of the opinion section, which asked the participants to respond with “yes” or “no” to abstinence questions which reflected the program goals. On the final page of the posttest, eight items deal with knowledge about content presented in the program. These items were selected by each program from a group of questions used by the Adolescent Pregnancy Prevention (APP) grantees for their evaluation. These posttest questions are compared with results from APP grantees in the Comparison section of this report.

In addition to using the pretest-posttest evaluation with its longer curriculum, Bethany Christian Services used a posttest-only format for its one-time presentations. This evaluation included only the demographic information, the eight content items, and two open-ended evaluation items.

During this grant year, the coordinators of the Linn County Community Program used their own evaluation tools, a 10-item pretest and corresponding 10-item posttest, developed by YPN’s Evaluation Committee. All students who participated in three or more curricular presentations were asked to complete evaluation forms. A 20% random sample of the completed evaluations was included in the analysis.

RESULTS

Each site is presented separately. Educational programs are presented first, followed by community programs. A descriptive analysis of demographic data and data gathered only at the posttest is provided. Pretest and posttest data were matched on the demographic variables of school, classroom, gender, age, grade, race, first and last initial, as well as month, day, and year of birth. This approach yielded an 80% match across all sites. Comparison of all students with matched students showed negligible differences between the groups on all demographic and test variables in all sites. It is therefore reasonable to conclude that the two groups are statistically equivalent. Analyses of pretest-posttest results were performed on the matched sample using the paired t-test. Since a direction for change was hypothesized for the pretest-posttest items, a one-tailed t-test was used in the statistical analysis. Comparisons of pretest, posttest, and change by grade and gender are provided along with significance levels. Comparisons of significant findings for each site as well as a comparison of the Adolescent Pregnancy Prevention and Abstinence Only data are also included.

Bethany Christian Services Education Program Pretest-Posttest 2002-2003

A. Demographics of Program Participants (N=91)

Gender:

Gender	Number	Percentage
Females	48	52.7%
Males	43	47.3%

Age Distribution:

Age	Number	Percentage
10 years old	1	1.1%
12 years old	19	20.9%
13 years old	40	44.0%
14 years old	20	22.0%
15 years old	5	5.5%
16 years old	4	4.4%
17 years old	2	2.2%

Average age: 13.3 years. Median age: 13.0 years. S.D.: 1.19 years

Grade:

Grade	Number	Percentage
5 th	1	1.1%
7 th	29	31.9%
8 th	45	49.5%
9 th	8	8.8%
10 th	3	3.3%
11 th	4	4.4%
12 th	1	1.1%

Race:

Race	Number	Percentage
White	81	89.0%
Black	1	1.1%
Hispanic	1	1.1%
Native American	2	2.2%
More than one	6	6.6%

Bethany Christian Services of Northwest Iowa presented abstinence curricula to students in grades 5 through 12. Of the 91 matched participants who completed a pretest and posttest after participating in this curriculum, there were more female than male students (52.7% vs. 47.3%). The majority of students were White (89.0%), and 82.5% were in middle school (grades five through eight). The average age of students was 13.3 years.

B. Pretest-Posttest Comparisons

Students were given a pretest before the abstinence-only education programs were begun. Following completion of the program, students were given a posttest with items that were the same as those at pretest with the addition of 5 items related to the program's objectives and 8 items regarding knowledge, attitude and behavior change. The following information shows the pretest and posttest items, the percentage for each response for the matched group, and the results of the statistical analysis that compared the pretest with posttest for students who could be matched on both instruments. The response categories were coded 1 to 5 for each question in the first section, with the exception of the question on communication with parents, which was coded 1 to 4. Lower mean scores indicate more positive attitudes. It should be noted that for questions 5, 6, 7, 8, and 15, the number of tests compared is less than for questions 1, 2, 3, and 4. Some of the posttests that were returned and matched for this program were missing page 2, thus the number of comparisons for the questions on page 2 is less. Results can be found in Table 1 on the following page.

Table 1. Bethany Christian Services Pretest-Posttest Comparison

1. Most young teens are not ready to handle the problems that can arise from having sex.								
N=91	Strongly agree	Agree	Unsure	Disagree	Strong disagree	Mean	T value	Significance
Pretest	52%	31%	10%	7%	1%	1.75	3.122	p<.01
Posttest	65%	27%	5%	1%	1%	1.46		
2. Could you tell the other person in a dating relationship where you want to stop in showing affection physically?								
N=90	Definitely could	Probably could	Unsure	Probably could not	Definitely could not	Mean	T value	Significance
Pretest	32%	41%	20%	3%	4%	2.08	3.876	p<.01
Posttest	50%	39%	9%	1%	1%	1.64		
3. How often have you and your parents (or guardians) talked about how they expect you to behave when it comes to sex?								
N=90	Often	Sometimes	Once or twice	Never		Mean	T value	Significance
Pretest	20%	38%	19%	23%		2.46	-1.968	p<.05
Posttest	12%	32%	35%	21%		2.65		
4. If one of your friends was considering experimenting with sex, would you try to talk them out of it?								
N=91	Definitely yes	Probably yes	Unsure	Probably no	Definitely no	Mean	T value	Significance
Pretest	63%	24%	8%	5%	0%	1.56	2.141	p<.05
Posttest	68%	25%	5%	1%	0%	1.40		
5. Do you intend to wait until you are married before having sexual intercourse?								
N=48	Definitely will wait	Probably will wait	Unsure	Probably will not wait	Definitely will not wait	Mean	T value	Significance
Pretest	42%	29%	10%	10%	8%	2.15	4.205	p<.01
Posttest	65%	29%	4%	0%	2%	1.46		
6. How do you feel about boys who want to wait until they are married before having sexual intercourse?								
N=46	They should be admired	They are OK	Unsure	Something is wrong with them	They should be put down	Mean	T value	Significance
Pretest	76%	17%	4%	2%	0%	1.33	1.000	N.S.
Posttest	80%	17%	2%	0%	0%	1.22		
7. How do you feel about girls who want to wait until they are married before having sexual intercourse?								
N=47	They should be admired	They are OK	Unsure	Something is wrong with them	They should be put down	Mean	T value	Significance
Pretest	79%	10%	10%	0%	0%	1.32	1.833	p<.05
Posttest	87%	11%	2%	0%	0%	1.15		
8. Do you believe that young teens who want to wait can resist peer pressure and do so?								
N=48	Definitely yes	Probably yes	Unsure	Probably no	Definitely no	Mean	T value	Significance
Pretest	33%	44%	13%	10%	0%	2.00	3.022	p<.01
Posttest	46%	48%	2%	4%	0%	1.65		
15. From now on do you intend to wait to have sexual intercourse until you are married?								
N=45	Definitely intend to wait	Probably intend to wait	Unsure	Probably intend not to wait	Definitely intend not to wait	Mean	T value	Significance
Pretest	57%	20%	15%	9%	0%	1.76	1.858	p<.05
Posttest	62%	34%	2%	2%	0%	1.47		

As shown in Table 1, there was a significant positive change in attitudes from pretest to posttest for seven of the nine questions. This indicates that the program achieved its objective of positively influencing student attitudes and actions in the following areas:

- ◆ Understanding that young teens are not ready for sex (question 1)
- ◆ Telling a date where they want to stop showing affection (question 2)
- ◆ Willingness to talk friends out of having sex (question 4)
- ◆ Willingness to wait until marriage for sex (question 5)
- ◆ Positive attitudes toward girls who wait (question 7)
- ◆ Belief that young teens can resist peer pressure to have sex (question 8)
- ◆ Intention to wait until marriage for sex (question 15)

It should be noted that in most cases, the means at pretest were already low, indicating substantial agreement with the statements even before the program began. For instance, on all questions except for question 3, only 10% or fewer students disagreed with the statement at pretest, and no more than 4% of the students disagreed at posttest. This makes it all the more remarkable that significant change was achieved by the program.

One of the larger changes in mean scores was evident in question 5 regarding willingness to wait until marriage for sex. The decrease from 2.15 to 1.46 indicates that students heard the primary abstinence message.

The one response that did not show a strong positive trend at pretest and actually worsened over time dealt with communicating with parents about sex. At pretest, 23% of the students indicated that they never talk to parents and 19% that they had only done so once or twice. At posttest, students were even less positive in their responses to communicating with parents about sex, with 21% indicating "Never," and 35% indicating "Once or Twice."

In addition to the attitudinal/intent statements, all the youth were asked a series of questions that focused on sexual activity and behavior. The time period was relatively short between pretest and posttest which means that little change would be expected in the number of students who were sexually active. Table 2 on the following page, shows the responses to the behavioral items on the questionnaire.

Table 2. Bethany Christian Services Behavioral Questions

		Yes		No	
		Count	Percentage	Count	Percentage
Have you ever had sexual intercourse?	Pretest	14	16%	75	84%
	Posttest	15	31%	33	69%
someone physically forced you	Pretest	8	57%	6	43%
	Posttest	7	47%	8	53%
someone threatened you	Pretest	4	29%	10	71%
	Posttest	4	25%	12	75%
someone talked you into it	Pretest	3	23%	10	77%
	Posttest	6	43%	8	57%
you felt you would be more accepted if you did	Pretest	4	27%	11	73%
	Posttest	5	33%	10	67%

Table 2 shows that one more student at posttest reportedly had sexual intercourse than at pretest (15 vs. 14 youth). In some cases, students responded differently from pretest to posttest on ever having had sexual intercourse (see discussion in the Conclusion section of this report). Among the 15 youth who indicated at posttest that they had had sexual intercourse, seven youth reported they had been physically forced, six indicated they had been talked into it, five felt they would be more accepted if they had sexual intercourse, and four reported they had been threatened. Other reasons given for having had sex included: "Because I was in love and still am," and "Pleasure."

C. Responses to Program Objectives

At the beginning of the posttest survey, students were asked to respond to five questions relating to the goals of the program. Results are presented in Table 3 below.

Table 3. Bethany Christian Services Program Objectives

	Yes		No	
	Count	Percentage	Count	Percentage
Have you gained more information about the risks of sex?	89	98%	2	2%
Have you gained new information about how to resist social and peer pressure?	85	93%	6	7%
Will the information help you in making decisions about having sex in the future?	91	100%	0	0%
Will you find it easier to say "NO" to sex in the future?	89	98%	2	2%
Have you gained knowledge of the benefits of abstinence until marriage?	89	99%	1	1%

Results shown in Table 3 demonstrate that a large majority of students responded positively to the questions related to program objectives. Students reported unanimously that the information they

acquired will help them make decisions about sex in the future (100%). Almost all students (99%) indicated they had gained knowledge of the benefits of abstinence until marriage. Ninety-eight percent of students also reported they had gained more information about the risks of sex and the ability to find it easier to say “NO” to sex in the future after participating in this program. Most students (93%) had also gained new information about how to resist social and peer pressure.

Finally, at the end of the posttest, students were asked to respond to eight items which asked them to rate the extent to which the program helped them. The mean of each of the items are shown in the last column of Table 4 below. The responses were scored 0, 1, 2, and higher mean scores suggest more positive results.

Table 4. Bethany Christian Services Content Items

	N	Not at all	A little more	A lot more	Mean
I am more clear about the meaning of "NO MEANS NO"	90	3%	22%	74%	1.71
I understand more about why I should wait to have sex with someone	90	0%	13%	87%	1.87
I know more about the cost of unwanted pregnancy	90	1%	26%	73%	1.72
I am more clear about my attitudes toward unwanted pregnancy	90	2%	22%	76%	1.73
I know more about the danger of sexually transmitted diseases and AIDS	90	2%	7%	91%	1.89
I understand how my decisions about sex can change my future	90	1%	19%	80%	1.79
I know more consequences of having a baby as a teenager	90	1%	9%	90%	1.89
I am more likely to think that my goals in life should not include an unwanted pregnancy as a teen	90	1%	14%	84%	1.83

Most of the students (73% to 91%) reported that they had learned “A lot more” in each of the content areas. The most positive mean responses were for items that dealt with knowing more about the dangers of STD’s and AIDS (1.89), knowing more consequences of having a baby as a teenager (1.89), and understanding more about why they should wait to have sex (1.87).

D. Comparison of Gender and Grade

A comparison of mean scores for males and females is presented in Table 5 below. Since some of the evaluation forms contained incomplete data (page two was missing on the posttests for some students), those student responses are not included in the comparisons of gender and grade for Bethany Christian Services.

Table 5. Bethany Christian Services Means by Gender

		Gender		T value	Significance
		Female	Male		
Most young teens are not ready to handle the problems that can arise from having sex.	Pretest	2.04	1.83	.466	N.S.
	Posttest	1.38	1.42	-.222	N.S.
	Change	-.67	-.42	-.915	N.S.
Could you tell the other person in a dating relationship where you want to stop in showing affection physically?	Pretest	2.00	2.42	-1.266	N.S.
	Posttest	1.46	1.88	-1.619	N.S.
	Change	-.54	-.54	.000	N.S.
How often have you and your parents (or guardians) talked about how they expect you to behave when it comes to sex?	Pretest	2.38	2.50	-.368	N.S.
	Posttest	2.50	2.67	-.526	N.S.
	Change	.13	.17	-.151	N.S.
If one of your friends was considering experimenting with sex, would you try to talk them out of it?	Pretest	1.63	2.13	-1.852	p<.05
	Posttest	1.54	1.58	-.193	N.S.
	Change	-.08	-.54	1.973	p<.05
Do you intend to wait until you are married before having sexual intercourse?	Pretest	2.13	2.17	-.109	N.S.
	Posttest	1.54	1.38	.746	N.S.
	Change	-.58	-.79	.633	N.S.
How do you feel about boys who want to wait until they are married before having sexual intercourse?	Pretest	1.25	1.41	-.803	N.S.
	Posttest	1.21	1.23	-.136	N.S.
	Change	-.04	-.18	.640	N.S.
How do you feel about girls who want to wait until they are married before having sexual intercourse?	Pretest	1.21	1.42	-1.100	N.S.
	Posttest	1.04	1.25	-1.767	p<.05
	Change	-.17	-.17	-.039	N.S.
Do you believe that young teens who want to wait can resist peer pressure and do so?	Pretest	1.96	2.04	-.302	N.S.
	Posttest	1.46	1.83	-1.826	p<.05
	Change	-.50	-.21	-1.252	N.S.
From now on do you intend to wait to have sexual intercourse until you are married?	Pretest	1.73	1.79	-.213	N.S.
	Posttest	1.46	1.43	.122	N.S.
	Change	-.23	-.30	.266	N.S.

The results of the gender analysis of the responses to the content items demonstrate a few statistically significant differences between males and females. At pretest, boys were significantly less likely than girls to talk a friend out of having sex. Following participation in the abstinence program, boys had higher (less favorable) scores than girls on two items, indicating they had more negative attitudes toward girls who wait until marriage for sex as well as toward resisting peer pressure to have sex.

Although not statistically significant, both boys and girls showed a change in the unexpected direction for the item on communicating with parents about sex. After participating in the program, both groups were less likely to talk often with their parents about sex.

Only one change score showed a significant difference between genders. After participation in the abstinence education program, males experienced significantly more change in “trying to talk a friend out of having sex.” The remaining change scores showed no significant differences when comparing boys and girls which indicates that, in general, participation in the program had a similar effect on both groups.

A comparison of mean scores by grade is presented in Table 6 on the following page.

Table 6. Bethany Christian Services Means by Grade

		Grades		F value	Significance
		7	9-12		
Most young teens are not ready to handle the problems that can arise from having sex.	Pretest	1.86	2.06	.420	N.S.
	Posttest	1.41	1.31	.246	N.S.
	Change	-.45	-.75	1.005	N.S.
Could you tell the other person in a dating relationship where you want to stop in showing affection physically?	Pretest	2.00	2.50	2.053	N.S.
	Posttest	1.66	1.75	.106	N.S.
	Change	-.34	-.75	1.077	N.S.
How often have you and your parents (or guardians) talked about how they expect you to behave when it comes to sex?	Pretest	2.34	2.44	.065	N.S.
	Posttest	2.55	2.63	.047	N.S.
	Change	.21	.19	.004	N.S.
If one of your friends was considering experimenting with sex, would you try to talk them out of it?	Pretest	1.59	2.44	9.188	p<.01
	Posttest	1.52	1.69	.521	N.S.
	Change	-.07	-.75	7.655	p<.01
Do you intend to wait until you are married before having sexual intercourse?	Pretest	1.59	3.06	20.143	p<.01
	Posttest	1.31	1.56	1.993	N.S.
	Change	-.28	-1.50	15.172	p<.01
How do you feel about boys who want to wait until they are married before having sexual intercourse?	Pretest	1.22	1.56	2.564	N.S.
	Posttest	1.26	1.19	.220	N.S.
	Change	.04	-.38	3.079	p<.05
How do you feel about girls who want to wait until they are married before having sexual intercourse?	Pretest	1.24	1.50	1.536	N.S.
	Posttest	1.18	1.13	.156	N.S.
	Change	-.07	-.38	2.238	N.S.
Do you believe that young teens who want to wait can resist peer pressure and do so?	Pretest	1.93	2.19	.724	N.S.
	Posttest	1.66	1.69	.019	N.S.
	Change	-.28	-.50	.748	N.S.
From now on do you intend to wait to have sexual intercourse until you are married?	Pretest	1.46	2.27	7.606	p<.01
	Posttest	1.39	1.44	.068	N.S.
	Change	.00	-.80	7.176	p<.01

The comparison of mean scores by grade for Bethany Christian Services does not include grade 8 since evaluation forms from those students contained incomplete data. In Table 6, the analysis by grade showed that there were some significant differences in attitudes between the older students in grades 9 through 12 and the younger students in seventh grade. At pretest, the scores of the 9-12th graders were higher (less favorable) on the following items:

- ◆ If one of your friends was considering experimenting with sex, would you try to talk them out of it?
- ◆ Do you intend to wait until you are married before having sexual intercourse?
- ◆ From now on do you intend to wait to have sexual intercourse until you are married?

There were no significant differences between the two grade levels at posttest. Change scores showed significant differences between the grades on four items, that is, the older students had experienced more change than the younger students. These four items dealt with

- ◆ Trying to talk a friend out of having sex
- ◆ Willingness to wait until marriage for sex
- ◆ Attitude toward boys who wait until marriage for sex
- ◆ A firm intention to wait until marriage for sex.

Although the 9th through 12th graders had more negative attitudes before the program began, they experienced significant change in a positive direction in some of the program concept areas.

Interestingly, both grades showed a change, though not significant, on one item in the unexpected direction after participating in the abstinence education program. Both groups were less likely to communicate with their parents about sex following the intervention.

E. Summary and Discussion

Students were exposed to a sexual abstinence program provided by staff of Bethany Christian Services during the 2002-2003 school year that was sufficient in length to assess changes from pretest to posttest. Students who participated were in grades 7, 8, and 9 through 12. The majority of the students were White (89.0%), and the average age of students was 13.3. Of those who responded to the questions, 52.7% were female.

A total of 91 students were matched between the pretest and posttest, although posttests for some of the students had incomplete data (page two was missing). When asked to respond to a series of attitudinal questions regarding sexual abstinence, there were statistically significant positive changes from pretest to posttest on six out of the nine items. The greatest positive change in beliefs came on one particular item: "Do you intend to wait until you are married before having sexual intercourse?" The least change (no significant change) occurred on an item that focused on admiration for boys who want to wait until marriage to have sex, although scores were low (positive) both at pretest and posttest. Another item showed a statistically significant negative change in score from pretest to posttest; students spoke to their parents/guardians about sex less often following participation in the program.

Fourteen (16%) students at pretest and 15 students (16.5%) at posttest reported they had had sexual intercourse. Several indicated they had been talked into it, threatened, or physically forced, while some others felt they would be more accepted. Several students also offered other reasons for having had sex.

Ninety-eight percent of students said they had gained more information about the risks of sex, and 99% said they had gained knowledge of the benefits of abstinence until marriage. When asked specifically if the program would help them in making decisions about having sex in the future, 100% said "yes."

Among an additional eight items that focused on other objectives of the program, students felt they knew more about the danger of STD's and AIDS and the consequences of having a baby as a teenager, and understood more about why they should wait to have sex. The lowest rated item was increased knowledge of the cost of unwanted pregnancy.

In examining gender differences, there were a few statistically significant differences between males and females. At pretest, males were less likely to talk a friend out of having sex. At posttest, males had more negative attitudes toward girls who wait and toward resisting peer pressure to have sex. Males did show a greater amount of positive change from pretest to posttest on the item related to talking a friend out of having sex. On the remaining eight items, males experienced a similar change in attitudes and actions as females as a result of participating in these programs.

Finally, in examining grade differences, it was found that students in the upper grades (9-12) had more negative attitudes before the program began. However, following participation in the abstinence education program, the responses of older students were more favorable than those of seventh graders in their attitudes toward: talking a friend out of having sex, willingness to wait until marriage for sex, boys who wait until marriage for sex, and having a firm intention to wait until marriage for sex.

**Bethany Christian Services
Education Program
Posttest Only 2002-2003**

A. Demographics of Program Participants (N=490)

Gender:

Gender	Number	Percentage
Females	268	56.1%
Males	210	43.9%

Age Distribution:

Age	Number	Percentage
12 years old	12	2.5%
13 years old	66	13.5%
14 years old	65	13.3%
15 years old	196	40.2%
17 years old	37	7.6%
18 years old	79	16.2%
19 years old	32	6.6%

Average age: 15.1 years. Median age: 15.0 years. S.D.: 1.49 years

Grade:

Grade	Number	Percentage
7 th	82	16.9%
8 th	27	5.6%
9 th	230	47.4%
10 th	16	3.3%
11 th	51	10.5%
12 th	79	16.3%

Race:

Race	Number	Percentage
White	448	92.0%
Black	1	.2%
Hispanic	10	2.1%
Asian	2	.4%
Native American	3	.6%
More than one	17	3.5%
Other	6	1.2%

As shown in the demographic tables, 490 students completed an evaluation form following one-time presentations devoted to abstinence-only content and conducted by staff of Bethany Christian Services. There were more female students than males (56.1% vs. 43.9%) and the majority of students were White (92.0%). The average age was 15.1 years, and the median grade was ninth.

B. Responses to Program Objectives

At posttest (following the session), students were asked to respond to eight items which asked them to rate the extent to which the program helped them. The responses to each item, shown as percentages, and the mean of each of the eight items are provided in the following table. The responses were scored 0, 1, 2. Higher mean scores on these items reflect more positive attitudes.

Table 7. Bethany Christian Services Posttest Only Content Items

	N	Not at all	A little more	A lot more	Mean
I am more clear about the meaning of "NO MEANS NO"	487	8.6%	40.0%	51.3%	1.43
I understand more about why I should wait to have sex with someone	488	3.5%	36.5%	60.0%	1.57
I know more about the cost of unwanted pregnancy	485	10.5%	52.4%	37.1%	1.27
I am more clear about my attitudes toward unwanted pregnancy	484	14.0%	47.7%	38.2%	1.24
I know more about the danger of sexually transmitted diseases and AIDS	486	2.5%	31.3%	66.3%	1.64
I understand how my decisions about sex can change my future	488	7.8%	39.3%	52.9%	1.45
I know more consequences of having a baby as a teenager	486	2.3%	28.4%	69.3%	1.67
I am more likely to think that my goals in life should not include an unwanted pregnancy as a teen	488	7.2%	40.8%	52.0%	1.45

A large majority of students (85.9% to 97.7%) reported that they had learned at least “a little more” in each of the content areas. The more positive results were in the following areas:

- ◆ Having more knowledge of the consequences of having a baby as a teenager (1.67)
- ◆ Knowing more about the dangers of STD’s and AIDS (1.64)
- ◆ Understanding why they should wait to have sex (1.57)

The lowest ranked item was “I am more clear about my attitudes toward an unwanted pregnancy” with an average score of 1.24.

When they were asked to give the best reason for remaining abstinent (an open-ended question), students wrote comments that included the following: “So that you don’t get an STD or get pregnant,” “Being true to your future spouse,” “God’s future plan for us,” “So you don’t have to give up your dreams for the future,” “So you don’t ruin your life,” “It’s a gift I want to give to my husband,” “I am not ready for sex and don’t want STD’s,” “Because it’s against what I believe,” “God wants me to,” “So I don’t get any diseases,” “It’s wrong,” “So that you can tell them you saved yourself,” and “It (premarital sex) has a lot of bad consequences and it (abstinence) is what’s best,” “It is safer for you and others,” “The Bible says so,”

“Because of unwanted pregnancy,” and “So that when you get older you can go to college and still have your dreams.”

C. Summary and Discussion

A total of 490 students completed a posttest-only evaluation of abstinence-only programs offered by staff of Bethany Christian Services during the 2002-2003 school year. Students were in grades seven through 12 with an average age of 15.1 years. Female students made up 56.1% of the total group.

In responding to eight items (at posttest) regarding the extent to which the program was helpful to them, students were positive about the intervention. Most students felt that, after participation in the one-time program, they had more knowledge of the consequences of having a baby as a teenager, knew more about the dangers of STD's and AIDS, and understood why they should wait to have sex.

Empower Pella Education Program Pretest-Posttest 2002-2003

A. Demographics of Program Participants (N=127)

Gender:

Gender	Number	Percentage
Females	64	50.4%
Males	63	49.6%

Age Distribution:

Age	Number	Percentage
11 years old	26	20.5%
12 years old	69	54.3%
13 years old	16	12.6%
14 years old	16	12.6%

Average age: 12.2 years. Median age: 12.0 years. S.D.: 0.90 years

Grade:

Grade	Number	Percentage
6 th	99	78.0%
8 th	28	22.0%

Race:

Race	Number	Percentage
White	115	90.6%
Black	1	.8%
Hispanic	1	.8%
Asian	5	3.9%
More than one	3	2.4%
Other	2	1.6%

The Empower program in Pella was presented to sixth and eighth grade students during the 2002-2003 school year. Of the 127 matched students, 50.4% were female. Ages ranged from 11 to 14 years old, with an average age of 12.2. The majority (90.6%) of students were White.

B. Pretest-Posttest Comparisons

Students were given a pretest at the beginning of the abstinence-only education module. Following completion of the module, students were given a posttest with items that were the same as those at pretest with the addition of 5 items related to the program's objectives and 8 items regarding knowledge, attitude and behavior change. The pretest and posttest were matched using demographic variables. The following information shows the pretest and posttest matched items with the percentage for each response for the matched group and the results of the statistical analysis which compared the pretest with posttest for students who could be matched on both instruments. The response categories were coded 1 to 5 for each question in the first section with the exception of the question on communication with parents, which was coded 1 to 4. Lower mean scores on these items reflect more positive attitudes. Results can be found in Table 8 on the following page.

Table 8. Empower Pella Pretest-Posttest Comparison

1. Most young teens are not ready to handle the problems that can arise from having sex.								
N=127	Strongly agree	Agree	Unsure	Disagree	Strong disagree	Mean	T value	Significance
Pretest	61%	31%	6%	2%	1%	1.51	1.763	p<.05
Posttest	71%	22%	6%	1%	0%	1.37		
2. Could you tell the other person in a dating relationship where you want to stop in showing affection physically?								
N=127	Definitely could	Probably could	Unsure	Probably could not	Definitely could not	Mean	T value	Significance
Pretest	40%	42%	15%	2%	2%	1.83	1.032	N.S.
Posttest	39%	48%	11%	2%	0%	1.75		
3. How often have you and your parents (or guardians) talked about how they expect you to behave when it comes to sex?								
N=125	Often	Sometimes	Once or twice	Never		Mean	T value	Significance
Pretest	7%	28%	35%	29%		2.85	1.946	p<.05
Posttest	7%	33%	44%	16%		2.69		
4. If one of your friends was considering experimenting with sex, would you try to talk them out of it?								
N=126	Definitely yes	Probably yes	Unsure	Probably no	Definitely no	Mean	T value	Significance
Pretest	66%	21%	9%	2%	2%	1.52	1.310	N.S.
Posttest	71%	19%	9%	1%	1%	1.42		
5. Do you intend to wait until you are married before having sexual intercourse?								
N=124	Definitely will wait	Probably will wait	Unsure	Probably will not wait	Definitely will not wait	Mean	T value	Significance
Pretest	72%	18%	6%	4%	0%	1.42	1.173	N.S.
Posttest	74%	18%	4%	3%	0%	1.35		
6. How do you feel about boys who want to wait until they are married before having sexual intercourse?								
N=113	They should be admired	They are OK	Unsure	Something is wrong with them	They should be put down	Mean	T value	Significance
Pretest	85%	9%	6%	0%	0%	1.20	.000	N.S.
Posttest	87%	8%	5%	1%	0%	1.20		
7. How do you feel about girls who want to wait until they are married before having sexual intercourse?								
N=113	They should be admired	They are OK	Unsure	Something is wrong with them	They should be put down	Mean	T value	Significance
Pretest	85%	10%	5%	0%	0%	1.21	.155	N.S.
Posttest	86%	9%	4%	1%	0%	1.20		
8. Do you believe that young teens who want to wait can resist peer pressure and do so?								
N=114	Definitely yes	Probably yes	Unsure	Probably no	Definitely no	Mean	T value	Significance
Pretest	37%	42%	17%	3%	0%	1.87	1.392	N.S.
Posttest	40%	45%	11%	3%	0%	1.74		
15. From now on do you intend to wait to have sexual intercourse until you are married?								
N=113	Definitely intend to wait	Probably intend to wait	Unsure	Probably intend not to wait	Definitely intend not to wait	Mean	T value	Significance
Pretest	80%	14%	5%	1%	0%	1.27	-.865	N.S.
Posttest	79%	14%	3%	4%	0%	1.33		

There was a significant positive change in attitudes for two of the nine questions. This indicates that the program was effective in changing student attitudes and actions in the following areas:

- Understanding that young teens are not ready for sex (question 1)
- Communication with parents/guardians about sex (question 3)

It should be noted that in most cases, the means at pretest were already low, indicating substantial agreement with the statements even before the program began. This makes it all the more remarkable that significant change was achieved by the program. The one response that showed a slightly less positive trend at pretest related to communicating with parents about sex, where 29% of students indicated that they never talk to parents, and 35% that they had only done so once or twice.

For the question “From now on, do you intend to wait to have sexual intercourse until you are married,” the mean scores increased (although not significantly) from 1.27 at pretest to 1.33 at posttest. This means that students were less positive in their attitudes on their intentions to wait for sex until marriage following participation in this program.

Questions regarding behavior were included next. The time period between pretest and posttest was relatively short which means that little change would be expected in the number of students who were sexually active. Results are presented in Table 9 below.

Table 9. Empower Pella Behavioral Questions

		Yes		No	
		Count	Percentage	Count	Percentage
Have you ever had sexual intercourse?	Pretest	1	1%	122	99%
	Posttest	1	1%	124	99%
someone physically forced you	Pretest	1	33%	2	67%
	Posttest	2	67%	1	33%
someone threatened you	Pretest	1	33%	2	67%
	Posttest	0	0%	3	100%
someone talked you into it	Pretest	2	67%	1	33%
	Posttest	2	67%	1	33%
you felt you would be more accepted if you did	Pretest	1	33%	2	67%
	Posttest	1	33%	2	67%

The results show that 1 student reported having had intercourse at pretest and 1 at posttest. Some students responded differently at pretest and posttest for some of the behavioral questions. Of those students who responded to these questions, some said that they had been forced (2 at posttest), talked into it (2 at posttest), or felt they would be more accepted (1 at posttest). No student offered other reasons for having sex.

C. Responses to Program Objectives

At the beginning of the posttest survey, students were asked to respond to five questions relating to the goals of the program. Results are presented in table 10 below.

Table 10. Empower Pella Program Objectives

	Yes		No	
	Count	Percentage	Count	Percentage
Have you gained more information about the risks of sex?	116	91%	11	9%
Have you gained new information about how to resist social and peer pressure?	113	89%	14	11%
Will the information help you in making decisions about having sex in the future?	120	95%	6	5%
Will you find it easier to say "NO" to sex in the future?	118	94%	8	6%
Have you gained knowledge of the benefits of abstinence until marriage?	123	97%	4	3%

A large majority of the students (89% to 97%) reported that they had gained information and intention to stay abstinent after being in the program. Students were very positive about gains in all areas covered by the program objectives.

Finally, at the end of the posttest, students were asked to respond to an eight-item scale that asked them to rate the extent to which the program helped them this year. The means for each of the items are shown in the last column of the following table. The responses were scored 0, 1, 2. Higher mean scores suggest more positive results.

Table 11. Empower Pella Content Items

	N	Not at all	A little more	A lot more	Mean
I feel more strongly that I want to postpone sex in the future.	120	4%	24%	72%	1.68
I understand more about why I should wait to have sex with someone.	120	3%	20%	77%	1.73
I have more skills to resist pressure to have sex.	120	6%	23%	72%	1.66
I understand how my decisions about sex can change my future.	120	3%	17%	80%	1.77
I feel confident about the decisions I make.	120	4%	20%	76%	1.72
I feel more comfortable saying no to sex until I am older.	120	5%	18%	78%	1.73
I feel better about myself.	118	7%	28%	65%	1.58
I am more aware of my unique qualities and talents.	119	10%	23%	67%	1.57

Most of the students (94% to 98%) reported that they had learned at least “a little more” in each of the areas. The most positive results were in the following areas:

- Understanding how sex could affect their future (1.77)
- Feeling more comfortable in saying “no” (1.73)
- Understanding why they should wait to have sex (1.73)
- Feeling more confident about decisions (1.72)

D. Comparison of Gender and Grade

A comparison of mean scores for males and females is presented in Table 12 below.

Table 12. Empower Pella Means by Gender

		Gender		T value	Significance
		Female	Male		
Most young teens are not ready to handle the problems that can arise from having sex.	Pretest	1.42	1.60	-1.357	N.S.
	Posttest	1.28	1.46	-1.582	N.S.
	Change	-.14	-.14	.014	N.S.
Could you tell the other person in a dating relationship where you want to stop in showing affection physically?	Pretest	1.75	1.90	-1.020	N.S.
	Posttest	1.56	1.94	-3.055	p<.01
	Change	-.19	.03	-1.442	N.S.
How often have you and your parents (or guardians) talked about how they expect you to behave when it comes to sex?	Pretest	2.75	2.98	-1.441	N.S.
	Posttest	2.63	2.74	-.722	N.S.
	Change	-.10	-.23	.793	N.S.
If one of your friends was considering experimenting with sex, would you try to talk them out of it?	Pretest	1.36	1.68	-2.115	p<.05
	Posttest	1.20	1.65	-3.414	p<.01
	Change	-.16	-.05	-.678	N.S.
Do you intend to wait until you are married before having sexual intercourse?	Pretest	1.38	1.46	-.605	N.S.
	Posttest	1.28	1.44	-1.262	N.S.
	Change	-.09	-.05	-.352	N.S.
How do you feel about boys who want to wait until they are married before having sexual intercourse?	Pretest	1.15	1.27	-1.167	N.S.
	Posttest	1.10	1.31	-2.035	p<.05
	Change	-.02	.02	-.280	N.S.
How do you feel about girls who want to wait until they are married before having sexual intercourse?	Pretest	1.14	1.26	-1.333	N.S.
	Posttest	1.10	1.31	-2.044	p<.05
	Change	-.04	.02	-.469	N.S.
Do you believe that young teens who want to wait can resist peer pressure and do so?	Pretest	1.97	1.77	1.328	N.S.
	Posttest	1.60	1.95	-2.567	p<.01
	Change	-.39	.12	-2.770	p<.01
From now on do you intend to wait to have sexual intercourse until you are married?	Pretest	1.22	1.32	-.903	N.S.
	Posttest	1.23	1.43	-1.462	N.S.
	Change	.02	.09	-.604	N.S.

The results of the gender analysis show a few differences between boys and girls. At pretest, boys had significantly less favorable scores than girls on one item: talking a friend out of having sex. In general though, at pretest, males and females were similar in their agreement with program concepts. At posttest, however, boys had significantly less favorable scores on five items: telling a date when to stop, talking a friend out of having sex, feelings toward boys and girls who wait to have sex, and resisting peer

pressure. Only one item showed a significant difference between males and females in change scores. Females had experienced more substantial change than males for the item on resisting peer pressure following participation in the program. The remaining changes from pretest to posttest showed no significant differences between males and females, indicating that, in general, participation in the program had a similar effect on both groups.

Comparisons of mean scores by grade are presented in Table 13 below.

Table 13. Empower Pella Means by Grade

		Grade		F value	Significance
		6	8		
Most young teens are not ready to handle the problems that can arise from having sex.	Pretest	1.51	1.54	.036	N.S.
	Posttest	1.37	1.36	.015	N.S.
	Change	-.13	-.18	.059	N.S.
Could you tell the other person in a dating relationship where you want to stop in showing affection physically?	Pretest	1.90	1.57	3.258	N.S.
	Posttest	1.81	1.54	3.248	N.S.
	Change	-.09	-.04	.089	N.S.
How often have you and your parents (or guardians) talked about how they expect you to behave when it comes to sex?	Pretest	2.93	2.64	2.133	N.S.
	Posttest	2.84	2.15	16.505	p<.01
	Change	-.08	-.44	3.360	N.S.
If one of your friends was considering experimenting with sex, would you try to talk them out of it?	Pretest	1.51	1.57	.126	N.S.
	Posttest	1.38	1.57	1.452	N.S.
	Change	-.13	.00	.489	N.S.
Do you intend to wait until you are married before having sexual intercourse?	Pretest	1.43	1.35	.265	N.S.
	Posttest	1.33	1.46	.667	N.S.
	Change	-.10	.04	.836	N.S.
How do you feel about boys who want to wait until they are married before having sexual intercourse?	Pretest	1.24	1.08	1.887	N.S.
	Posttest	1.18	1.27	.507	N.S.
	Change	-.04	.17	1.911	N.S.
How do you feel about girls who want to wait until they are married before having sexual intercourse?	Pretest	1.25	1.04	3.425	N.S.
	Posttest	1.18	1.28	.618	N.S.
	Change	-.07	.21	4.034	p<.05
Do you believe that young teens who want to wait can resist peer pressure and do so?	Pretest	1.83	2.00	.921	N.S.
	Posttest	1.82	1.58	2.059	N.S.
	Change	-.03	-.48	3.918	p<.05
From now on do you intend to wait to have sexual intercourse until you are married?	Pretest	1.27	1.23	.110	N.S.
	Posttest	1.30	1.44	.736	N.S.
	Change	.03	.13	.368	N.S.

The results of the analysis by grade showed a few significant differences, although there were none at pretest. At posttest, sixth graders had a less favorable score on one item, indicating that they talked less often with their parents about sex. Change scores for eighth graders were significantly higher on two items: resisting peer pressure, and attitudes towards girls who wait to have sex. However, change on the latter item was in the unexpected direction, that is, their attitudes toward girls who wait until marriage for sex became less favorable over time. For the remaining seven items, there were no significant differences in how each grade was affected by participation in the abstinence program.

For three additional items, the change from pretest to posttest occurred in the opposite direction than expected. That is, the scores became less favorable over time. These items covered topic areas including: willingness to wait until marriage to have sex (eighth graders showing a negative change), attitude toward boys who wait (eighth graders showing a negative change), and firm intention to wait until marriage to have sex (both six and eighth graders showing a negative change). Eighth graders showed no change from pretest to posttest in trying to talk a friend out of having sex.

E. Summary and Discussion

Students were exposed to a unit on sexual abstinence taught by Empower staff during the 2002-2003 school year. A total of 127 students were matched between the pretest and posttest. Students were in the 6th and 8th grades, with an average age of 12.2 years. Female students comprised 50.4% of the total matched group.

When asked to respond to a series of attitudinal questions regarding sexuality, there were statistically significant changes from pretest to posttest on two items. More students agreed that young teens are not ready for sex, and, while few students talked to parents about sex often, they were more likely to talk to them after participation in the program. The items which did not show significant change were already very positive at pretest. Attitudes toward boys who wait until marriage for sex did not change over the period of the intervention, and attitudes toward having a firm intention to wait until marriage for sex actually became less favorable following participation in the program, though not significantly.

Males and females differed significantly on many questions at pretest and posttest, with males having less favorable attitudes. However, there were no significant differences between males and females when examining changes due to the intervention. There were a number of significant differences by grade at pretest and posttest, with eighth graders showing less favorable attitudes at posttest than sixth graders. Although change scores for sixth graders were significantly higher on two items, in general, both grades were affected similarly by participation in this abstinence program.

One student said that they had had sexual intercourse at pretest, and one at posttest as well. Some students did report that they were forced, threatened, talked into it, or felt they would be more accepted if they had sex.

A large majority of the students said that they had gained in areas that reflect the program objectives, with 97% saying that they had gained knowledge of the benefits of abstinence.

Among an additional eight items that focused on other objectives of the program, most students felt they were more comfortable in saying “no,” more confident about decisions, understood more how sex could affect their future, and understood better why they should wait to have sex. In general, they were very positive about the intervention.

**I-35 Middle School
Education Program
Pretest-Posttest 2002-2003**

A. Demographics of Program Participants (N=137)

Gender:

Gender	Number	Percentage
Females	66	48.2%
Males	71	51.8%

Age Distribution:

Age	Number	Percentage
11 years old	16	11.7%
12 years old	62	45.3%
13 years old	33	24.1%
14 years old	26	19.0%

Average age: 12.5 years. Median age: 12.0 years. S.D.: 0.93 years

Grade:

Grade	Number	Percentage
6 th	44	32.1%
7 th	49	35.8%
8 th	44	32.1%

Race:

Race	Number	Percentage
White	132	96.4%
Black	1	.7%
Hispanic	0	0.0%
Asian	1	.7%
Native American	1	.7%
More than one	1	.7%
Other	1	.7%

Information about the effectiveness of the abstinence-only program offered at I-35 was provided by students in 6th, 7th, and 8th grades during the 2002-2003 school year. Of the 137 students matched between pretest and posttest, there were more males than females (51.8% vs. 48.2%), and the majority of the students were White (96.4%). The average age was 12.5 years.

B. Pretest-Posttest Comparisons

Students were given a pretest at the beginning of the abstinence-only education program was begun. Following completion of the program students were given a posttest with items that were the same as those at pretest with the addition of 5 items related to the program's objectives and 8 items regarding knowledge, attitude and behavior change. The following information shows the pretest and posttest items, the percentage for each response for the total group and for the matched group, and the results of the statistical analysis which compared the pretest with posttest for students who could be matched on both instruments. The response categories were coded 1 to 5 for each question in the first section, with the exception of the question on communication with parents, which was coded 1 to 4. Lower mean scores indicate more positive attitudes. Results can be found in Table 14 on the following page.

Table 14. I-35 Middle School Pretest-Posttest Comparison

1. Most young teens are not ready to handle the problems that can arise from having sex.								
N=137	Strongly agree	Agree	Unsure	Disagree	Strong disagree	Mean	T value	Significance
Pretest	47%	39%	9%	2%	2%	1.72	2.370	p<.05
Posttest	57%	34%	7%	2%	0%	1.54		
2. Could you tell the other person in a dating relationship where you want to stop in showing affection physically?								
N=137	Definitely could	Probably could	Unsure	Probably could not	Definitely could not	Mean	T value	Significance
Pretest	39%	50%	9%	2%	1%	1.77	.535	N.S.
Posttest	47%	36%	12%	3%	1%	1.73		
3. How often have you and your parents (or guardians) talked about how they expect you to behave when it comes to sex?								
N=136	Often	Sometimes	Once or twice	Never		Mean	T value	Significance
Pretest	4%	24%	35%	36%		3.04	1.823	p<.05
Posttest	2%	32%	36%	29%		2.93		
4. If one of your friends was considering experimenting with sex, would you try to talk them out of it?								
N=137	Definitely yes	Probably yes	Unsure	Probably no	Definitely no	Mean	T value	Significance
Pretest	47%	28%	16%	6%	2%	1.87	.653	N.S.
Posttest	51%	28%	11%	8%	2%	1.82		
5. Do you intend to wait until you are married before having sexual intercourse?								
N=137	Definitely will wait	Probably will wait	Unsure	Probably will not wait	Definitely will not wait	Mean	T value	Significance
Pretest	36%	37%	15%	10%	1%	2.04	3.014	p<.01
Posttest	49%	28%	15%	7%	1%	1.85		
6. How do you feel about boys who want to wait until they are married before having sexual intercourse?								
N=134	They should be admired	They are OK	Unsure	Something is wrong with them	They should be put down	Mean	T value	Significance
Pretest	56%	33%	10%	1%	0%	1.56	2.220	p<.05
Posttest	65%	28%	4%	1%	1%	1.44		
7. How do you feel about girls who want to wait until they are married before having sexual intercourse?								
N=135	They should be admired	They are OK	Unsure	Something is wrong with them	They should be put down	Mean	T value	Significance
Pretest	59%	30%	10%	1%	1%	1.56	1.709	p<.05
Posttest	64%	28%	6%	1%	1%	1.47		
8. Do you believe that young teens who want to wait can resist peer pressure and do so?								
N=137	Definitely yes	Probably yes	Unsure	Probably no	Definitely no	Mean	T value	Significance
Pretest	19%	48%	23%	8%	1%	2.25	3.035	p<.01
Posttest	31%	44%	19%	6%	0%	1.99		
15. From now on do you intend to wait to have sexual intercourse until you are married?								
N=135	Definitely intend to wait	Probably intend to wait	Unsure	Probably intend not to wait	Definitely intend not to wait	Mean	T value	Significance
Pretest	36%	39%	16%	7%	3%	2.02	3.537	p<.01
Posttest	50%	29%	14%	6%	1%	1.80		

The results of the pretest-posttest comparison indicate that seven of the nine items showed a statistically significant positive change from pretest to posttest. This indicates that the I-35 program was effective in changing students' attitudes and actions in the following areas:

- ◆ Understanding that young teens are not ready for sex (question 1)
- ◆ Communication with parents/guardians about sex (question 3)
- ◆ Willingness to wait until marriage for sex (question 5)
- ◆ Positive attitudes toward boys who wait (question 6)
- ◆ Positive attitudes toward girls who wait (question 7)
- ◆ Belief that young teens can resist peer pressure to have sex (question 8)
- ◆ Intention to wait until marriage for sex (question 15)

It should be noted that in most cases, the means at pretest were already low, indicating substantial agreement with the statements before the program began. For instance, on all questions except for question 3, only 11% or fewer of students disagreed with the statement at pretest, and no more than 10% disagreed at posttest. This makes it all the more remarkable that significant change was achieved by the program.

The one response that did not show a strong positive trend at pretest related to communicating with parents about sex, where 36% of students indicated that they never talk to parents, and 35% that they had only done so once or twice. While the posttest showed significant change, 65% of students still reported "Never" or "Once or Twice."

One of the larger changes in means is evident for question 15 regarding intention to wait until marriage for sex. The decrease in mean score from 2.02 at pretest to 1.81 at posttest indicates that students heard the primary abstinence message.

The following table shows the number of students who reported having sexual intercourse at pretest and posttest and data about victimization.

Table 15. I-35 Middle School Behavioral Questions

		Yes		No	
		Count	Percentage	Count	Percentage
Have you ever had sexual intercourse?	Pretest	4	3%	133	97%
	Posttest	5	4%	130	96%
someone physically forced you	Pretest	1	11%	8	89%
	Posttest	2	50%	2	50%
someone threatened you	Pretest	1	11%	8	89%
	Posttest	1	20%	4	80%
someone talked you into it	Pretest	2	25%	6	75%
	Posttest	2	40%	3	60%
you felt you would be more accepted if you did	Pretest	1	11%	8	89%
	Posttest	1	17%	5	83%

As shown in the above table, four students reported having sexual intercourse before the program began and five students following participation in the program. Of the students at posttest who reported having had sexual intercourse, 2 indicated they were forced, 2 were talked into it, 1 was threatened, and 1 felt they would be more accepted if they had sex. Another student provided an addition reason for having sex: "fun."

C. Responses to Program Objectives

At the beginning of the posttest survey, students were asked to respond to five questions relating to the goals of the program. Results are presented in table 16 below.

Table 16. I-35 Middle School Program Objectives

	Yes		No	
	Count	Percentage	Count	Percentage
Have you gained more information about the risks of sex?	129	94%	8	6%
Have you gained new information about how to resist social and peer pressure?	116	85%	20	15%
Will the information help you in making decisions about having sex in the future?	124	92%	11	8%
Will you find it easier to say "NO" to sex in the future?	119	88%	17	13%
Have you gained knowledge of the benefits of abstinence until marriage?	125	93%	9	7%

Most students (85% to 94%) reported that they had gained information and intention to stay abstinent after being in the I-35 program. Students were particularly positive about gaining knowledge about the risks of sex (94%) and the benefits of abstinence until marriage (93%).

At the end of the posttest, students were asked to respond to eight items which asked them to rate the extent to which the program helped them. The mean score was calculated using values of 0, 1 and 2 for each of the response categories: Not at all, A little more, and A lot more. Higher mean scores suggest more positive results.

Table 17. I-35 Middle School Content Items

	N	Not at all	A little more	A lot more	Mean
I am more clear about the meaning of “NO MEANS NO.”	137	6%	43%	51%	1.45
I understand more about why I should wait to have sex with someone.	137	3%	30%	67%	1.64
I am more likely to talk to a parent or trusted adult about sex.	136	21%	54%	26%	1.05
I have more skills to resist pressure to have sex.	137	6%	36%	58%	1.52
I know more about how alcohol and drugs influence my decisions to have sex.	137	9%	31%	61%	1.52
I understand how my decisions about sex can change my future	137	4%	28%	68%	1.64
I am more comfortable asking questions of my parents or other trusted adults about sex.	137	25%	52%	23%	.99
I am less likely to think that I need a boyfriend/girlfriend to feel good about myself.	137	16%	42%	42%	1.26

The large majority of students (75% to 97%) reported that they had learned at least “A little more” in each of the content areas. The most positive results were for items dealing with understanding why they should wait to have sex and how decisions about sex can change their future, each with mean scores of 1.64. The two items with the lowest mean scores (.99 and 1.05) dealt with communication with adults or parents about sex, where 21% of students were “Not at all” likely to talk to a parent or trusted adult about sex, and 25% were “Not at all” comfortable asking questions about sex of their parents or trusted adults.

D. Comparison of Gender and Grade

A comparison of mean scores for males and females is presented in Table 18 below.

Table 18. I-35 Middle School Means by Gender

		Gender		T value	Significance
		Female	Male		
Most young teens are not ready to handle the problems that can arise from having sex.	Pretest	1.62	1.82	-1.303	N.S.
	Posttest	1.38	1.69	-2.590	p<.01
	Change	-.24	-.13	-.749	N.S.
Could you tell the other person in a dating relationship where you want to stop in showing affection physically?	Pretest	1.61	1.92	-2.424	p<.01
	Posttest	1.65	1.80	-1.048	N.S.
	Change	.05	-.11	1.159	N.S.
How often have you and your parents (or guardians) talked about how they expect you to behave when it comes to sex?	Pretest	2.92	3.14	-1.435	N.S.
	Posttest	2.77	3.07	-2.115	p<.05
	Change	-.14	-.07	-.600	N.S.
If one of your friends was considering experimenting with sex, would you try to talk them out of it?	Pretest	1.55	2.17	-3.712	p<.01
	Posttest	1.48	2.14	-3.856	p<.01
	Change	-.06	-.03	-.241	N.S.
Do you intend to wait until you are married before having sexual intercourse?	Pretest	1.80	2.27	-2.729	p<.01
	Posttest	1.62	2.06	-2.567	p<.01
	Change	-.18	-.21	.224	N.S.
How do you feel about boys who want to wait until they are married before having sexual intercourse?	Pretest	1.36	1.74	-3.192	p<.01
	Posttest	1.26	1.62	-3.065	p<.01
	Change	-.11	-.12	.114	N.S.
How do you feel about girls who want to wait until they are married before having sexual intercourse?	Pretest	1.31	1.77	-3.708	p<.01
	Posttest	1.26	1.66	-3.358	p<.01
	Change	-.06	-.11	.493	N.S.
Do you believe that young teens who want to wait can resist peer pressure and do so?	Pretest	2.06	2.42	-2.400	p<.01
	Posttest	1.92	2.06	-.896	N.S.
	Change	-.14	-.37	1.368	N.S.
From now on do you intend to wait to have sexual intercourse until you are married?	Pretest	1.81	2.21	-2.314	p<.05
	Posttest	1.62	1.97	-2.130	p<.05
	Change	-.17	-.24	.574	N.S.

Among the nine attitudinal/intention questions examined for gender differences, seven items at pretest and seven at posttest demonstrated that males were significantly different (had more negative attitudes) than the females. At pretest, these items dealt with:

- Telling a date when to stop
- Talking a friend out of having sex

- Willingness to wait until marriage to have sex
- Attitudes toward boys and girls who wait to have sex
- Resisting peer pressure
- Firm intention to wait until marriage to have sex.

At posttest, the items for which males had significantly less favorable responses involved

- Readiness for sex
- Communication with parents or trusted adults about sex
- Talking a friend out of having sex
- Willingness to wait until marriage to have sex
- Attitudes toward boys and girls who wait to have sex
- Firm intention to wait until marriage to have sex.

In examining the change scores from pretest to posttest for both males and females, there were no statistically significant differences, suggesting that males and females made relatively equal amounts of change in attitudes, although the male attitudes were generally more negative than the females at both pretest and posttest. Females demonstrated a change in the unexpected direction for one item indicating that, following participation in the abstinence education program, they were a little less likely than males to tell a date when to stop showing physical affection.

Comparisons of mean scores by grade are presented in Table 19 on the following page.

Table 19. I-35 Middle School Means by Grade

		Grade			F value	Significance
		6	7	8		
Most young teens are not ready to handle the problems that can arise from having sex.	Pretest	1.50	1.76	1.91	2.479	N.S.
	Posttest	1.59	1.45	1.59	.612	N.S.
	Change	.09	-.31	-.32	3.076	N.S.
Could you tell the other person in a dating relationship where you want to stop in showing affection physically?	Pretest	1.84	1.84	1.61	1.317	N.S.
	Posttest	1.77	1.73	1.68	.127	N.S.
	Change	-.07	-.10	.07	.573	N.S.
How often have you and your parents (or guardians) talked about how they expect you to behave when it comes to sex?	Pretest	3.36 * +	2.88 *	2.89 +	4.654	p<.05
	Posttest	3.14	2.88	2.77	2.244	N.S.
	Change	-.21	.00	-.11	1.168	N.S.
If one of your friends was considering experimenting with sex, would you try to talk them out of it?	Pretest	1.73	1.76	2.14	2.249	N.S.
	Posttest	1.52 +	1.76	2.20 +	5.029	p<.01
	Change	-.20	.00	.07	1.457	N.S.
Do you intend to wait until you are married before having sexual intercourse?	Pretest	1.93	1.98	2.23	1.058	N.S.
	Posttest	1.55 +	1.92	2.07 +	3.169	p<.05
	Change	-.39	-.06	-.16	2.210	N.S.
How do you feel about boys who want to wait until they are married before having sexual intercourse?	Pretest	1.45	1.57	1.64	.746	N.S.
	Posttest	1.21 +	1.54	1.57 +	3.514	p<.05
	Change	-.26	-.02	-.07	2.027	N.S.
How do you feel about girls who want to wait until they are married before having sexual intercourse?	Pretest	1.48	1.55	1.64	.467	N.S.
	Posttest	1.34	1.53	1.52	.949	N.S.
	Change	-.14	-.02	-.11	.463	N.S.
Do you believe that young teens who want to wait can resist peer pressure and do so?	Pretest	2.32	2.31	2.11	.714	N.S.
	Posttest	2.05	2.02	1.91	.312	N.S.
	Change	-.27	-.29	-.20	.087	N.S.
From now on do you intend to wait to have sexual intercourse until you are married?	Pretest	1.86	2.00	2.21	1.258	N.S.
	Posttest	1.55 +	1.80	2.07 +	3.207	p<.05
	Change	-.32	-.19	-.12	.987	N.S.

* = significant difference between grades 6 and 7

+ = significant difference between grades 6 and 8

= significant difference between grades 7 and 8

The results of the grade analysis indicate some differences between grades. At pretest, sixth graders had a significantly less favorable score than both seventh and eighth graders on the item dealing with communication with parents, meaning that they were least likely to talk with their parents about sex. At posttest, eighth graders were significantly more negative in their responses as compared to sixth graders on four items: talking a friend out of sex, willingness to wait until marriage to have sex, attitudes toward boys who wait, and a firm intention to wait until marriage to have sex. In comparing change from pretest to posttest across the grades, there were no

significant differences. This means that students in all three grades experienced similar changes as a result of participating in the abstinence program.

E. Summary and Discussion

Students responded to a series of questions about sexual abstinence at pretest and posttest, following participation in the abstinence-only program at I-35. A total of 137 students were matched between pretest and posttest. Students were in 6th, 7th, and 8th grades, and 51.8% were boys. Students' average age was 12.5 years, and almost all students (94.1%) indicated they were White.

On a series of nine attitudinal questions regarding sexuality, seven items demonstrated a statistically significant change from pretest to posttest in the anticipated direction. These items dealt with willingness to wait until marriage to have sex, understanding that young teens are not ready for sex, positive attitudes toward boys and girls who wait until marriage for sex, resistance to peer pressure to have sex, and a firm intention to wait until marriage for sex.

Another item related to communicating with parents about sex showed change from pretest to posttest, but it was in the opposite direction: students' attitudes changed for the worse. Almost all of the students indicated they had gained knowledge about the risks of sex and the benefits of abstinence until marriage (key points of the abstinence message), and that this knowledge would help in the future in making decisions about sex.

Among an additional eight items that focused on other content areas of the program, students felt they had a better understanding of how decisions about sex could change their future, and why they should wait to have sex. However, students were still uncomfortable in talking about sex to a parent or other adult.

The gender and grade differences suggest that males will require more effort to influence their attitudes than females, but students in all three middle school grades benefited from the abstinence education program at similar levels.

Four of the students (3%) at pretest and five (4%) at posttest said that they had had sexual intercourse. Several of these stated that they had been forced, threatened or talked into having sex, while one student felt they would be more accepted if they had sex.

**Linn County
Education Program
Pretest-Posttest 2002-2003**

A. Demographics of Program Participants (N=725)

Gender:

Gender	Number	Percentage
Females	362	50.0%
Males	362	50.0%

Age Distribution:

Age	Number	Percentage
11 y.o.	118	16.3%
12 y.o.	296	40.8%
13 y.o.	254	35.0%
14 y.o.	57	7.9%

Average age: 12.3 years. Median age: 12.0 years. S.D.: 0.84 years

Grade:

Grade	Number	Percentage
6 th	262	36.1%
7 th	252	34.8%
8 th	211	29.1%

Race:

Race	Number	Percentage
White	627	86.5%
Black	10	1.4%
Hispanic	8	1.1%
Asian	11	1.5%
Native American	6	.8%
More than one race	53	7.3%
Other	10	1.4%

The Linn County Education program was presented to students in sixth, seventh, and eighth grades. Of the 725 students matched on pretest and posttest, half (50.0%) were female. Ages ranged from 11 to 14 years old, with an average age of 12.3. Most of the students (86.5%) were White.

B. Pretest-Posttest Comparisons

Students were given a pretest at the beginning of the abstinence-only education program. Following completion of the program, students were given a posttest with items that were the same as those at pretest with the addition of 5 items related to the program's objectives and 8 items regarding knowledge, attitude and behavior change. The pretest and posttest were matched using demographic variables. The following information shows the pretest and posttest matched items with the percentage for each response for the matched group and the results of the statistical analysis which compared the pretest with posttest for students who could be matched on both instruments. The response categories were coded 1 to 5 for each question in the first section, with the exception of the question on communication with parents, which was coded 1 to 4. Lower mean scores reflect more positive attitudes. Results can be found in Table 20 on the following page.

Table 20. Linn County Pretest-Posttest Comparison

1. Most young teens are not ready to handle the problems that can arise from having sex.								
N=725	Strongly agree	Agree	Unsure	Disagree	Strong disagree	Mean	T value	Significance
Pretest	48%	36%	11%	4%	1%	1.74	4.942	p<.01
Posttest	58%	30%	8%	3%	1%	1.58		
2. Could you tell the other person in a dating relationship where you want to stop in showing affection physically?								
N=723	Definitely could	Probably could	Unsure	Probably could not	Definitely could not	Mean	T value	Significance
Pretest	43%	38%	14%	3%	2%	1.83	.505	N.S.
Posttest	44%	37%	14%	3%	2%	1.81		
3. How often have you and your parents (or guardians) talked about how they expect you to behave when it comes to sex?								
N=721	Often	Sometimes	Once or twice	Never		Mean	T value	Significance
Pretest	10%	31%	35%	23%		2.72	3.201	p<.01
Posttest	12%	33%	37%	19%		2.63		
4. If one of your friends was considering experimenting with sex, would you try to talk them out of it?								
N=724	Definitely yes	Probably yes	Unsure	Probably no	Definitely no	Mean	T value	Significance
Pretest	47%	26%	16%	7%	4%	1.95	1.255	N.S.
Posttest	48%	26%	15%	7%	4%	1.91		
5. Do you intend to wait until you are married before having sexual intercourse?								
N=723	Definitely will wait	Probably will wait	Unsure	Probably will not wait	Definitely will not wait	Mean	T value	Significance
Pretest	41%	28%	20%	8%	3%	2.05	7.125	p<.01
Posttest	50%	27%	15%	6%	2%	1.84		
6. How do you feel about boys who want to wait until they are married before having sexual intercourse?								
N=710	They should be admired	They are OK	Unsure	Something is wrong with them	They should be put down	Mean	T value	Significance
Pretest	62%	25%	11%	1%	1%	1.54	2.894	p<.01
Posttest	66%	24%	8%	1%	1%	1.47		
7. How do you feel about girls who want to wait until they are married before having sexual intercourse?								
N=712	They should be admired	They are OK	Unsure	Something is wrong with them	They should be put down	Mean	T value	Significance
Pretest	63%	24%	11%	1%	1%	1.53	3.710	p<.01
Posttest	67%	25%	6%	1%	1%	1.43		
8. Do you believe that young teens who want to wait can resist peer pressure and do so?								
N=722	Definitely yes	Probably yes	Unsure	Probably no	Definitely no	Mean	T value	Significance
Pretest	21%	44%	24%	9%	1%	2.24	3.734	p<.01
Posttest	27%	46%	20%	6%	2%	2.11		
15. From now on do you intend to wait to have sexual intercourse until you are married?								
N=709	Definitely intend to wait	Probably intend to wait	Unsure	Probably intend not to wait	Definitely intend not to wait	Mean	T value	Significance
Pretest	44%	27%	20%	6%	3%	1.98	7.154	p<.01
Posttest	52%	27%	13%	6%	2%	1.79		

There was a significant positive change in attitudes from pretest to posttest for seven of the nine questions. This indicates that the program was effective in changing student attitudes and actions in the following areas:

- Understanding that young teens are not ready for sex (question 1)
- Communication with parents/guardians about sex (question 3)
- Willingness to wait until marriage for sex (question 5)
- Positive attitudes toward boys who wait (question 6)
- Positive attitudes toward girls who wait (question 7)
- Belief that young teens can resist peer pressure to have sex (question 8)
- Intention to wait until marriage for sex (question 15)

It should be noted that in most cases, the means at pretest were already low, indicating substantial agreement with the statements even before the program began. This makes it all the more remarkable that significant change was achieved by the program.

While the posttest showed significant change in talking with parents about sex (question 3), 19% of students still reported “never” talking to parents about sex. The largest change in means is evident for question 5 regarding willingness to wait until marriage for sex. The mean score decreased significantly from 2.05 to 1.84 indicating that the goal of the abstinence message was achieved.

Table 21 presents summary results for questions about student behaviors. Large differences would not be expected given the amount of time between pretest and posttest.

Table 21. Linn County Behavioral Questions

		Yes		No	
		Count	Percentage	Count	Percentage
Have you ever had sexual intercourse?	Pretest	22	3%	694	97%
	Posttest	30	4%	678	96%
someone physically forced you	Pretest	7	28%	18	72%
	Posttest	9	33%	18	67%
someone threatened you	Pretest	8	32%	17	68%
	Posttest	7	25%	21	75%
someone talked you into it	Pretest	8	32%	17	68%
	Posttest	11	41%	16	59%
you felt you would be more accepted if you did	Pretest	5	19%	21	81%
	Posttest	10	37%	17	63%

The results show that 22 students (3%) at pretest and 30 students (4%) at posttest reported having had intercourse. Some discrepancies were detected between responses at pretest and posttest on ever having had sexual intercourse. Some students who reported having had intercourse said they had been talked into it (11 at posttest), felt they would be more accepted (10 at posttest), were forced (9 at posttest), while 7 reported they were threatened. Other reasons given for having had sex included: "I liked them," "To see what it feels like," "We liked each other a lot," "Experimenting," and "I felt it was a good time in our relationship."

C. Responses to Program Objectives

At the beginning of the posttest survey, students were asked to respond to five questions relating to the goals of the program. Results are presented in Table 22 below.

Table 22. Linn County Program Objectives

	Yes		No	
	Count	Percentage	Count	Percentage
Have you gained more information about the risks of sex?	681	94%	43	6%
Have you gained new information about how to resist social and peer pressure?	635	88%	90	12%
Will the information help you in making decisions about having sex in the future?	686	95%	34	5%
Will you find it easier to say "NO" to sex in the future?	650	90%	71	10%
Have you gained knowledge of the benefits of abstinence until marriage?	676	93%	48	7%

A large majority of the students (88% to 95%) reported that they had gained information and intention to stay abstinent after being in the program. Students were particularly positive about gaining information to

help them in making decisions (95%), gaining information about the risks of sex (94%), and gaining knowledge of the benefits of abstinence (93%).

At the conclusion of the posttest, students were asked to rate eight on the extent to which the program helped them. The mean score was calculated using values of 0, 1 and 2 for each of the response categories: Not at all, A little more, and A lot more. Higher mean scores suggest more positive results.

Table 23. Linn County Content Items

	N	Not at all	A little more	A lot more	Mean
I understand more about why I should wait to have sex with someone.	722	3%	41%	56%	1.53
I feel more comfortable asking questions of my parents or other trusted adults about sex.	724	24%	55%	21%	.97
I have more skills to resist peer pressure to have sex.	724	6%	43%	51%	1.45
I know more about how alcohol and drugs influence my decision to have sex.	722	8%	35%	56%	1.48
I understand how my decisions about sex can change my future.	722	2%	28%	69%	1.67
I know more about how the body changes during puberty.	724	13%	51%	36%	1.23
I know more about the dangers of sexually transmitted diseases and AIDS.	721	4%	33%	63%	1.59
I feel more comfortable saying “no” to sex until I am older.	722	6%	29%	65%	1.59

Most of the students (76% to 97%) reported that they had learned at least “a little more” in each of the content areas. The most positive mean responses were for items that dealt with understanding how sex could affect their future (1.67), knowing more about the dangers of STD’s and AIDS (1.59), and feeling more comfortable saying no to sex (1.59).

Students reported more modest increases in knowledge about how the body changes during puberty, (mean = 1.23). In the content area of talking to adults about sex, there were no gains for 24% of students (mean = 0.97).

D. Comparison of Gender and Grade

A comparison of mean scores for males and females is presented in Table 24 below.

Table 24. Linn County Means by Gender

		Gender		T value	Significance
		Female	Male		
Most young teens are not ready to handle the problems that can arise from having sex.	Pretest	1.60	1.86	-4.074	p<.01
	Posttest	1.43	1.72	-4.812	p<.01
	Change	-.17	-.14	-.430	N.S.
Could you tell the other person in a dating relationship where you want to stop in showing affection physically?	Pretest	1.69	1.97	-4.085	p<.01
	Posttest	1.65	1.98	-4.984	p<.01
	Change	-.04	.01	-.840	N.S.
How often have you and your parents (or guardians) talked about how they expect you to behave when it comes to sex?	Pretest	2.61	2.82	-2.920	p<.01
	Posttest	2.52	2.74	-3.293	p<.01
	Change	-.09	-.08	-.215	N.S.
If one of your friends was considering experimenting with sex, would you try to talk them out of it?	Pretest	1.62	2.28	-8.113	p<.01
	Posttest	1.57	2.27	-8.907	p<.01
	Change	-.06	-.02	-.671	N.S.
Do you intend to wait until you are married before having sexual intercourse?	Pretest	1.83	2.26	-5.277	p<.01
	Posttest	1.65	2.03	-4.950	p<.01
	Change	-.18	-.23	.844	N.S.
How do you feel about boys who want to wait until they are married before having sexual intercourse?	Pretest	1.35	1.74	-6.658	p<.01
	Posttest	1.32	1.63	-5.458	p<.01
	Change	-.03	-.13	1.785	p<.05
How do you feel about girls who want to wait until they are married before having sexual intercourse?	Pretest	1.34	1.71	-6.497	p<.01
	Posttest	1.29	1.57	-5.366	p<.01
	Change	-.05	-.14	1.833	p<.05
Do you believe that young teens who want to wait can resist peer pressure and do so?	Pretest	2.15	2.33	-2.652	p<.01
	Posttest	1.94	2.28	-4.883	p<.01
	Change	-.20	-.05	-2.163	p<.05
From now on do you intend to wait to have sexual intercourse until you are married?	Pretest	1.76	2.21	-5.731	p<.01
	Posttest	1.59	2.00	-5.477	p<.01
	Change	-.16	-.21	.859	N.S.

Results of the gender analysis indicate that males were significantly less favorable about every item at pretest and at posttest. This indicates a substantially different perspective between males and females in all aspects of the program that were measured.

The change from pretest to posttest was significantly different for males and females on three items. Males showed more change in the desired direction in their attitudes toward boys and girls who wait to have sex. Females showed more positive change in believing that teens can resist peer pressure to have sex. On all of the other items, the intervention had a similar effect on males and females.

Comparisons of mean scores by grade are presented in Table 25 on the following page.

Table 25. Linn County Means by Grade

		Grade			F value	Significance
		6	7	8		
Most young teens are not ready to handle the problems that can arise from having sex.	Pretest	1.76	1.67	1.78	1.236	N.S.
	Posttest	1.61	1.54	1.59	.517	N.S.
	Change	-.16	-.13	-.19	.309	N.S.
Could you tell the other person in a dating relationship where you want to stop in showing affection physically?	Pretest	1.88	1.75	1.87	1.625	N.S.
	Posttest	1.78	1.77	1.90	1.410	N.S.
	Change	-.10	.03	.03	1.803	N.S.
How often have you and your parents (or guardians) talked about how they expect you to behave when it comes to sex?	Pretest	2.78	2.73	2.61	2.010	N.S.
	Posttest	2.78 +	2.60	2.47 +	6.874	p<.01
	Change	-.01	-.12	-.14	2.473	N.S.
If one of your friends was considering experimenting with sex, would you try to talk them out of it?	Pretest	1.76 +	1.90 #	2.26 + #	12.008	p<.01
	Posttest	1.71 +	1.89 #	2.20 + #	11.516	p<.01
	Change	-.05	-.01	-.06	.223	N.S.
Do you intend to wait until you are married before having sexual intercourse?	Pretest	1.89 +	1.95 #	2.35 + #	11.933	p<.01
	Posttest	1.70 +	1.77#	2.10 + #	9.990	p<.01
	Change	-.19	-.18	-.24	.420	N.S.
How do you feel about boys who want to wait until they are married before having sexual intercourse?	Pretest	1.55	1.48	1.61	1.598	N.S.
	Posttest	1.44	1.40 #	1.60 #	3.962	p<.05
	Change	-.12	-.08	-.02	1.035	N.S.
How do you feel about girls who want to wait until they are married before having sexual intercourse?	Pretest	1.50	1.50	1.59	1.030	N.S.
	Posttest	1.39 +	1.37 #	1.55 + #	4.297	p<.05
	Change	-.12	-.12	-.04	.849	N.S.
Do you believe that young teens who want to wait can resist peer pressure and do so?	Pretest	2.26	2.20	2.26	.354	N.S.
	Posttest	2.03	2.13	2.17	1.419	N.S.
	Change	-.22	-.06	-.09	2.092	N.S.
From now on do you intend to wait to have sexual intercourse until you are married?	Pretest	1.89 +	1.88 #	2.24 + #	8.028	p<.01
	Posttest	1.67 +	1.75 #	2.00 + #	6.375	p<.01
	Change	-.20	-.13	-.22	1.084	N.S.

+ significant difference between grades 6 and 8
 # significant difference between grades 7 and 8

The analysis by grade showed several significant differences among the three grades at pretest and at posttest. The significant differences in responses included:

At both pretest and posttest:

- Talking a friend out of sex – grade 8 less favorable than grades 6 and 7
- Willingness to wait until marriage for sex – grade 8 less favorable than grades 6 and 7
- Intention to wait until marriage for sex – grade 8 less favorable than grade 6 and 7

At posttest:

- Communicating with parents about sex – grade 6 less favorable than grade 8
- Attitude toward boys who wait – grade 8 less favorable than grade 7
- Attitude toward girls who wait - grade 8 less favorable than grade 6 and 7

There were no significant differences in change scores between grades indicating that the participation in the abstinence education program had a similar positive effect on all grades.

E. Summary and Discussion

Public school teachers presented curriculum on sexual abstinence to students in 6th, 7th, and 8th grades in Linn County during the 2002-2003 school year. A total of 725 student evaluations were matched between the pretest and posttest. Demographic analysis of the survey respondents indicated that 50.0% percent were females, the average age was 12.3 years, and 86.5% were White.

In response to a series of attitudinal questions regarding sexuality, students demonstrated statistically significant changes from pretest to posttest on seven of the nine items. More students agreed that young teens are not ready for sex, that they can resist peer pressure to have sex, and that they had admiration for boys and girls who wanted to wait until marriage to have sex. They were also more likely to express the willingness and intention to wait until marriage to have sex. While few students talked to parents about sex often, they were more likely to talk to them after participation in the program.

There were significant differences between males and females at pretest and posttest on every attitudinal question with males reporting less favorable responses on each item. This finding indicates a different threshold or baseline from which boys are operating compared to girls. Examination of change scores revealed that there were only a few items with significant difference. Male attitudes toward both boys and girls who wait to have sex were more favorable at follow-up while females were more positive about resisting peer pressure to have sex.

Differences at pretest and posttest were also found among grades for several items, although no general trend was evident. Participation in the abstinence education program had a similar positive effect on all of the grades

Twenty-two students (3%) at pretest and 30 (4%) at posttest said that they had had sexual intercourse. Several of these stated that they were forced or threatened, talked into it, or felt they would be more accepted.

A large majority of the students said that they had gained in areas that reflect the program objectives, with 95% saying that the information they had gained would help them in future decision making on issues regarding sex.

Based on results of the additional eight items on the posttest survey focusing on other objectives of the program, no evidence could be found that the program increased the frequency of talking to parents about sex. However, students did feel they had learned a lot more about how decisions about sex could change their future, about STD's and AIDS, and were more comfortable saying "no" to sex.

Empower Community Program Pretest-Posttest 2002-2003

A. Demographics of Program Participants (N=358)

Gender:

Gender	Number	Percentage
Females	185	51.7%
Males	173	48.3%

Age Distribution:

Age	Number	Percentage
11 years old	54	15.2%
12 years old	146	41.0%
13 years old	131	36.8%
14 years old	25	7.0%

Average age: 12.4 years. Median age: 12.0 years. S.D.: .82 years

Grade:

Grade	Number	Percentage
6 th	148	41.5%
7 th	161	45.1%
8 th	48	13.4%

Race:

Race	Number	Percentage
White	336	93.9%
Black	4	1.1%
Hispanic	0	0.0%
Asian	2	0.6%
Native American	1	0.3%
More than one race	12	3.4%
Other	3	0.8%

The Empower program was offered to students in five towns as a part of the Empower Community program. Students in these towns were in the sixth, seventh, and eighth grades. Out of 358 students that matched on pretest and posttest, 51.7% were females and 93.9% were White. Ages ranged from 11 to 14 years, with an average age of 12.4 years.

Breakdowns on demographic information for individual communities that used both the pretest and posttest are found in Table 26 below.

Table 26. Empower Community Site Demographics

	Eagle Grove		Atlantic		Clarinda		Pleasantville		Knoxville	
	N	%	N	%	N	%	N	%	N	%
Gender										
Females	35	54.7%	43	53.8%	50	52.6%	10	45.5%	47	48.5%
Males	29	45.3%	37	46.3%	45	47.4%	12	54.5%	50	51.5%
Age										
11 y.o.	0	0%	18	22.5%	27	28.7%	9	40.9%	0	0%
12 y.o.	28	43.8%	59	73.8%	19	20.2%	13	59.1%	27	28.1%
13 y.o.	36	56.3%	3	3.8%	25	26.6%	0	0%	67	69.8%
14 y.o.	0	0%	0	0%	23	24.5%	0	0%	2	2.1%
Grade										
6 th	0	0%	80	100.0%	46	48.9%	22	100.0%	0	0%
7 th	64	100.0%	0	0%	0	0%	0	0%	97	100.0%
8 th	0	0%	0	0%	48	51.1%	0	0%	0	0%
Race										
White	61	95.3%	73	91.3%	88	92.6%	20	90.9%	94	96.9%
Black	2	3.1%	1	1.3%	0	0%	0	0%	1	1.0%
Hispanic	0	0%	0	0%	0	0%	0	0%	0	0%
Asian	0	0%	1	1.3%	1	1.1%	0	0%	0	0%
Native American	0	0%	1	1.3%	0	0%	0	0%	0	0%
More than one race	1	1.6%	3	3.8%	4	4.2%	2	9.1%	2	2.1%
Other	0	0%	1	1.3%	2	2.1%	0	0%	0	0%

B. Pretest-Posttest Comparisons

Students were given a pretest at the beginning of the abstinence-only education program. Following completion of the program, students were given a posttest with items that were the same as those at pretest with the addition of 5 items related to the program's objectives and 8 items regarding knowledge, attitude and behavior change. The following information shows the pretest and posttest items, the percentage for each response for the matched group, and the results of the statistical analysis. The response categories were coded 1 to 5 for each question in the first section, with the exception of the question on communication with parents, which was coded 1 to 4. Lower mean scores reflect more positive attitudes. Results can be found in Table 27 on the following page.

Table 27. Empower Community Pretest-Posttest Comparison

1. Most young teens are not ready to handle the problems that can arise from having sex.								
N=358	Strongly agree	Agree	Unsure	Disagree	Strong disagree	Mean	T value	Significance
Pretest	56%	29%	11%	3%	2%	1.65	1.003	N.S.
Posttest	59%	28%	8%	3%	2%	1.60		
2. Could you tell the other person in a dating relationship where you want to stop in showing affection physically?								
N=357	Definitely could	Probably could	Unsure	Probably could not	Definitely could not	Mean	T value	Significance
Pretest	38%	39%	17%	6%	0%	1.90	1.934	p<.05
Posttest	45%	36%	13%	4%	1%	1.80		
3. How often have you and your parents (or guardians) talked about how they expect you to behave when it comes to sex?								
N=355	Often	Sometimes	Once or twice	Never		Mean	T value	Significance
Pretest	11%	28%	32%	29%		2.77	4.263	p<.01
Posttest	12%	36%	33%	19%		2.58		
4. If one of your friends was considering experimenting with sex, would you try to talk them out of it?								
N=357	Definitely yes	Probably yes	Unsure	Probably no	Definitely no	Mean	T value	Significance
Pretest	56%	24%	12%	5%	3%	1.75	-.822	N.S.
Posttest	55%	23%	12%	6%	3%	1.79		
5. Do you intend to wait until you are married before having sexual intercourse?								
N=354	Definitely will wait	Probably will wait	Unsure	Probably will not wait	Definitely will not wait	Mean	T value	Significance
Pretest	48%	23%	18%	8%	3%	1.96	2.852	p<.01
Posttest	54%	20%	17%	8%	1%	1.83		
6. How do you feel about boys who want to wait until they are married before having sexual intercourse?								
N=336	They should be admired	They are OK	Unsure	Something is wrong with them	They should be put down	Mean	T value	Significance
Pretest	66%	22%	9%	3%	0%	1.49	1.333	N.S.
Posttest	70%	21%	6%	2%	1%	1.43		
7. How do you feel about girls who want to wait until they are married before having sexual intercourse?								
N=336	They should be admired	They are OK	Unsure	Something is wrong with them	They should be put down	Mean	T value	Significance
Pretest	69%	18%	10%	2%	1%	1.48	.298	N.S.
Posttest	70%	20%	7%	2%	1%	1.46		
8. Do you believe that young teens who want to wait can resist peer pressure and do so?								
N=344	Definitely yes	Probably yes	Unsure	Probably no	Definitely no	Mean	T value	Significance
Pretest	30%	43%	20%	6%	1%	2.05	3.268	p<.01
Posttest	38%	42%	16%	3%	1%	1.87		
15. From now on do you intend to wait to have sexual intercourse until you are married?								
N=295	Definitely intend to wait	Probably intend to wait	Unsure	Probably intend not to wait	Definitely intend not to wait	Mean	T value	Significance
Pretest	51%	25%	14%	7%	4%	1.87	2.675	p<.01
Posttest	55%	25%	15%	4%	1%	1.73		

There was a significant positive change in attitudes for five of the nine questions from pretest to posttest. This indicates that the program was achieved its objective of positively influencing student attitudes and actions in the following areas:

- Telling a date where they want to stop showing affection (question 2)
- Communication with parents/guardians about sex (question 3)
- Willingness to wait until marriage for sex (question 5)
- Belief that young teens can resist peer pressure to have sex (question 8)
- Intention to wait until marriage for sex (question 15)

It should be noted that in most cases, the means at pretest were already low, indicating substantial agreement with the statements even before the program began. On questions 1, 2, 6, 7, and 15, 8% or fewer of the students disagreed at pretest, and in no cases did more than 11% of students disagree. The one response that showed a less positive trend at pretest related to communicating with parents about sex, where 29% of students indicated that they never talk to parents, and 32% that they had only done so once or twice. Some of the largest changes in mean scores were evident in question 5 (from 1.96 to 1.83) and in question 15 (from 1.87 to 1.73), regarding willingness and intention to wait until marriage to have sex. These decreases indicate that students heard the primary message of abstinence.

There were some differences among the four Empower community sites that used both the pretest and posttest. Table 28 on the following page presents the questions and whether or not each site showed significant change from pretest to posttest. (An “S” represents significant change.)

Table 28. Empower Community Pretest-Posttest Comparison by Site

S = significant positive result N = no significant positive result	Atlantic	Clarinda	Eagle Grove	Pleasantville	Knoxville	Overall
Number of Participants	80	95	64	22	97	358
1. Most young teens are not ready to handle the problems that can arise from having sex.	S	N	N	N	N	N
2. Could you tell the other person in a dating relationship where you want to stop in showing affection physically?	S	N	N	N	N	S
3. How often have you and your parents (or guardians) talked about how they expect you to behave when it comes to sex?	S	S	S	N	N	S
4. If one of your friends was considering experimenting with sex, would you try to talk them out of it?	N	N	N	N	N	N
5. Do you intend to wait until you are married before having sexual intercourse?	S	S	S	N	N	S
6. How do you feel about boys who want to wait until they are married before having sexual intercourse?	S	N	N	N	N	N
7. How do you feel about girls who want to wait until they are married before having sexual intercourse?	N	N	N	N	N	N
8. Do you believe that young teens who want to wait can resist peer pressure and do so?	S	S	S	N	N	S
15. From now on do you intend to wait to have sexual intercourse until you are married?	N	S	S	N	N	S

For one of the sites, Pleasantville, the number of students who matched from pretest to posttest was less than 50, and there were no significant positive changes from pretest to posttest. For the Knoxville site, changes from pretest to posttest for all questions were in the unexpected direction, that is, they worsened over time. For the other sites, significant positive change occurred on six items for Atlantic and four items each for Clarinda and Eagle Grove. These items dealt with understanding that young teens are not ready for sex, telling a date when to stop, communication about sex with parents/guardians, willingness and intention to wait until marriage for sex, positive attitudes toward girls who wait, and believing teens can resist peer pressure. (It should be noted that, for the Atlantic site, only half of the students responded to question 15 at pretest and posttest.) Taken as a whole, positive changes were significant on five of the nine items.

Questions regarding behavior were included next. The time period was relatively short between pretest and posttest, which means that little change would be expected in the number of students who were sexually active. Results are presented in Table 29 on the following page.

Table 29. Empower Community Behavioral Questions

		Yes		No	
		Count	Percentage	Count	Percentage
Have you ever had sexual intercourse?	Pretest	14	5%	260	95%
	Posttest	17	6%	261	94%
someone physically forced you	Pretest	2	9%	21	91%
	Posttest	4	19%	17	81%
someone threatened you	Pretest	2	9%	21	91%
	Posttest	5	24%	16	76%
someone talked you into it	Pretest	3	13%	21	88%
	Posttest	7	35%	13	65%
you felt you would be more accepted if you did	Pretest	1	4%	23	96%
	Posttest	3	14%	19	86%

The results show that 14 students reported having had intercourse at pretest and 17 at posttest. Of those students who responded to these behavioral questions at posttest, 4 reported they were physically forced, 5 were threatened, 7 were talked into it, and 3 felt they would be more accepted if they had sex. Other reasons given for having sex included: “Wanted to,” and “Decided to try it; we used protection to be safe.”

C. Responses to Program Objectives

At the beginning of the posttest survey, students were asked to respond to five questions relating to the goals of the program. Results for the Empower Community Program are presented in Table 30 below.

Table 30. Empower Community Program Objectives

	Yes		No	
	Count	Percentage	Count	Percentage
Have you gained more information about the risks of sex?	337	94%	20	6%
Have you gained new information about how to resist social and peer pressure?	330	92%	27	8%
Will the information help you in making decisions about having sex in the future?	335	95%	18	5%
Will you find it easier to say "NO" to sex in the future?	318	90%	37	10%
Have you gained knowledge of the benefits of abstinence until marriage?	336	95%	19	5%

Most students (90% to 95%) reported that they had gained information and intention to stay abstinent after being in the program. Students were particularly positive about gaining information to help them in making decisions (with 95% responding yes), and gaining knowledge of the benefits of abstinence (also with 95% responding yes).

Finally, at the end of the posttest, students were asked to respond to eight items that asked them to rate the extent to which the program helped them. The mean score was calculated using values of 0, 1 and 2 for each of the response categories: Not at all, A little more, and A lot more. Higher mean scores suggest more positive results.

Table 31. Empower Community Content Items

	N	Not at all	A little more	A lot more	Mean
I feel more strongly that I want to postpone sex in the future.	345	6%	34%	60%	1.54
I understand more about why I should wait to have sex with someone.	344	5%	21%	74%	1.68
I have more skills to resist pressure to have sex.	345	5%	32%	63%	1.59
I understand how my decisions about sex can change my future.	344	3%	21%	76%	1.73
I feel confident about the decisions I make.	345	4%	28%	68%	1.64
I feel more comfortable saying no to sex until I am older.	344	6%	23%	71%	1.65
I feel better about myself.	346	9%	26%	65%	1.56
I am more aware of my unique qualities and talents.	343	8%	35%	57%	1.49

A large majority of the students (91% to 97%) reported that they had learned at least “a little more” in each of the areas. The most positive results were in understanding how decisions about sex could affect their future, with a mean score of 1.73. Other areas in which the mean scores for students were higher included:

- Understanding why they should wait to have sex (1.68)
- Feeling more comfortable in saying “no” (1.65)
- Feeling confident about decisions (1.64)

Students had lower but still quite positive responses to:

- Skills to resist peer pressure to have sex (1.59)
- Feeling better about themselves (1.56)
- Feeling more strongly that they want to postpone sex (1.54)

D. Comparison of Gender and Grade

A comparison of mean scores for males and females is presented in Table 32 below.

Table 32. Empower Community Means by Gender

		Gender		T value	Significance
		Female	Male		
Most young teens are not ready to handle the problems that can arise from having sex.	Pretest	1.54	1.77	-2.534	p<.01
	Posttest	1.47	1.73	-2.820	p<.01
	Change	-.06	-.04	-.230	N.S.
Could you tell the other person in a dating relationship where you want to stop in showing affection physically?	Pretest	1.81	2.01	-2.204	p<.05
	Posttest	1.69	1.92	-2.515	p<.01
	Change	-.12	-.09	-.295	N.S.
How often have you and your parents (or guardians) talked about how they expect you to behave when it comes to sex?	Pretest	2.66	2.90	-2.288	p<.05
	Posttest	2.49	2.69	-2.000	p<.05
	Change	-.16	-.22	.577	N.S.
If one of your friends was considering experimenting with sex, would you try to talk them out of it?	Pretest	1.39	2.12	-6.941	p<.01
	Posttest	1.39	2.21	-7.494	p<.01
	Change	.00	.09	-.841	N.S.
Do you intend to wait until you are married before having sexual intercourse?	Pretest	1.68	2.26	-4.952	p<.01
	Posttest	1.62	2.06	-3.949	p<.01
	Change	-.06	-.21	1.618	p<.05
How do you feel about boys who want to wait until they are married before having sexual intercourse?	Pretest	1.24	1.77	-6.617	p<.01
	Posttest	1.27	1.62	-4.236	p<.01
	Change	.03	-.14	2.199	p<.05
How do you feel about girls who want to wait until they are married before having sexual intercourse?	Pretest	1.25	1.72	-5.472	p<.01
	Posttest	1.26	1.66	-4.593	p<.01
	Change	.02	-.04	.747	N.S.
Do you believe that young teens who want to wait can resist peer pressure and do so?	Pretest	1.97	2.14	-1.702	p<.05
	Posttest	1.74	2.01	-2.995	p<.01
	Change	-.24	-.12	-1.096	N.S.
From now on do you intend to wait to have sexual intercourse until you are married?	Pretest	1.63	2.13	-3.950	p<.01
	Posttest	1.61	1.85	-2.262	p<.05
	Change	.00	-.27	2.771	p<.01

The results of the gender analysis show that males had significantly higher (less favorable) scores than females on all of the nine items both at pretest and posttest. This indicates that, in general, males had less agreement with the program concepts than did females before the program started and that their views were still less favorable than females at the close of the program.

For the item on talking a friend out of having sex, girls experienced no change from pretest to posttest. For two additional items, the change from pretest to posttest occurred in the opposite direction as expected, indicating that girls' average responses became more negative/less favorable when asked about their attitudes toward boys and girls who wait until marriage to have sex.

Significant difference in change scores between boys and girls occurred for three items. Boys had experienced more change than girls in their attitudes on items dealing with willingness to wait until marriage for sex, admiration for boys who wait, and firmly intending to wait until marriage to have sex. On the remaining six items, there were no significant differences between males and females on the changes from pretest to posttest, indicating that, on the whole, the intervention did influence males and females to similar degree.

Only one of the Empower Community sites, Clarinda, served more than one grade level. Comparisons of mean scores by grade for the Clarinda site are presented in Table 33 on the following page.

Table 33. Empower Clarinda Community Means by Grade

		Grade		F value	Significance
		6	8		
Most young teens are not ready to handle the problems that can arise from having sex.	Pretest	1.70	1.71	.005	N.S.
	Posttest	1.61	1.50	.448	N.S.
	Change	-.09	-.21	.381	N.S.
Could you tell the other person in a dating relationship where you want to stop in showing affection physically?	Pretest	2.04	2.04	.000	N.S.
	Posttest	1.98	1.88	.267	N.S.
	Change	-.07	-.17	.224	N.S.
How often have you and your parents (or guardians) talked about how they expect you to behave when it comes to sex?	Pretest	3.15	2.60	6.662	p<.05
	Posttest	2.91	2.40	8.127	p<.01
	Change	-.24	-.21	.046	N.S.
If one of your friends was considering experimenting with sex, would you try to talk them out of it?	Pretest	1.61	2.21	6.223	p<.05
	Posttest	1.70	2.13	3.348	N.S.
	Change	.09	-.08	1.022	N.S.
Do you intend to wait until you are married before having sexual intercourse?	Pretest	2.22	2.69	3.020	N.S.
	Posttest	1.78	2.35	5.844	p<.05
	Change	-.43	-.33	.301	N.S.
How do you feel about boys who want to wait until they are married before having sexual intercourse?	Pretest	1.80	1.75	.063	N.S.
	Posttest	1.64	1.73	.173	N.S.
	Change	-.16	-.02	.671	N.S.
How do you feel about girls who want to wait until they are married before having sexual intercourse?	Pretest	1.70	1.70	.001	N.S.
	Posttest	1.46	1.64	1.055	N.S.
	Change	-.24	-.02	1.706	N.S.
Do you believe that young teens who want to wait can resist peer pressure and do so?	Pretest	2.30	2.35	.065	N.S.
	Posttest	2.11	2.06	.079	N.S.
	Change	-.20	-.29	.219	N.S.
From now on do you intend to wait to have sexual intercourse until you are married?	Pretest	2.17	2.78	5.461	p<.05
	Posttest	1.80	2.22	3.361	N.S.
	Change	-.37	-.52	.834	N.S.

The results of the analysis by grade at the Clarinda site showed several significant differences, including:

At pretest:

- Talking a friend out of sex – grade 8 less favorable than grade 6 at pretest
- Intention to wait until marriage for sex – grade 8 less favorable than grade 6 at pretest.

At posttest:

- Willingness to wait until marriage for sex – grades 8 less favorable than grade 6 at posttest
- Attitude toward boys and girls who wait to have sex – grade 6 less favorable than grade 8 at posttest

At both pretest and posttest:

- Talking to parents about sex – grade 6 less favorable than grade 8 at pretest and posttest

These results indicate several differences between attitudes in the two grades, although there is no clear pattern. There were no significant differences in change scores between the grades which indicates that the intervention had a similar effect across grade levels.

E. Summary and Discussion

Students were exposed to a curriculum on sexual abstinence taught by the Empower staff during the 2002-2003 school year at five community sites. A pretest and posttest were matched for 358 students who were in grades six, seven, and eight. Fifty-two percent of the students were females, 93.9% were White, and the average age was 12.4 years.

When examining the responses to a series of attitudinal questions regarding sexuality, there were statistically significant positive changes from pretest to posttest on five of nine items for the overall group. The Atlantic site showed the most significant change while the Pleasantville site experienced no significant changes. For the Knoxville site, changes from pretest to posttest for all questions were in the unexpected direction, that is, student responses became worse over time. Overall, after participation in the abstinence education program, more students agreed that they could tell a date when to stop, would try to talk a friend out of having sex, and could resist peer pressure to have sex. They were also more likely to express the willingness and intention to wait until marriage to have sex. While few students talked to parents about sex often, they were more likely to talk to them after participation in the program.

There were gender differences on the attitudinal questions at pretest and posttest on all nine items, with males responding less favorably than females. Differences in change scores between boys and girls showed that boys became more positive than girls in their attitudes toward boys who wait to have sex and toward willingness and intention to wait until marriage for sex. On the whole, however, the intervention influenced boys and girls to a similar degree.

Only one of the Empower sites, Clarinda, served more than one grade. There were several significant differences between sixth and eighth graders, but no trend was evident. Fourteen students (5%) said that they had had sexual intercourse at pretest, while 17 (6%) indicated this at posttest. Several of these students reported they had been talked into it, threatened, physically forced, or felt they would be more accepted if they had sex.

A large majority of the students said that they had gained in areas that reflect the program objectives, with 95% reporting they had gained knowledge of the benefits of abstinence until marriage and that this information will help them in future decision making about sex. In response to an additional eight items that focused on other objectives of the program, students felt they had learned a lot more in all of the topic areas, and were most positive about their understanding of why they should wait to have sex.

Linn County Community Program 2002-2003

The Linn County Community program included many prevention presentations with a life skills focus to youth in Linn County and the surrounding area, coordinated through Young Parents Network (YPN). This project received both Abstinence Education and Adolescent Pregnancy Prevention (APP) funding for these activities. The Evaluation Committee of YPN developed their own evaluation tool specific to their program goals and focused on life skills. The information provided in this section is from YPN's own analysis of a random sample of 237 responses to their pretest and posttest forms.

A. Demographics

The results of the analysis of the demographics information indicate that the majority of respondents in the sample were female (60.8%). Most students identified themselves as White (85.4%), while others indicated they were multicultural (5.3%), African American (4.4%), Hispanic (2.2%), Asian/Pacific Islander (1.3%), Indian/Alaskan Native (.4%) or other (.9%).

B. Responses to Evaluation Questions

Listed below are the 10 questions asked at pretest and posttest for the YPN Evaluations as well as the percent of positive change/increase in knowledge for FY02 and FY03.

	<u>FY02</u>	<u>FY03</u>
Question 1: I talk to a parent or trusted adult about sex.	41%	48%
Question 2: I feel confident to talk to a parent or trust adult about sexual activity	52%	35%
Question 3: I think about my decisions regarding sexual activity.	42%	38%
Question 4: I feel it is important to talk to a parent or trusted adult about sexual activity.	49%	35%
Question 5: I think about goals for myself.	44%	34%
Question 6: I think about the consequences of sexual activity.	56%	27%
Question 7: I know about the financial costs of becoming a parent.	903%	60%
Question 8: I know the responsibilities of being a parent.	83%	50%
Question 9: I know that becoming a parent would affect my daily living.	45%	19%
Question 10: I know the financial, emotional, and personal strengths needed to be a good parent.	84%	46%
Average Change Across all 10 questions	60%	39%

YPN's Evaluation Committee identified that the youth had a difficult time in completing the forms used, affecting the results of the evaluation. Students in general reported a decrease in knowledge following participation in the programs. The Committee is utilizing this information to make improvements in the evaluation tool.

SUMMARY AND COMPARISON

ABSTINENCE ONLY

There were five programs that used the pretest-posttest model. Table 34 on page 73 identifies the five programs for which pretest-posttest data were collected and analyzed. These were Bethany, Empower Education, I-35, Linn County Education, and Empower Community. The results of each of these programs are discussed in turn. The Bethany site also used a posttest only model for evaluation of its one-session presentations.

A review of the information in Table 34 shows that data from a similar number of participants were analyzed for the pretest/posttest model in the fifth year of the grant program (N=1438) as in the fourth grant year (N=1423). Three programs—I-35, Linn County, and Empower Community—showed an increase from 2002 to 2003 in the number of participants included in the evaluation while two programs experienced a decrease. The Bethany Education Program saw the largest decrease in participant numbers for the pretest/posttest model from 256 in 2002 to 91 in 2003. [Since most of Bethany's abstinence-only programs were offered through another funding source (SPRANS), one-time presentations reported in this study used the posttest-only evaluation model.]

The Bethany program used the "A.C. Green's Game Plan Abstinence" in promoting abstinence in the communities it served. Ninety-one youth evaluations were matched between pretest and posttest in this past grant year (2003). In examining outcomes for the Bethany program using the nine core items in Table 34, eight of the items showed significant change from pretest to posttest. The one item for which there was no significant change dealt with attitudes toward boys who want to wait until marriage to have sex.

The Empower Pella program uses their own curriculum with sixth, seventh, and ninth graders and "Choosing the Best" with eighth graders. Evaluations from 127 students who participated in the Pella program were matched from pretest to posttest in the most recent grant year; a decrease of 26 students from the prior grant year. The program demonstrated statistically significant changes in students on two of the nine core items including those dealing with readiness to handle problems from having sex and communicating with parents about sex.

The I-35 program, serving the middle school of the I-35 School District in Iowa – used the "Creating Positive Relationships" curriculum to focus on the benefits and consequences for the whole person in remaining abstinent until marriage. There was significant change from pretest to posttest on seven of the nine core items among the students surveyed. The items that did not show significant change dealt with telling a date when to stop in showing physical affection and trying to talk a friend out of having sex. The fourth educational model tested was the Linn County program. This abstinence-only educational program used the "Life Skills" curriculum with sixth through eighth graders in the College Community School District. Linn County matched 725 students in the current grant year. Seven of the nine core

items showed a statistically significant change from pretest to posttest. The two items that did not show significant change included: "Could you tell the other person in a dating relationship where you want to stop in showing physical affection?" and "If one of your friends was considering experimenting with sex, would you try to talk them out of it?"

The Empower Community program represents middle school students who participated in abstinence-only education programs in five communities and used the pretest-posttest format. These community programs used three curricula: the curriculum developed by the Empower project, "Choosing the Best," and "Managing Pressures." Five of the nine core pretest-posttest items showed a statistically significant positive change. The items that showed no significant change dealt with understanding that teens are not ready to handle sex, trying to talk a friend out of having sex, and attitudes toward boys and girls who want to wait until marriage to have sex.

The Linn County Community program provided a variety of abstinence education presentations to youth in Linn County and the surrounding area this past year coordinated by the Young Parents Network. However, the pretest-posttest format of this study was not utilized by this community program during the 2002-2003 grant year. They developed and used their own evaluation tools and shared some of the results which appear in an earlier section of this report.

Table 34. Significance of Results Across Programs for 1999, 2000, 2001, 2002, and 2003

S = significant positive result N = no significant positive result NA = not asked	Year	Bethany Education	Empower Pella	I-35 Education	Linn Co. Education	Empower Community	Significant Across Programs
Number of Participants	1999	32	78	79	258	284	731
	2000	26	159	116	552	404	1257
	2001	150	205	109	669	519	1652
	2002	256	153	99	657	258	1423
	2003	91	127	137	725	358	1438
1. Most young teens are not ready to handle the problems that can arise from having sex.	1999	N	NA	N	S	S	2/4
	2000	N	S	N	S	S	3/5
	2001	S	S	N	S	S	4/5
	2002	S	S	N	S	N	3/5
	2003	S	S	S	S	N	4/5
2. Could you tell the other person in a dating relationship where you want to stop in showing affection physically?	1999	N	NA	N	N	S	1/4
	2000	N	S	N	N	S	2/5
	2001	S	S	S	N	S	4/5
	2002	S	S	N	N	S	3/5
	2003	S	N	N	N	S	2/5
3. How often have you and your parents (or guardians) talked about how they expect you to behave when it comes to sex?	1999	N	NA	N	S	S	2/4
	2000	N	S	S	S	S	4/5
	2001	S	S	N	S	S	4/5
	2002	N	S	S	S	S	4/5
	2003	S	S	S	S	S	5/5
4. If one of your friends was considering experimenting with sex, would you try to talk them out of it?	1999	S	NA	S	N	S	3/4
	2000	N	S	N	S	S	3/5
	2001	S	S	N	S	S	4/5
	2002	S	S	N	N	S	3/5
	2003	S	N	N	N	N	1/5
5. Do you intend to wait until you are married before having sexual intercourse?	1999	N	NA	N	N	S	1/4
	2000	N	S	N	S	S	3/5
	2001	S	S	N	S	S	4/5
	2002	S	S	S	S	S	5/5
	2003	S	N	S	S	S	4/5
6. How do you feel about boys who want to wait until they are married before having sexual intercourse?	1999	S	NA	N	N	S	2/4
	2000	N	N	N	S	S	2/5
	2001	N	S	N	S	S	3/5
	2002	N	N	N	N	N	0/5
	2003	N	N	S	S	N	2/5
7. How do you feel about girls who want to wait until they are married before having sexual intercourse?	1999	S	NA	S	N	S	3/4
	2000	N	N	N	S	S	2/5
	2001	N	N	N	S	S	2/5
	2002	N	N	N	S	N	1/5
	2003	S	N	S	S	N	3/5

Table 34 CONTINUED. Significance of Results Across Programs for 1999, 2000, 2001, 2002, and 2003

S = significant positive result N = no significant positive result NA = not asked	Year	Bethany Education	Empower Pella	I-35 Education	Linn Cty Education	Empower Community	Significant Across Programs
8. Do you believe that young teens who want to wait can resist peer pressure and do so?	1999	N	NA	S	N	S	2/4
	2000	N	S	N	S	S	3/5
	2001	S	S	N	S	S	4/5
	2002	S	S	N	S	S	4/5
	2003	S	N	S	S	S	4/5
15. From now on do you intend to wait to have sexual intercourse until you are married?	1999	N	NA	N	N	N	0/4
	2000	N	S	N	S	S	3/5
	2001	S	S	N	S	S	4/5
	2002	S	N	N	S	S	3/5
	2003	S	N	S	S	S	4/5

In examining why some programs had little effect on student attitudes and intentions toward abstinence, several reasons may be considered: 1) the intervention being used by the program is not sufficiently strong to effect change in the students on the items being tested; 2) testing effects or other extraneous factors account for the lack of change (for example, the wording of an item may have been confusing); or 3) the sample size was so small as to require much larger effects to achieve significance.

There were varied levels of significant findings among the programs examined. All but one program had at least five significant findings among the nine core items. One program had eight significant findings, two programs had seven, one program had five, and one program had only two.

The items that showed the least significant change across the five program sites during this past year were:

- “If one of your friends was considering experimenting with sex, would you try to talk them out of it?” (1 out of the 5 showed change),
- “Could you tell the other person in a dating relationship where you want to stop in showing affection physically?” (2 of the 5 showed change), and
- “How do you feel about boys who want to wait until they are married before having sexual intercourse?” (2 of the 5 showed change).

The items that showed the most significant change among the five programs were:

- “How often have you and your parents talked about ...sex?” (all programs showed change),
- “Most young teens are not ready to handle the problems that can arise from having sex.” (4 out of 5 programs showed change),
- “Do you intend to wait until you are married before having sexual intercourse?” (4 out of 5 programs showed change),
- “Do you believe that young teens who want to wait can resist peer pressure and do so?” (4 out of 5 showed change), and

- “From now on, do you intend to wait to have sexual intercourse until you are married?” (4 out of 5 showed change).

The majority of grantees are having the desired effect: a commitment by students to “intend to wait until marriage before having sexual intercourse.” Largely unknown, however, is whether this intention – voiced primarily by middle school students in this study – will be upheld in their behaviors as they move into high school when most sexual behavior is initiated. However, there is some recent data, nationally and in Iowa, to suggest that fewer adolescents are giving birth. This is a positive finding that, hopefully, will continue as these prevention programs reach more Iowa youth.

The examination of gender differences in the nine core attitude and intention questions showed that, overall, males had more significantly negative attitudes toward abstinence at both pretest and posttest as compared to female students. The number and types of items on which significant gender differences were found varied by program site, although at two programs (Linn County Education and Empower Community), males had significantly less favorable responses on all nine core items both at pretest and posttest. When the amount of change was calculated for both males and females from pretest to posttest, few significant differences were found in comparing the change scores, suggesting that both males and females changed in similar amounts as a result of exposure to the program. This finding has remained consistent from one grant year to the next. An increased targeted intervention for males seems warranted in view of these findings, since societal messages toward males historically equate sexual prowess with masculinity.

The examination of grade differences reveals that, in some cases, students in the older grades (8-12) were more negative in their attitudes toward abstinence than students in the younger grades (6 and 7). It should be noted that only one program (Bethany) submitted evaluations of abstinence education to older students in grades 9 through 12 this grant year. While there is some variability among sites in reported grade differences, it is generally the case that, as students move into later adolescence, they are more inclined toward sexual behavior than students in early adolescence. This finding has remained consistent from one grant year to the next.

With respect to reported sexual activity (see Table 35), 55 students at pretest reported they had had sexual intercourse. At posttest, 68 students (22 boys and 34 girls) reported having had sexual intercourse. Those who reportedly have had sex (at posttest) represent 4.7% of all students who completed a pretest and posttest during this past year. Sexually active students could be found at all grade levels from middle school through high school. When asked at posttest why they had had intercourse, 24 students (6 boys and 18 girls) reported that someone had physically forced them, and 17 students (4 boys and 13 girls) reported that someone had threatened them. Twenty-eight students (8 boys and 20 girls) said they had sex because someone had talked them into it, and another 20 students (9 boys and 11 girls) said that they felt they would be “more accepted” if they did have sex.

As has been stressed in our earlier reports of sexual behavior reported by students in these abstinence-only programs, the issue of sexual victimization must be addressed. It remains imperative to differentiate

between voluntary sexual activity and sexual victimization in all human sexuality programs (whether exclusively abstinence or comprehensive in scope). Youth who have been victimized must never be shamed as a result of their experiences. In fact, all programs should identify and discuss resources within their respective communities (notably school counselors, nurses and social workers) to assist students who have had this experience.

Table 35. Affirmative Responses to Behavioral Questions Across Programs

QUESTIONS		Bethany Pre-Post Education	Empower Pella Education	I-35 Education	Linn County Education	Empower Community	Total
Number of Participants		91	127	137	725	358	1438
Have you ever had sexual intercourse?	Pretest	14	1	4	22	14	55
	Posttest	15	1	5	30	17	68
someone physically forced you	Pretest	8	1	1	7	2	12
	Posttest	7	2	2	9	4	24
someone threatened you	Pretest	4	1	1	8	2	16
	Posttest	4	0	1	7	5	17
someone talked you into it	Pretest	3	2	2	8	3	18
	Posttest	6	2	2	11	7	28
you felt you would be more accepted if you did	Pretest	4	1	1	5	1	12
	Posttest	5	1	1	10	3	20

COMPARISON OF ABSTINENCE ONLY AND ADOLESCENT PREGNANCY PREVENTION

In Iowa, there are two state-funded sexuality education programs. One of the programs – the Abstinence-only educational initiative – is funded by the Iowa Department of Public Health using federal money provided through the U.S. Maternal and Child Health Bureau. The other program (“Adolescent Pregnancy Prevention” [APP]) is funded by the Iowa Department of Human Services. The APP statewide initiative funds programs that provide more comprehensive sexuality education programs, although a program goal includes the promotion of abstinence. Because the latter programs go beyond teaching abstinence, they are often referred to as “Abstinence-PLUS” programs. Both statewide initiatives are evaluated by the National Resource Center for Family-Centered Practice at the University of Iowa, School of Social Work. Because of this unique circumstance, it was possible for the evaluators to ask grantees in both initiatives to include the same items from a large pool of items generated to reflect common themes of: Abstinence, Communication, Decision-making, Goal-setting, Knowledge, and Self-esteem. All programs in both initiatives selected eight items from a pool of 26 possible items that reflected the content of their curriculum. A total of 19 items (of the possible 26) were shared among programs in both initiatives.

In this section of the report, the findings – shown in Table 36 – compare the mean scores for the 19 shared items. All of the abstinence-only programs were used to establish the “Abstinence-only Mean” and all of the comprehensive programs that used a given item were used to establish the “APP Mean.”

Table 36. 2003 Mean Scores for Abstinence Only and APP Programs

	Bethany Pre-Post Education	Bethany Posttest Only Education	Empower Pella Education	I-35 Education	Linn County Education	Empower Community	Abstinence Only Mean	APP Mean
Number of Participants	91	490	127	137	725	358	1928	4954
Abstinence								
1. More likely to postpone sex								1.52
2. Feel more strongly want to postpone sex			1.68			1.54	1.58	1.53
3. Understand why I should wait for sex	1.87	1.57	1.73	1.64	1.53	1.68	1.61	1.60
Communication								
4. More likely to talk to parent about sex				1.05			1.05	1.17
5. More clear "No means No"	1.71	1.43		1.45			1.47	1.60
6. More comfortable asking questions				0.99	0.97		0.97	1.10
7. Importance of talking to sex partner								1.55
Decision-making								
8. More clear attitudes towards pregnancy	1.73	1.24					1.32	1.51
9. Share responsibility for decision making								1.61
10. More skills to resist pressure to have sex			1.66	1.52	1.45	1.59	1.51	1.48
11. Alcohol/drugs influence decisions				1.52	1.48		1.49	1.50
Goal-setting								
12. Decide life goals and plan for them								1.57
13. Decisions about sex can change future	1.79	1.45	1.77	1.64	1.67	1.73	1.64	1.68
14. Goals shouldn't include teen pregnancy	1.83	1.45					1.51	1.68
Knowledge								
15. Know body changes during puberty					1.23		1.23	1.59
16. Know costs of unwanted pregnancy	1.72	1.27					1.34	1.70
17. Know dangers of STDs and AIDS	1.89	1.64			1.59		1.63	1.53
18. Know how to avoid unwanted pregnancy								1.56
19. Know consequences of having baby as teen	1.89	1.67					1.70	1.66
20. Understand responsibilities of raising child								1.61
21. Understand how difficult to be teen parent								1.71
Self-esteem								
22. Feel better about myself			1.58			1.56	1.57	1.52
23. Aware of unique qualities and talents			1.57			1.49	1.52	1.42
24. Confident about decisions I make			1.72			1.64	1.66	1.64
25. Comfortable saying no to sex until older			1.73		1.59	1.65	1.62	1.58
26. Less likely to think I need boy/girlfriend				1.26			1.26	1.26

Because of unequal group sizes, a statistical comparison was not conducted between the mean scores. A review of the mean scores suggests the following differences between abstinence-only and APP programs. Readers should keep in mind that without statistical testing, we cannot rule out the possibility that these differences between programs are due to chance.

For these comparisons, the higher mean scores indicate more positive attitudes and increase in knowledge and understanding. Items were scored 0 “not at all,” 1 “A Little” and 2 “A lot more” by students.

Abstinence-only students, by comparison with APP students, are:

- more likely to feel strongly about wanting to postpone sex (1.58 vs. 1.53);
- more likely to feel they have skills to resist pressure to have sex (1.51 vs. 1.48);
- more likely to know about the dangers of STDs and AIDS (1.63 vs. 1.53);
- more likely to know the consequences of having a baby as a teen (1.70 vs. 1.66);
- more likely to feel better about themselves (1.57 vs. 1.52);
- more likely to be aware of their unique qualities and talents (1.52 vs. 1.42);
- more likely to feel confident about decisions they make (1.66 vs. 1.64); and
- more likely to feel comfortable saying no to sex until they are older (1.62 vs. 1.58).

but

- less likely to talk to a parent about sex (1.05 vs. 1.17)
- less clear about the meaning of “No means No” (1.47 vs. 1.60);
- less likely to feel comfortable asking questions about sex (0.97 vs. 1.10);
- less clear about their attitudes toward sex (1.32 vs. 1.51);
- less likely to understand how decisions about sex can change their future (1.64 vs. 1.68)
- less likely to feel their goals shouldn’t include teen pregnancy (1.51 vs. 1.68);
- less likely to know about body changes during puberty (1.23 vs. 1.59); and
- less likely to know the costs of an unwanted pregnancy (1.34 vs. 1.70).

There was little difference between Abstinence-only students and APP students on items related to

- ♦ understanding why they should wait for sex (1.61 vs. 1.60);
- ♦ understanding how alcohol and drugs can influence decisions about sex (1.49 vs. 1.50);
- ♦ thinking they need a boy/girlfriend to feel good about themselves (1.26 vs. 1.26)

An examination of these comparisons shows that where mean responses from youth in abstinence only programs were higher than the mean responses of students in APP programs, these differences were small (ranging from .02 to .10). Where mean scores from those in the abstinence only programs were lower than those in APP programs, those differences were somewhat greater (ranging from .12 to .36).

These comparisons suggest that abstinence-only programs appear to provide more information about “why” young people should wait to have sex, but APP program participants are more clear about their attitudes toward sex.

The abstinence-only students reportedly felt they have more skills to resist pressure to have sex and are more comfortable in saying no to sex, while the APP program youth are more clear about the meaning of “No means No” (a common refusal skill).

The APP programs seem to have the advantage over the abstinence-only programs in helping youth to feel comfortable in talking to their parents or other trusted adults about sex (using, in some programs, homework assignments to promote parent-child dialogue).

Abstinence-Only programs seem to help foster self esteem where students are aware of their unique qualities and talents, and feel confident about decisions they make.

APP programs also had higher scores among youth who understood how their decisions about sex could change their futures and felt their goals should not include teen pregnancy.

Students in abstinence only programs were more likely to know about STDs and AIDS, and consequences of having a baby as a teen. At the same time, students in the APP programs knew more about body changes during puberty and the costs of an unwanted pregnancy.

It appears that both programs have strengths among the common shared items and both can argue the relative value of their strengths by comparison with other programs. The ideological conflict which divides professionals, politicians and lay persons on the relative merits of each approach cannot be solved with this study. This study has many limitations because the programs (in both initiatives) are too diverse to clearly argue the merits of one program over another. Neither initiative uses a case-control method to clearly establish that the reported changes are due, in fact, to the program and not to some other set of factors.

Proponents of both initiatives should be heartened by the increasing number of youth across Iowa that have been exposed to these programs and the likelihood that these prevention programs are having an impact on sexual behavior. The most recent statewide report of APP-funded community-based programs (2003) shows that the birth rate to adolescents in the majority of counties served by prevention programs is dropping. As more youth are reached by prevention messages, it is hoped that the birth rates to adolescents will continue to fall. All prevention programs across Iowa must work together to sustain these gains.

REFERENCES

- Abma, J., Driscoll, A., and Moore, K. (1998). Young Women's Degree of Control over First Intercourse: An Exploratory Analysis. *Family Planning Perspectives*. 30(1):12-18.
- Alan Guttmacher Institute (1994). *Sex and America's Teenagers*. New York.
- Barnett, J.E., and Hurst, C.S. (2003). Abstinence education for rural youth: An evaluation of the Life's Walk program. *Journal of School Health* 73(7): 264-268.
- Bourque, L.B., Fielder, E.P. (1995). *How to conduct self-administered and mail surveys*. Thousand Oaks, CA: Sage Publications.
- Card, J.J. (ed.) (1993). *Handbook of Adolescent Sexuality and Pregnancy Research and Evaluation Instruments*. Newbury Park: Sage Publications.
- Centers for Disease Control and Prevention.(2002). Surveillance Summaries. *MMWR* 2002:51 (No.SS-4).
- Devaney, B., Johnson, A., Maynard, R., and Trenholm, C. (2002). *The evaluation of abstinence education programs funded under Title V Section 510: Interim report*. Mathematica Policy Research. Princeton, NJ.
- Fink A. & Kosecoff, J. (1998). *How to conduct surveys: A step-by-step guide*. Thousand Oaks, CA: Sage Publications.
- Frost, J. J. and Forrest, J. D. (1995). Understanding the Impact of Effective Teenage Pregnancy Prevention Programs. *Family Planning Perspectives*. 27: 188-195.
- Franklin, C., Grant, D., Corcoran, J., Miller, P. O., and Bultman, L. (1997). Effectiveness of Prevention Program for Adolescent Pregnancy: A Meta-Analysis. *Journal of Marriage and the Family*, 59 (August): 551-567.
- Franklin, C., and Corcoran, J. (2000). Preventing adolescent pregnancy: A review of programs and practices. *Social Work*, 45(1): 40-52.
- Grunbaum, J. A., Kann, L., Kinchen, S.A., Williams, B. I., Ross, J. G., Lowry, R., and Kolbe, L. J. (2002) Youth risk behavior surveillance – United States, 2001. *CDC Surveillance Summaries MMWR* 2002, 51(No. SS-4): 1-64.
- Hamilton, B.E., Martin J.A., and Sutton, P.D. (2003). Births: Preliminary Data for 2002. *National Vital Statistics Reports*, 51(11). Hyattsville, MD: National Center for Health Statistics.
- Kids Count (1998). *When Teens Have Sex: Issues and Trends*. Baltimore, MD: Annie E. Casey Foundation.
- Kirby, D. (2001). *Emerging answers: Research findings on programs to reduce teen pregnancy*. Washington DC: National Campaign to Prevent Teen Pregnancy.
- Kirby, D. (1997). *No Easy Answers: Research Findings on Programs to Reduce Teen Pregnancy*. Washington DC: The National Campaign to Prevent Teen Pregnancy.
- Kirby, D., Short, L., Collins, J., Rigg, D., Kolbe, L., Howard, M., Miller, B., Sonenstein, F., and Zabin, L. (1994). School-Based Programs to Reduce Sexual Risk Behaviors: A Review of Effectiveness. *Public Health Reports*. 109:3, May/June: 339-360.
- Leung, W.C. (2001). How to conduct a survey. *Student BMJ* (9): 143-145.
- Lieberman LD, Gray H, Wier M, Fiorentino R, & Maloney P. (2000). Long-term outcomes of an abstinence-based, small-group pregnancy prevention program in New York City schools. *Family Planning Perspectives*, 32(5), 237-54.
- Manlove, J., Terry-Humen, E., Papillo, A.R., Franzetta, K., Williams S., and Ryan S. (2002). Preventing teenage pregnancy, childbearing, and sexually transmitted diseases: What

- the research shows. *Child Trends Research Brief*. Washington DC: Child Trends. (available at www.childtrends.org).
- Martin, J.A., Hamilton, B.E., Ventura, S.J., Menacker, F., and Park, M.M. (2002). Births: Final data for 2001. *National Vital Statistics Reports*, 50(5). Hyattsville, MD: National Center for Health Statistics.
- Maynard, R.A. (ed). (1997). *Kids having kids: Economic costs and social consequences of teen pregnancy*. Washington, DC: The Urban Institute.
- Miller, B.C., Card, J.J., Paikoff, R.L., Peterson, J.L. (eds.) (1992). *Preventing adolescent pregnancy*. Newbury Park: Sage Publications.
- National Campaign to Prevent Teen Pregnancy, (1997). *Whatever happened to childhood? The problem of teen pregnancy in the United States*. Washington DC: Author.
- National Campaign to Prevent Teen Pregnancy. (2002). *Not just another single issue: Teen pregnancy prevention's link to other critical social issues*. Washington, DC: Author.
- Pfau, S. and Lee, S. (1999). *Abstinence education in the states*. Washington, D.C.: Association of Maternal and Child Health Programs.
- Rickel, A.U. (1989). *Teen pregnancy and parenting*. New York: Hemisphere Publishing Corp.
- Sawhill, I. V. (2001). *What can be done to reduce teen pregnancy and out-of-wedlock births?* Washington, DC: The Brookings Institution.
- Trent, K. and Crowder, K. (1997). Adolescent birth intentions, social disadvantage, and behavioral outcomes. *Journal of Marriage and the Family*, 59 (August), 523-535.
- U.S. Census Bureau (2001). *Profile of General Demographic Characteristics: 2000 Dataset: Census 2000 Summary File 1 (SF 1) 100-Percent Data*. Washington D.C.: Population Division, U.S. Census Bureau. Retrieved August 28, 2001 from U. S. Census Bureau online database on the World Wide Web: <http://www.factfinder.census.gov/servlet/BasicFactsServlet>
- U.S. Department of Health and Human Services. (2000). *A national strategy to prevent teen pregnancy: Annual report, 1999-2000*. Washington D.C.: U. S. Department of Health and Human Services. Retrieved on 9/25/01 from the site for the Office for the Assistant Secretary for Planning and Evaluation on the World Wide Web: <http://aspe.os.dhhs.gov/hsp/teenp/ann-rpt00/index.htm#research>
- U.S. General Accounting Office (1998). *Teen pregnancy: State and federal efforts to implement prevention programs and measure their effectiveness, GAO/HEHS-99-4*. Washington, D.C.: U.S. General Accounting Office. Retrieved August 28, 2001 from the U.S. General Accounting Office online database on the World Wide Web: <http://www.gao.gov>.
- Ventura, S. J., Matthews, T. J., and Hamilton, B.E. (2001). Births to Teenagers in the United States, 1940-2000. *National Vital Statistics Reports*, 49(10). Hyattsville, MD: National Center for Health Statistics.
- Ventura, Matthews, T. J., and Hamilton, B.E. (2002). Teenage births in the United State: State trends, 1991-2000, an update. *National Vital Statistics Reports*, 50(9). Hyattsville, MD: National Center for Health Statistics.
- Ventura, S.J., Hamilton, B.E., and Sutton, P.D. (2003). Revised Birth and Fertility Rates for the United States, 2000 and 2001. *National Vital Statistics Reports*, 51(4). Hyattsville, MD: National Center for Health Statistics.

APPENDIX A

SAMPLE DATA COLLECTION INSTRUMENTS