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The Effectiveness of Abstinence Education Programs in Reducing Sexual Activity Among Youth

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Teenage sexual activity is a major problem confronting the nation and has led to a rising incidence of sexually transmitted diseases (STDs), emotional and psychological injuries, and out-of-wedlock childbearing. Abstinence education programs for youth have been proven to be effective in reducing early sexual activity. Abstinence programs also can provide the foundation for personal responsibility and enduring marital commitment. Therefore, they are vitally important to efforts aimed at reducing out-of-wedlock childbearing among young adult women, improving child well-being, and increasing adult happiness over the long term.

Washington policymakers should be aware of the consequences of early sexual activity, the undesirable contents of conventional "safe sex" education programs, and the findings of the professional literature concerning the effectiveness of genuine abstinence programs. In particular, policymakers should understand that:

- **Sexually transmitted diseases (STDs), including incurable viral infections, have reached epidemic proportions.** Annually, 3 million teenagers contract STDs; STDs afflict roughly one in four teens who are sexually active.
- **Early sexual activity has multiple negative consequences for young people.** Research shows that young people who become sexually active are not only vulnerable to STDs, but also likely to experience emotional and psychological injuries, subsequent marital difficulties, and involvement in other high-risk behaviors.
- **Conventional "safe sex" programs (sometimes erroneously called**

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"abstinence plus" programs) place little or no emphasis on encouraging young people to abstain from early sexual activity.

Instead, such programs strongly promote condom use and implicitly condone sexual activity among teens. Nearly all such programs contain material and messages that would be alarming and offensive to the overwhelming majority of parents.

- **Despite claims to the contrary, there are 10 scientific evaluations showing that real abstinence programs can be highly effective in reducing early sexual activity.** Moreover, real abstinence education is a fairly young field; thus, the number of evaluations of abstinence programs at present is somewhat limited. In the near future, many additional evaluations that demonstrate the effectiveness of abstinence education will become available.

Consequences of Early Sexual Activity

Young people who become sexually active enter an arena of high-risk behavior that leads to physical and emotional damage. Each year, influenced by a combination of a youthful assumption of invincibility and a lack of guidance (or misguidance and misleading information), millions of teens ignore those risks and suffer the consequences.

Sexually Transmitted Diseases

The nation is experiencing an epidemic of sexually transmitted diseases that is steadily expanding. In the 1960s, the beginning of the "sexual revolution," the dominant diseases related to sexual activity were syphilis and gonorrhea. Today, there are more than 20 widespread STDs, infecting an average of more than 15 million individuals each year.¹ Two-thirds of all STDs occur in people who are 25 years of age or younger.² Each year, 3 million teens contract an STD; overall, one-fourth of sexually active teens have been afflicted.³

There is no cure for sexually transmitted viral diseases such as the human immunodeficiency virus (HIV) and herpes, which take their toll on people throughout life. Other common viral STDs are the Human Papillomavirus (HPV)--the leading viral STD, with 5.5 million cases reported each year,⁴ and the cause of nearly all cases of cervical cancer that kill approximately 4,800 women per year⁵ --and Chlamydia trachomatis, which is associated with pelvic inflammatory disease that scars the fallopian tubes and is the fastest growing cause of infertility.

Significantly, research shows that condom use offers relatively little protection (from "zero" to "some") for herpes and no protection from the deadly HPV. A review of the

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scientific literature reveals that, on average, condoms failed to prevent the transmission of the HIV virus--which causes the immune deficiency syndrome known as AIDS--between 15 percent and 31 percent of the time.⁶ It should not be surprising, therefore, that while condom use has increased over the past 25 years, the spread of STDs has likewise continued to rise.⁷

Emotional and Psychological Injury

Young people who become sexually active are vulnerable to emotional and psychological injury as well as to physical diseases. Many young girls report experiencing regret or guilt after their initial sexual experience. In the words of one psychiatrist who recalls the effects of her own sexual experimentation in her teens, "The longest-standing, deepest wound I gave myself was heartfelt; that sick, used feeling of having given a precious part of myself--my soul--to so many and for nothing, still aches. I never imagined I'd pay so dearly and for so long."⁸

Sexually active youth often live with anxiety about the possibility of an unwanted pregnancy or contracting a devastating STD. Those who do become infected with a disease suffer emotional as well as physical effects. Fears regarding the course the disease are coupled with a loss of self-esteem and self-confidence. In a survey by the Medical Institute for Sexual Health, 80 percent of those who had herpes said that they felt "less confident" and "less desirable sexually."⁹

In addition, early sexual activity can negatively affect the ability of young people to form stable and healthy relationships in a later marriage. Sexual relationships among teenagers are fleeting and unstable, and broken intimate relationships can have serious long-term developmental effects. A series of broken intimate relationships can undermine an individual's capacity to enter into a committed, loving marital relationship. In general, individuals who engage in premarital sexual activity are 50 percent more likely to divorce later in life than those who do not.¹⁰ Divorce, in turn, leads to sharp reductions in adult happiness and child well-being.

Marital relationships that follow early sexual activity can also suffer from the emotional impact of infertility resulting from an STD infection, ranging from a sense of guilt to depression. In the words of one gynecologist and fertility specialist, "Infertility is so devastating, it often disorients my patients to life itself. This is more than shock or even depression. It impacts every level of their lives, including their marriage."¹¹

Correlation Between Sexual Activity and Other High-Risk Behaviors

Research from a variety of sources indicates a correlation between sexual activity

among adolescents and teens and the likelihood of engaging in other high-risk behaviors, such as tobacco, alcohol, and illicit drug use.

A study reported in *Pediatrics* magazine found that sexually active boys aged 12 through 16 are four times more likely to smoke and six times more likely to use alcohol than are those who describe themselves as virgins. Among girls in this same age cohort, those who are sexually active are seven times more likely to smoke and 10 times more likely to use marijuana than are those who are virgins.¹² The report describes sexual activity as a "significant associate of other health-endangering behaviors" and notes an increasing recognition of the interrelation of risk behaviors. Research by the Alan Guttmacher Institute likewise finds a correlation between risk behaviors among adolescents and sexual activity; for example, teenagers who use alcohol, tobacco, and/or marijuana regularly are more likely to be sexually active.¹³

Out-of-Wedlock Childbearing

Today, one child in three is born out of wedlock. Only 14 percent of these births occur to women under the age of 18. Most occur to women in their early twenties.¹⁴ Thus, giving birth control to teens in high school through safe-sex programs will have little effect on out-of-wedlock childbearing.

Nearly half of the mothers who give birth outside marriage are cohabiting with the child's father at the time of birth.¹⁵ These fathers, like the mothers, are typically in their early twenties. Out-of-wedlock childbearing is, thus, not the result of teenagers' lack of knowledge about birth control or a lack of availability of birth control. Rather, it is part of a crisis in the relationships of young adult men and women. Out-of-wedlock childbearing, in most cases, occurs because young adult men and women are unable to develop committed, loving marital relationships. Abstinence programs, therefore, which focus on developing loving and enduring relationships and preparation for successful marriages, are an essential first step in reducing future levels of out-of-wedlock births.

The Silent Scandal: Promoting Teen Sex

With millions of dollars in sex-education programs at stake, it is not surprising that the groups that have previously dominated the arena have taken action to block the growing movement to abstinence-only education. Such organizations, including the Sexuality Information and Education Council of the United States (SEICUS), Planned Parenthood, and the National Abortion and Reproductive Rights Action League (NARAL), have been prime supporters of "safe-sex" programs for youth, which entail guidance on the use of condoms and other means of contraception

while giving a condescending nod to abstinence. Clearly, the caveat that says "and if you do engage in sex, this is how you should do it" substantially weakens an admonition against early non-marital sexual activity.

Not only do such programs, by their very nature, minimize the abstinence component of sex education, but many of these programs also implicitly encourage sexual activity among the youths they teach. Guidelines developed by SEICUS, for example, include teaching children aged five through eight about masturbation and teaching youths aged 9 through 12 about alternative sexual activities such as mutual masturbation, "outercourse," and oral sex.¹⁶ In addition, the SEICUS guidelines suggest informing youths aged 16 through 18 that sexual activity can include bathing or showering together as well as oral, vaginal, or anal intercourse, and that they can use erotic photographs, movies, or literature to enhance their sexual fantasies when alone or with a partner. Not only do such activities carry their own risks for youth, but they are also likely to increase the incidence of sexual intercourse.

In recent years, parental support for real abstinence education has grown. Because of this, many traditional safe-sex programs now take to calling themselves "abstinence plus" or "abstinence-based" education. In reality, there is little abstinence training in "abstinence-based" education. Instead, these programs are thinly disguised efforts to promote condom use. The actual content of most "abstinence plus" curricula would be alarming to most parents. For example, such programs typically have condom use exercises in which middle school students practice unrolling condoms on cucumbers or dildoes.¹⁷

Effective Abstinence Programs

Critics of abstinence education often assert that while abstinence education that exclusively promotes abstaining from premarital sex is a good idea in theory, there is no evidence that such education can actually reduce sexual activity among young people. Such criticism is erroneous. There are currently 10 scientific evaluations (described below) that demonstrate the effectiveness of abstinence programs in altering sexual behavior.¹⁸ Each of the programs evaluated is a real abstinence (or what is conventionally termed an "abstinence only") program; that is, the program does not provide contraceptives or encourage their use.

The abstinence programs and their evaluations are as follows:

1. **Virginity Pledge Programs.** An article in the Journal of the American Medical Association by Dr. Michael Resnick and others entitled "Protecting Adolescents From Harm: Findings from the National Longitudinal Study on

Adolescent Health" shows that "abstinence pledge" programs are dramatically effective in reducing sexual activity among teenagers in grades 7 through 12.¹⁹ Based on a large national sample of adolescents, the study concludes that "Adolescents who reported having taken a pledge to remain a virgin were at significantly lower risk of early age of sexual debut."²⁰

In fact, the study found that participating in an abstinence program and taking a formal pledge of virginity were by far the most significant factors in a youth's delaying early sexual activity. The study compared students who had taken a formal pledge of virginity with students who had not taken a pledge but were otherwise identical in terms of race, income, school performance, degree of religiousness, and other social and demographic factors. Based on this analysis, the authors discovered that the level of sexual activity among students who had taken a formal pledge of virginity was one-fourth the level of that of their counterparts who had not taken a pledge. Overall, nearly 16 percent of girls and 10 percent of boys were found to have taken a virginity pledge.

2. **Not Me, Not Now.** Not Me, Not Now is a community-wide abstinence intervention targeted to 9- to 14-year-olds in Monroe County, New York, which includes the city of Rochester. The Not Me, Not Now program devised a mass communications strategy to promote the abstinence message through paid TV and radio advertising, billboards, posters distributed in schools, educational materials for parents, an interactive Web site, and educational sessions in school and community settings. The program sought to communicate five themes: raising awareness of the problem of teen pregnancy, increasing an understanding of the negative consequences of teen pregnancy, developing resistance to peer pressure, promoting parent-child communication, and promoting abstinence among teens.

Not Me, Not Now was effective in reaching early teen listeners, with some 95 percent of the target audience within the county reporting that they had seen a Not Me, Not Now ad. During the intervention period, the program achieved a statistically significant positive shift in attitudes among pre-teens and early teens in the county. The sexual activity rate of 15-year-olds across the county (as reported in the Youth Risk Behavior Survey²¹) dropped by a statistically significant amount from 46.6 percent to 31.6 percent during the intervention period. Finally, the pregnancy rate for girls aged 15 through 17 in Monroe County fell by a statistically significant amount, from 63.4 pregnancies per 1,000 girls to 49.5 pregnancies per 1,000. The teen pregnancy rate fell more rapidly in Monroe County than in comparison counties and in upstate New York in general, and the difference in the rate of decrease was statistically significant.²²

3. **Operation Keepsake.** Operation Keepsake is an abstinence program for 12- and 13-year-old children in Cleveland, Ohio. Some 77 percent of the children in the program were black or Hispanic. An evaluation of the program in 2001, involving a sample of over 800 students, found that "Operation Keepsake had a clear and sustainable impact on...abstinence beliefs." The evaluation showed that the program reduced the rate of onset of sexual activity (loss of virginity) by roughly two-thirds relative to comparable students in control schools who did not participate in the program. In addition, the program reduced by about one-fifth the rate of current sexual activity among those with prior sexual experience.²³
4. **Abstinence by Choice.** Abstinence by Choice operates in 20 schools in the Little Rock area of Arkansas. The program targets 7th, 8th, and 9th grade students and reaches about 4,000 youths each year. A recent evaluation, involving a sample of nearly 1,000 students, shows that the program has been highly effective in changing the attitudes that are directly linked to early sexual activity. Moreover, the program reduced the sexual activity rates of girls by approximately 40 percent (from 10.2 percent to 5.9 percent) and the rate for boys by approximately 30 percent (from 22.8 percent to 15.8 percent) when compared with similar students who had not been exposed to the program. (The sexual activity rate of students in the program was compared with the rate of sexual activity among control students in the same grade in the same schools prior to the commencement of the program.)²⁴
5. **Virginity Pledge Movement.** A 2001 evaluation of the effectiveness of the virginity pledge movement using data from the National Longitudinal Study of Adolescent Health finds that virginity pledge programs are highly effective in helping adolescents to delay sexual activity. According to the authors of the study:

Adolescents who pledge, controlling for all of the usual characteristics of adolescents and their social contexts that are associated with the transition to sex, are much less likely than adolescents who do not pledge, to have intercourse. The delay effect is substantial and robust. Pledging delays intercourse for a long time.²⁵

The study, based on a sample of more than 5,000 students, concludes that taking a virginity pledge reduces by one-third the probability that an adolescent will begin sexual activity compared with other adolescents of the same gender and age, after controlling for a host of other factors linked to sexual activity rates such as physical maturity, parental disapproval of sexual activity, school achievement, and race. When taking a virginity pledge is

combined with strong parental disapproval of sexual activity, the probability of initiation of sexual activity is reduced by 75 percent or more.

- 6. Teen Aid and Sex Respect.** An evaluation of the Teen Aid and Sex Respect abstinence programs in three school districts in Utah showed that both programs were effective among the students who were at the greatest risk of initiating sexual activity. Approximately 7,000 high school and middle school students participated in the evaluation. To determine the effects of the programs, students in schools with the abstinence programs were compared with students in similar control schools within the same school district. Statistical adjustments were applied to further control for any initial differences between program participants and control students. The programs together were shown to reduce the rate of initiation of sexual activity among at-risk high school students by over a third when compared with a control group of similar students who were not exposed to the program.²⁶ Statistically significant changes in behavior were not found among junior high students.

When high school and junior high school students were examined together, Sex Respect was shown to reduce the rate of initiation of sexual activity among at-risk students by 25 percent when compared with a control group of similar students who were not exposed to the program. Teen Aid was found to reduce the initiation of sex activity by some 17 percent. A third non-abstinence program, Values and Choices, which offered non-directive or value-free instruction in sex education and decision-making, was found to have no impact on sexual behavior.

- 7. Family Accountability Communicating Teen Sexuality (FACTS).** An evaluation performed for the national Title XX abstinence program examined the effectiveness of the Family Accountability Communicating Teen Sexuality abstinence program in reducing teen sexual activity. The evaluation assessed the FACTS program by comparing a sample of students who participated in the program with a group of comparable students in separate control schools who did not participate in the program. The experimental and control students together comprised a sample of 308 students. The evaluation found the FACTS program to be highly effective in delaying the onset of sexual activity. Students who participated in the program were 30 percent to 50 percent less likely to commence sexual activity than were those who did not participate.²⁷
- 8. Postponing Sexual Involvement (PSI).** Postponing Sexual Involvement was an abstinence program developed by Grady Memorial Hospital in Atlanta, Georgia, and provided to low-income 8th grade students. A study published in Family Planning Perspectives, based on a sample of 536 low-income students, showed that the PSI program was effective in altering

sexual behavior.²⁸ A comparison of the program participants with a control population of comparable low-income minority students who did not participate showed that PSI reduced the rate of initiation of sexual activity during the 8th grade by some 60 percent for boys and over 95 percent for girls.²⁹ As the study explained:

The program had a pronounced effect on the behavior of both boys and girls who had not been sexually involved before the program.... By the end of eighth grade, boys who had not had the program were more than three times as likely to have begun having sex as were boys who had the program.... Girls who had not had the program were as much as 15 times more likely to have begun having sex as were girls who had had the program.³⁰

The effects of the program lasted into the next school year even though no additional sessions were provided. By the end of the 9th grade, boys and girls who had participated in PSI were still some 35 percent less likely to have commenced sexual activity than were those who had not participated in the abstinence program.³¹

9. **Project Taking Charge.** Project Taking Charge is a six-week abstinence curriculum delivered in home economics classes during the school year. It was designed for use in low-income communities with high rates of teen pregnancy. The curriculum contains these elements: self-development; basic information about sexual biology (anatomy, physiology, and pregnancy); vocational goal-setting; family communication; and values instruction on the importance of delaying sexual activity until marriage. The effect of the program has been evaluated in two sites: Wilmington, Delaware, and West Point, Mississippi. The evaluation was based on a small sample of 91 adolescents. Control and experimental groups were created by randomly assigning classrooms to either receive or not receive the program. The students were assessed immediately before and after the program and through a six-month follow-up.

In the six-month follow-up, Project Taking Charge was shown to have had a statistically significant effect in increasing adolescents' knowledge of the problems associated with teen pregnancy, the problems of sexually transmitted diseases, and reproductive biology. The program was also shown to reduce the rate of onset of sexual activity by 50 percent relative to the students in the control group, although the authors urge caution in the interpretation of these numbers due to the small size of the evaluation sample.³²

10. **Teen Aid Family Life Education Project.** The Teen Aid Family Life Education Project is a widely used abstinence education program for high school and junior high students. An evaluation of the effectiveness of Teen Aid, involving a sample of over 1,300 students, was performed in 21 schools in California, Idaho, Oregon, Mississippi, Utah, and Washington. The Teen Aid program was shown to have a statistically significant effect in reducing the rate of initiation of sexual activity (loss of virginity) among high-risk high school students, compared with similar students in control schools. Among at-risk high school students who participated in the program, the rate of initiation of sexual activity was cut by more than one-fourth, from 37 percent to 27 percent. A similar pattern of reduction was found among at-risk junior high school students, but the effects did not achieve statistical significance. The program did not have statistically significant effects among lower-risk students.³³

Conclusion

Real abstinence education is essential to reducing out-of-wedlock childbearing, preventing sexually transmitted diseases, and improving emotional and physical well-being among the nation's youth. True abstinence education programs help young people to develop an understanding of commitment, fidelity, and intimacy that will serve them well as the foundations of healthy marital life in the future.

Abstinence education programs have repeatedly been shown to be effective in reducing sexual activity among their participants. However, funding for the evaluation of abstinence education programs until very recently has ranged from meager to nonexistent. Currently, the number of adequately funded evaluations of abstinence education is increasing. At present, there are several promising new evaluations nearing completion. As each year passes, it can be expected that the number of evaluations showing that abstinence education does significantly reduce sexual activity will grow steadily.

Abstinence education is a nascent and developing field. Substantial funding for abstinence education became available only within the past few years. As abstinence programs develop and become more broadly available, future evaluations will enable the programs to hone and increase their effectiveness.

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1. Shepherd Smith and Joe S. McIlhaney, M.D., "Statement of Dissent on The Surgeon General's Call to Action to Promote Sexual Health and Responsible Sexual Behavior," issued by the Medical Institute of Sexual Health, Austin, Texas, June 28, 2001, and American Social Health Association, Research Triangle Park, N.C., "STD Statistics," at <http://www.ashastd.org/stdfaqs/statistics.html>.
2. American Social Health Association, at <http://www.ashastd.org/stdfaqs/statistics.html>.
3. Alan Guttmacher Institute, Sex and America's Teenagers (New York: Alan Guttmacher Institute, 1994), pp. 19-20.
4. American Social Health Association, "STD Statistics."
5. American Cancer Society, Cancer Facts and Figures, 1998, at <http://www.cancer.org>.
6. Dr. Susan Weller, "A Meta-Analysis of Condom Effectiveness in Reducing Sexually Transmitted HIV," Social Science and Medicine, Vol. 36, No. 12 (1993). See also National Institute of Allergy and Infectious Diseases, National Institutes of Health, Department of Health and Human Services, "Summary," Scientific Evidence on Condom Effectiveness for Sexually Transmitted Disease (STD) Prevention, July 20, 2001, at <http://www.niaid.nih.gov/dmid/stds/condomreport.pdf>.
7. Centers for Disease Control and Prevention, Tracking the Hidden Epidemics 2000: Trends in STDs in the United States, 2000, at <http://www.cdc.gov/nchstp/od/news/RevBrochure1pdfoc.htm>.
8. Tom and Judy Lickona, with William Boudreau, M.D., Sex, Love and You (Notre Dame, Ind.: Ave Maria Press, 1994), p. 70.
9. Medical Institute for Sexual Health, "Safe Sex," lecture with slide show, Austin, Texas, 1992.
10. Joan R. Kahn and Kathryn A. London, "Premarital Sex and the Risk of Divorce," Journal of Marriage and the Family, November 1991, pp. 845-855.
11. Joe S. McIlhaney, M.D., Why Condoms Aren't Safe (Colorado Springs, Colo.: Focus on the Family, 1993).
12. D. P. Orr, M. Beiter, and G. Ingersoll, "Premature Sexual Activity as an Indicator of Psychosocial Risk," Pediatrics, Vol. 87, No. 2 (February 1, 1991), pp. 141-147. See also Kimberly Erickson, "Interconnections: Emerging Patterns in Youth Risk Behavior," Institute for Youth Development, Washington, D.C., June 1, 1998.
13. Alan Guttmacher Institute, Sex and America's Teenagers.
14. See, for example, U.S. Department of Health and Human Services, National Center for Health Statistics, "National Vital Statistics Report," 2001.

15. Irwin Garfinkle and Sara McLanahan, The Fragile Families and Child Wellbeing Study, baseline report, at <http://crcw.princeton.edu/fragilefamilies/nationalreport.pdf>.

16. SIECUS National Guidelines for Comprehensive Sexuality Education Kindergarten--12th Grade, and National Guidelines Task Force, The Sexuality Information and Education Council of the United States (SEICUS), 1992.

17. Major programs with this type of activity include "Focus on Kids," "Becoming a Responsible Teen," and "Be Proud! Be Responsible!"

18. Most of the programs in this section show reductions in sexual activity that are statistically significant at the 95 percent confidence level and above. The significance of these studies is indisputable. In addition, a few studies show programs with positive effects in reducing sexual activity, but with statistical significance levels in the 90 percent to 94 percent confidence range. Because they fall short of the 95 percent confidence level, each of these studies viewed in isolation might be dismissed as inconclusive. Yet, viewed in conjunction with each other, the existence of multiple studies based on small samples, each showing the positive effects of abstinence programs in reducing sexual activity with tests of statistical significance slightly below the 95 percent confidence level, offers evidence reinforcing the case for the overall effectiveness of abstinence education.

19. Michael Resnick, M.D., et al., "Protecting Adolescents from Harm: Findings from the National Longitudinal Study on Adolescent Health," *Journal of the American Medical Association*, Vol. 278 (September 10, 1997). The effects of a virginity pledge in reducing sexual activity were statistically significant at the 99.9 percent confidence level.

20. *Ibid.*, p. 830.

21. L. Kahn et al., "Youth Risk Behavior Survey--United States 1997," *Morbidity and Mortality Weekly Reports*, Vol. 47 (SS-3), 1998, pp. 1-89.

22. Andrew S. Doniger, "Impact Evaluation of the 'Not Me, Not Now' Abstinence-Oriented, Adolescent Pregnancy Prevention Communications Program, Monroe County, New York," *Journal of Health Communications*, Vol. 6 (2001), pp. 45-60. Both the shifts in attitudes and the decline in sexual activity rate over the intervention period were statistically significant at the 95 percent confidence level. The difference in the rate of decline in adolescent pregnancy in Monroe County, when compared to other geographic areas, was statistically significant at the 95 percent to 99 percent confidence levels.

23. Elaine Borawski et al., Evaluation of the Teen Pregnancy Prevention Programs Funded through the Wellness Block Grant (1999-2000), Center for Health Promotion Research, Department of Epidemiology and Biostatistics, Case Western Reserve University, School of Medicine, March 23, 2001. The program effects on sexual activity were significant at the 93 percent confidence level.

24. Stan E. Weed, Title V Abstinence Education Programs: Phase I Interim Evaluation Report to Arkansas Department of Health, Institute for Research and Evaluation, October 15, 2001. The

effects of the program in reducing the onset of sexual activity were statistically significant at the 98 percent confidence level. (Data on statistical significance are not currently included in the written report but were provided separately to the author by the evaluator, Dr. Stan Weed.)

25. Peter S. Bearman and Hanna Bruckner, "Promising the Future: Virginity Pledges and First Intercourse," *American Journal of Sociology*, Vol. 106, No. 4 (January 2001), pp. 861, 862. The effects of a virginity pledge were shown to be statistically significant at the 95 percent confidence level.

26. Stan E. Weed, *Predicting and Changing Teen Sexual Activity Rates: A Comparison of Three Title XX Programs*, report submitted to the Office of Adolescent Pregnancy Programs, U.S. Department of Health and Human Services, December 1992. The effects the programs on at-risk high school students were significant at the 99 percent confidence level.

27. Stan E. Weed, *FACTS Project: Year End Evaluation Report, 1993-1994*, prepared for the Office of Adolescent Pregnancy Prevention Programs.

28. Marion Howard and Judith Blarney McCabe, "Helping Teenagers Postpone Sexual Involvement," *Family Planning Perspectives*, January/February 1990, pp. 21-26.

29. These effects were statistically significant at the 99 percent confidence level.

30. Howard and McCabe, "Helping Teenagers Postpone Sexual Involvement," p. 24.

31. These effects were statistically significant at the 95 percent confidence level.

32. Stephen R. Jorgensen, Vicki Potts, and Brian Camp, "Project Taking Charge: Six-Month Follow-Up of a Pregnancy Prevention Program for Early Adolescents," *Family Relations*, October 1993, pp. 401-406. The effects of the program in reducing the rate of onset of sexual activity were statistically significant at the 94.9 percent confidence level. The effects of the program on specific areas of knowledge were significant at the 95 percent confidence level and above.

33. Stan E. Weed, Jerry Prigmore, and Raja Tanas, *The Teen Aid Family Life Education Project: Fifth Year Evaluation Report*, Institute for Research and Evaluation, 1992. The effect of the program on the sexual activity of high-risk high school students was statistically significant at the 99 percent confidence level.