The effects of sex education on adolescent contraceptive use

Deborah K. Armstrong, RN, BSN

A research paper submitted in partial fulfillment of the requirements for the degree

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College of Nursing
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To the faculty of Washington State University:

The members of the committee appointed to examine the research proposal of Deborah K. Armstrong find it satisfactory and recommend that it be accepted.

Renee Hocksei, Ph.D., RN, CCRN
Chair

Elizabeth LeCuyer-Maus, Ph.D., ARNP, PMHNP

Melody Rasmor, RN, MS, ARNP, COHN-S
Dedication

With all my heart this paper is dedicated to the woman who gave me life, unconditional love, and immeasurable happiness, my mother,

Maggie Cross.
The effects of sex education on adolescent contraceptive use

By: Deborah K. Armstrong
Washington State University
December, 2000

Chair: Renee Hoeksel, Ph.D., RN, CCRN

Abstract

By the time adolescents in the United States graduate from high school, more than 60% report having had sex. Many of them are engaging in unprotected sexual intercourse, increasing the risk of unwanted pregnancies and sexually transmitted diseases. A contributing factor to this behavior may be the lack of consistent health education protocols between local school districts. The purpose of this literature review was to analyze research findings that have attempted to evaluate sex education programs and the effects they have on adolescent contraceptive use. The studies reviewed generally provide mixed results. Often times the content and duration of the educational interventions were poorly described and varied dramatically between studies. Further research is warranted until effective sex education programs are identified and replicated across multiple settings. Consistent implementation of these refined educational interventions will provide a more accurate picture to researchers and clinicians. Matching the scope of this problem to the commitment towards successful sex education programs requires a collaborative effort from teachers, healthcare providers, parents, community leaders, and adolescents themselves.
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Introduction

Adolescence is a complicated phase where young individuals attempt to bridge the gap between childhood and adulthood. It is a time of experimentation, conflict, and change in an effort to push the limits of previously set boundaries. Strong peer pressure can influence an adolescent to participate in highly risky behavior that has the potential to lead to serious sequelae. Even at an early age teens are confronted by situations that require knowledge for decision-making skills, including preventive health practices (Sikes, 1996). Difficulties arise as the maturing adolescent struggles with exploration of intimate relationships before their own identity is discovered (Sadler & Catrone, 1983). Self-absorbed and only able to live within the moment, adolescents lack foresight and are unprepared to take careful appraisal of the consequences of their risky behaviors, including unprotected intercourse.

While these youth experience changes in both mind and body, they receive conflicting demands from parents, educators, and communities. Influences from youth-oriented media and peers can focus teens on becoming sexually sophisticated, while parents and teachers encourage sexual abstinence and avoidance of other high-risk behaviors (Black Monsen, Pasman Jackson, & Livingston, 1996). While it is true that abstinence is the only effective method of detouring the consequences of sexual intercourse many teenagers have already engaged in, continue to participate in, or are planning on having intercourse, all of which increase the risk of unwanted pregnancies and sexually transmitted diseases (STDs) (Robenstine, 1994).

By the time adolescents in the United States (U.S.) graduate from high school, more than 60% report having had sex (CDC, 1998d) accounting for 78% of unintended
teen pregnancies (Henshaw, 1998). In the U.S. approximately one in ten adolescent females becomes pregnant each year (Fisher, Harris, Ransom, Paine-Andrews, Pulliam, 1998) resulting in an estimated 800,000-900,000 total pregnancies for young women under the age of 19 (CDC, 2000). Although these figures correspond to a decline in pregnancies since the early 1990’s (Kaufmann, et al, 1998), this still represents a large number of female adolescents jeopardizing their physical health not only through pregnancy but exposure to STDs, including the human immunodeficiency virus (HIV).

Adolescents are at high risk for acquiring STDs for several reasons: Multiple sex partners, brief relationships, unprotected intercourse, and sexual contact with partners at high risk for STDs themselves (Tumolo, 2000). The U.S. has the highest adolescent STD rate in the developed world (Santelli, 1995) as one in four teenagers will contract an STD before high school graduation (Wetzstein, 1994). The CDC (1998a) estimates that within the U.S. at least twelve million STDs occur annually and that two and a half million of those STDs afflict adolescents (Krowchuk, 1998). Data shows that 13-19 year olds represent 20% of infections from gonorrhea, 15% from syphilis, and 23% from chlamydia (CDC, 1999). Adolescents who practice risky sexual behavior are at higher risk of acquiring STDs and documentation exists that STDs play a cofactor role in HIV transmission (CDC, 1998c).

In the U.S., infection from HIV was the seventh leading cause of death for persons aged 15-24 in 1997 (Ventura, Anderson, Martin, & Smith, 1998) with more than 40,000 new HIV cases diagnosed each year (Brooks, 1999). Between 630,000 and 900,000 people are infected with the HIV virus (Rosenberg, 1995) and an additional 250,000 adults and children are living with Acquired Immunodeficiency Syndrome.
(AIDS) (CDC, 1998b). HIV is the precursor infection that leads to AIDS. Unfortunately HIV can remain dormant and asymptomatic for years where individuals have been infected by the virus but are unaware of it, potentially passing it on to unsuspecting partners. It is estimated that approximately one-fifth of all AIDS cases in the U.S. were as a result of contracting HIV during the teenage years (U.S. Surgeon General, 1993).

"The risks and negative consequences of sexual intercourse during adolescence are of national concern" (Preboth, 2000, p. 3742). Protecting youth from unwanted pregnancies and STDs should remain important public health goals. Given the scope of this problem, researchers, educators, and health care providers need to ponder whether adolescents are receiving the educational information necessary in order to make informed choices regarding sexual behavior. Limited outcome research is available from sex education programs yet the need is apparent in order to improve the sexual health of the adolescent population and decrease the number of unwanted pregnancies and STDs reported each year.

Statement of the Problem

During the last sexual encounter, almost 48% of high school seniors engaged in unprotected intercourse, increasing the risk of unwanted pregnancies and sexually transmitted diseases (CDC, 1998d). Oral contraceptive pills help prevent pregnancies but provide no protection against STDs, including HIV. When used properly, condoms help protect against STDs and HIV but are not a fail-safe method. Whether adolescents have never had a sexual encounter, are taking birth control pills, or are afraid to suggest
condom use before sexual intercourse, they need to be educated about the consequences of their decisions.

Sex education and reproductive health have been taught within the school setting for years. Problems exist as the content of contemporary sex education programs are inconsistent between local school districts. Lessons range from discussions designed to help students abstain from sexual intercourse and clarify their moral ground, to classes that practice skill-building behaviors, to up-front discussions of contraceptive use and availability (Forrest & Silverman, 1989). A contributing factor may be the lack of consistent health education protocols within the school systems.

Statement of Purpose

The purpose of this literature review is to analyze research findings that have attempted to evaluate sex education programs and the effects they have on adolescent contraceptive use. This paper summarizes recent available research regarding this topic. This review will attempt to address the following two research questions:

1) Are sex education interventions effective in promoting contraceptive use among adolescents?

2) Are there any common factors within these intervention programs that are effective versus the intervention programs that are not?

Significance to Nursing

This problem is significant to the role of nurses, as public health advocates, who have “a logical role in health promotion and disease prevention” (Kobokovich &
Bonovich, 1992, p. 11). Nurses are in prime positions to interact with adolescents because of their work in communities, hospitals, schools, and clinics. Ferguson (1997) indicated that:

Nurses must pursue opportunities in which they can not only provide direct sex education, counseling, and reproductive health care services to adolescents, but also actively participate on school boards, parent-teacher associations, religious and youth organizations, and national, statewide, and local teen pregnancy prevention efforts and coalitions. (p. 187)

Nurses can be leaders of reproductive health programs by establishing sexual health protocols for teens, involving adolescents in program design, delivery and evaluation, training other health professionals on how to offer nonjudgmental and confidential care to adolescents, providing information and services that are convenient to youth, eliminating barriers to services and contraceptives, and involving the media to inform the public about sexuality and reproduction (What can be done, 1995). Nurses are able to provide a holistic approach by networking with other health professionals, community leaders, and youth, all of which are key to an adolescent's comprehensive sexual health. Shapiro (1980) indicated that it is this pooling of resources and expertise that creates an environment in which young people can learn responsible sexual behavior.

On an individual level, nurses need to take advantage of a teenager's desire for factual information regarding sexual health. Adolescents that were surveyed indicated that they need to know more about how to prevent AIDS and other sexually transmitted diseases, be given instructions on how to use birth control and where to get it, and how girls get pregnant (Kaiser Family Foundation Survey, 1996). The nurse or health
educator may have to initiate the discussion in order to supply the information an adolescent requires. Providing answers in a non-threatening manner will not only avoid embarrassment to the teenager but will encourage a relationship of mutual trust.

Literature Review

The following section summarizes results from 11 studies conducted both in the U.S. and abroad, published in 1996 or later, that examined the effects of sex education on adolescent contraceptive use. The findings are divided between studies that indicated a positive impact on contraceptive use and those studies that showed no significant improvement in contraceptive use after the intervention.

Improvement

Seven studies were identified that found positive outcomes of increasing contraceptive use among adolescents (Table 1). Of these studies, only one was identified as using a one group pretest-posttest design versus a longitudinal design. (Tiezzi, L., Lipshutz, J., Wroblewski, N., Vaughan, R. D., & McCarthy, J. F., 1997). This study utilized the ‘In Your Face’ intervention with a team approach of social workers, medical providers and psychiatrists through fifteen lessons of group education (including role-playing), individual education, counseling, referrals, and classroom interventions. During the intervention, participants were encouraged to assess their own personal risk behaviors related to unintended pregnancy. Of the 3,738 participants, results showed an increase in contraceptive use for those that desired to remain sexually active but also an increase in the number of individuals that chose abstinence. A weakness of this study
involves the lack of a control group and randomization, but the researchers mention their conscious decision to provide this intervention to all students even if it was at the expense of a stronger research design.

Three of the studies were not conducted within a school setting (Kamb et al., 1998; Stanton, Li, Galbraith, Feigelman, & Kaljee, 1996; Orr, Langefeld, Katz, & Caine, 1996). The first study's intervention was conducted within five public STD clinics, the second at a recreational center and rural campsite, and the third was implemented at urban family planning and STD clinics, respectively. Similarities between the three studies involved longitudinal designs, randomly assigned control groups, and no significant effect on abstinence or the delay in sexual intercourse. Differences involved the number of study participants (5,758, 383, and 112, respectively), the length of the intervention (two interactive counseling sessions, eight weekly meetings, and one 10-20 minute appointment, respectively) and who the education mediators were (counselors and clinicians, a computer program, and a research assistant, respectively).

All three studies report a significant increase in self-reported condom use but employed different avenues of achieving this result. Kamb et al. (1998) utilized 'Project Respect' which attempts to decrease sexually transmitted infections by reducing high-risk sexual behavior through the use of HIV prevention counseling. At the three and six month follow-ups, both the brief and enhanced counseling sessions were effective in improving condom use among study participants as compared with those individuals that received didactic messages only.

Stanton et al. (1996) offered an intervention based on social cognitive theory called 'Protection Motivation Theory' with instruction in AIDS risk reduction. The
objective was to educate youth about the benefits of prescription contraceptive use concurrently with condoms in an effort to prevent pregnancy and STDs. Lessons were based on facts regarding STDs, AIDS, contraception, and human development that focused on responsible decision-making. The program significantly improved the knowledge of participants regarding facts on AIDS and at the 18-month follow-up, greater than 80% of the youth who used oral contraceptives also used condoms.

Orr et al. (1996) framed their intervention using the Health Belief Model to increase awareness of STD vulnerability, decrease barriers to condom use, and role-play skills to negotiate condom use with partners. Participants for this study were female adolescents aged 15-19 years old diagnosed with *Chlamydia trachomatis*. The results proved interesting. At the 6-month follow-up self-reported condom use was higher for the intervention group but the rate of chlamydia infections as a biomarker of condom practices did not change, suggesting condom use was inconsistently reported. The researchers theorized this finding was not an overestimation of condom use but rather inconsistent behaviors of the females involved. Either way, the small sample size of 112 makes this finding difficult to generalize and interpret.

Of the three remaining studies few similarities existed (Hubbard, Giese, & Rainey, 1998; Jemmott III, Sweet Jemmott, & Fong, 1998; Eggleston, Jackson, Rountree & Pan, 2000). Respectively, study participants were 212 Arkansas ninth through twelfth graders, 659 Philadelphia sixth and seventh graders, and 945 Jamaica eleven to fourteen year-olds. Length of each intervention ranged from sixteen lessons as part of a required curriculum, to eight-one hour modules over two Saturdays, to one 45-minute class session spanning a nine-month period, respectively.
All were longitudinal but Hubbard, Giese, & Rainey (1998) employed a quasi-experimental study which lacked random assignment. The intervention used was the ‘Reducing the Risk’ theory-based curriculum which focuses on delaying sexual intercourse, improving contraceptive use if sexually active, and improving communication between teens and parents. The program showed statistically significant improvement in all three areas 18-months following the intervention.

While no specific program intervention was identified, Jemmott III, Sweet Jemmott, & Fong (1998) had similar goals within their study, focusing on the effects of abstinence and safe sex through HIV risk-reduction. The abstinence intervention was designed to delay the onset of sexual intercourse, the safe sex intervention stressed condom use, and the control group received information on health issues unrelated to sexual behavior. The abstinence intervention participants reported decreased sexual encounters at the 3-month interval compared to the control group but not so at the 6- and 12-month intervals. Among the individuals sexually active at baseline, the safe sex intervention group reported less sexual intercourse encounters at the 3-, 6-, and 12-month follow-ups as compared to the other two groups and more condom use at the 3-month follow-up than did the control group. The researchers used both adult and peer educators to deliver the intervention to separately assigned groups. Intervention results were not affected by whom the educator was.

Eggleston et al. (2000) also utilized a quasi-experimental approach but instead offered the ‘Grade 7 Project’ which was designed to delay initiation of sexual activity, improve contraceptive use, and improve knowledge and attitudes that influence these behaviors. Role-playing did not play a part in the intervention strategies. Six months
following baseline, the intervention group was more than twice as likely to use contraception than the control group but at twenty-one months following baseline the results waned. No significant delay of sexual intercourse or abstinence as compared with the other two studies was found. Despite the noted differences, all three studies showed significant improvement of contraceptive use following the interventions.

No Improvement

Four studies were analyzed that found no significant effect on increasing contraceptive use among adolescents following educational interventions (Table 2). Buysse & VanOost (1997) were the only researchers that used a quasi-experimental design, lacking random assignment and therefore potentially threatening internal and external validity. In this study, 698 Belgium eleventh and twelfth graders participated in a 2-day intervention designed to promote risk reduction by improving adolescent knowledge regarding sexual health, practicing problem-solving and communication skills, and planning to discuss and practice safer sex. Assessment at the three-month follow-up revealed that the intervention was successful in all areas except in improving intentions to use condoms.

The other three studies shared many commonalities (Lundin Kvalem, Martin Sundet, Rivo, Eilertsen, & Bakketeig, 1996; Kirby, Korpi, Adivi, & Weissman, 1997; Kirby, Korpi, Barth, & Cagampang, 1997). All were longitudinal, randomly assigned control studies within schools, utilized role playing, failed to significantly impact abstinence or the delay of sexual intercourse, and used peer educators to deliver the
intervention. Of note, Kirby, Korpi, Barth et al. (1997) also used adult educators in comparison to the peer educators.

Several differences between these three studies were also apparent. Participants included 2,411 Norwegian 16-20 year-olds, 1,657 Los Angeles seventh graders, and 7,340 recruited seventh and eighth graders from thirty-one California counties, respectively. Lundin Kvalem et al. (1996) applied the cognitive social learning theory and social influence theory to the 2-day intervention employed with a primary goal of increasing condom use among adolescents. Six months and one year post-intervention data were compiled. Results indicated the intervention itself did not influence condom use. Several limitations were noted by the researchers: (a) Pretest-posttest repetition, (b) two consecutive days of intervention material with no time in between to process the content, and (c) following attrition, the remaining participants had little or no sexual experience, while those with more sexual experience dropped out after the first or second questionnaire. This suggests measurement of a group of students that already used condoms before the intervention. Mortality may have posed a threat as study subjects were lost in an effort to collect data through the mail.

Kirby, Korpi, Adivi, et al. (1997) implemented project ‘SNAPP’ (Skills and kN owledge for AIDS and Pregnancy Prevention) which was intended to delay the initiation of sexual intercourse and improve condom use among sexually active adolescents in an effort to reduce the incidence of AIDS and prevent pregnancies. The Health Belief Model and the social learning theory were applied to the intervention curriculum which spanned eight sessions in a 2-week period. Improvement was found in the adolescent’s knowledge related to sexual health. Impact was also noted in more
frequent endorsement of two of the twenty-one beliefs addressed; (a) willingness to befriend an HIV-positive person and (b) that friends believe that condoms should always be used during intercourse. However, the latter results waned 17-months post-intervention and were no longer statistically significant. The intervention was not noted to significantly change the sexual or contraceptive behaviors of the participants at the five- or 17-month evaluation. A study limitation was noted by the researchers that the SNAPP intervention was impossible to measure as participants received other instruction in class about sexual health and behaviors.

The ‘Postponing Sexual Involvement’ curriculum was utilized by Kirby, Korpi, Barth, et al. (1997) with the focus of the program to delay the onset of sexual intercourse. The curriculum was delivered within the classroom or small group setting and consisted of five sessions, 45-60 minutes in length. Attitudes, behaviors, and intentions were measured as they related to sexual activity, as were changes in sexual behavior. At three months the intervention had a small but statistically significant impact on less than half of the measured variables but results were not sustained by the 17-month follow-up. Positive changes in sexual behavior were not found at either follow-up.

Summary

Little information exists on the “factors that influence the initiation of sex and the application of healthy behaviors that protect youth from unwanted pregnancy and STDs” (Black Monsen et al., 1996, p. 183). Evaluating the effectiveness of sex education programs on adolescent contraceptive use is essential to protecting youth from serious outcomes. The studies included in this paper generally provide mixed results regarding
the effects of sex education on adolescent contraceptive use. More studies reviewed provided positive evidence regarding the ability of sex education to motivate the adoption of risk-reducing practices, while the remainder of studies suggested that sex education does not have an impact on improving contraceptive use. Participants in some studies received intensive sex education instruction, role-playing skills, and ongoing services while others received minimal counseling sessions. Results of the reviewed studies may have significantly been impacted by the varied research methods employed, locations, sample sizes, lack of control groups, or study limitations. Perhaps most important, the content and duration of the education provided was poorly described and varied dramatically between studies, limiting the generalizability.

While it would be nice to solely rely on the content of sex education programs within schools to change risky sexual behavior, adolescents are not receiving the same message. Until effective sex education programs are implemented into school settings, healthcare providers need to take advantage of adolescent clinical visits. Sexual history taking should be a routine component during a general medical examination. The ability to recognize a teachable moment, actively listening, and providing answers to questions in a language the adolescent can understand not only promotes an atmosphere of trust, but is crucial to the reduction of risky sexual behaviors. With appropriate and accurate information, adolescents could be allowed the opportunity to make informed choices regarding their sexual health.

Further research is warranted as little replication of past studies has been undertaken. Researchers should choose a well-designed study that found a positive impact of the intervention on contraceptive use and replicate it across multiple settings.
A refinement of the intervention should continue until the program could be implemented more broadly.

Once successful interventions are identified, sex education curriculums should be envisioned as one part of an overall prevention strategy to include teachers, healthcare providers, parents, community leaders, and adolescents themselves. This commitment should encompass intensive training for teachers, updated healthcare information for providers, support groups for parents, public media campaigns to enlighten the community, and adolescent involvement in program design. Matching the scope of this problem to the commitment towards a successful sex education program requires a collaborative effort from all. If adolescents are to have a tomorrow, we must focus on their health today.
References


### Table 1
**Improvement in Adolescent Contraceptive Use**

<table>
<thead>
<tr>
<th>Authors</th>
<th>Location</th>
<th>Participants</th>
<th>Age/Grade</th>
<th>Sessions</th>
<th>Random Assignment</th>
<th>Longitudinal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Eggleston et al.</td>
<td>Jamaica</td>
<td>945</td>
<td>11-14 years</td>
<td>1 time/wk for 9 months - 45 minutes/each</td>
<td>No</td>
<td>PT + 9 and 21 month f/u</td>
</tr>
<tr>
<td>Hubbard et al.</td>
<td>Arkansas</td>
<td>212</td>
<td>9th-12th grade</td>
<td>Required class 16 lessons</td>
<td>No</td>
<td>PT + 18 month f/u</td>
</tr>
<tr>
<td>Jemmott III et al.</td>
<td>Philadelphia</td>
<td>659</td>
<td>10-13 years</td>
<td>8-1 hour modules over 2 Saturdays</td>
<td>Yes</td>
<td>PT + 3, 6, 12 month f/u</td>
</tr>
<tr>
<td>Kamb et al.</td>
<td>Md., Co., N.J., Long Beach, Ca., San Fran.</td>
<td>5758</td>
<td>14-older</td>
<td>2 interactive counseling sessions</td>
<td>Yes</td>
<td>PT + 3, 6, 9, 12 month f/u</td>
</tr>
<tr>
<td>Orr et al. (1996)</td>
<td>Indiana</td>
<td>112 females</td>
<td>15-19 years</td>
<td>One 10-20 minute discussion</td>
<td>Yes</td>
<td>PT + 5-7 month f/u</td>
</tr>
<tr>
<td>Stanton et al.</td>
<td>Eastern U.S.</td>
<td>383</td>
<td>9-15 years</td>
<td>8 weekly meetings, total 18 hrs.</td>
<td>Yes</td>
<td>PT + 6, 12, 18 month f/u</td>
</tr>
<tr>
<td>Tiezzi et al.</td>
<td>New York</td>
<td>3738</td>
<td>Junior High</td>
<td>15 lessons, once/week</td>
<td>No</td>
<td>PT only</td>
</tr>
<tr>
<td>Authors</td>
<td>Role-playing</td>
<td>Educators</td>
<td>Intervention</td>
<td>Educational Setting</td>
<td>Model/Theory Used</td>
<td>Main Outcomes</td>
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</tr>
<tr>
<td>Eggleston et al.</td>
<td>No</td>
<td>Educator-counselors</td>
<td>Grade 7 Project</td>
<td>School</td>
<td>Not mentioned</td>
<td>Increase in contraceptive use at 1st intercourse and improvement in sexual knowledge and attitudes at 9 months. No delay of sexual intercourse or abstinence.</td>
</tr>
<tr>
<td>Hubbard et al.</td>
<td>Yes</td>
<td>Teachers</td>
<td>Reducing the Risk</td>
<td>School</td>
<td>Social learning theory</td>
<td>Increase in contraceptive use, delay in sexual intercourse, and improvement in communication between teens &amp; parents</td>
</tr>
<tr>
<td>Jemmott III et al.</td>
<td>Yes</td>
<td>Adult vs. Peers</td>
<td>Not a specific program</td>
<td>School</td>
<td>Not mentioned</td>
<td>Short term improvement in abstinence and condom use. Long term - fewer sexual encounters.</td>
</tr>
<tr>
<td>Kamb et al.</td>
<td>No</td>
<td>Counselors/Clinicians</td>
<td>Project Respect</td>
<td>Five public STD clinics</td>
<td>Not mentioned</td>
<td>Condom use improved at 3 &amp; 6 months. 30% fewer new STD's @ 6 months &amp; 20% fewer @ 12 mos.</td>
</tr>
<tr>
<td>Authors</td>
<td>Role-playing</td>
<td>Educators</td>
<td>Intervention</td>
<td>Educational Setting</td>
<td>Model/Theory Used</td>
<td>Main Outcomes</td>
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</tr>
<tr>
<td>Orr et al. (1996)</td>
<td>Yes</td>
<td>Research assistant</td>
<td>Intervention not discussed</td>
<td>Urban family planning and STD clinics</td>
<td>Health belief model</td>
<td>Improvement in condom use at 6 months but chlamydia rate unchanged</td>
</tr>
<tr>
<td>Stanton et al.</td>
<td>No</td>
<td>Computer</td>
<td>Not a specific program</td>
<td>Recreational center and rural campsite</td>
<td>Social cognitive theory</td>
<td>Improvement in contraceptive practices (eg. Condoms with another birth control method). Improved knowledge re: AIDS</td>
</tr>
<tr>
<td>Tiezzi et al. (1997)</td>
<td>Yes</td>
<td>Social workers, medical providers, and psychiatrists</td>
<td>In Your Face (Expansion of Reducing the Risk program)</td>
<td>School</td>
<td>Not mentioned</td>
<td>Increase in contraceptive use or abstinence. Decrease in pregnancy rates post-intervention</td>
</tr>
</tbody>
</table>
Table 2
No Improvement in Adolescent Contraceptive Use

<table>
<thead>
<tr>
<th>Authors</th>
<th>Location</th>
<th>Participants</th>
<th>Age/Grade</th>
<th>Sessions</th>
<th>Random Assignment</th>
<th>Longitudinal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Buysse et al. (1997)</td>
<td>Belgium</td>
<td>698</td>
<td>11th-12th grade</td>
<td>2 days</td>
<td>No</td>
<td>PT + 2 wks, 3 month f/u</td>
</tr>
<tr>
<td>Kirby, Korpi, Adivi et al. (1997)</td>
<td>Los Angeles</td>
<td>1657</td>
<td>7th grade</td>
<td>8 sessions over 2 weeks</td>
<td>Yes</td>
<td>PT + 5, 17 month f/u</td>
</tr>
<tr>
<td>Kirby, Korpi, Barth et al. (1997)</td>
<td>California</td>
<td>7340</td>
<td>7th-8th grade</td>
<td>5 sessions, 45-60 minutes each</td>
<td>Yes</td>
<td>PT + 3, 17 month f/u</td>
</tr>
<tr>
<td>Lundin Kvalem et al. (1996)</td>
<td>Norway</td>
<td>2411</td>
<td>16-20 years</td>
<td>10-14 hours over 2 days</td>
<td>Yes</td>
<td>PT + 6, 12 month f/u</td>
</tr>
</tbody>
</table>
### Table 2

**No Improvement - Continued**

<table>
<thead>
<tr>
<th>Authors</th>
<th>Role-playing</th>
<th>Educators</th>
<th>Intervention</th>
<th>Educational Setting</th>
<th>Model Used</th>
<th>Main Outcomes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Buysse et al. (1997)</td>
<td>Yes</td>
<td>Teachers</td>
<td>Not a specific program</td>
<td>School</td>
<td>Social cognitive theory</td>
<td>No improvement in intentions to use condoms. Increased knowledge, skills, &amp; freq. of communication regarding safer sex</td>
</tr>
<tr>
<td>Kirby, Korpi, Adivi et al. (1997)</td>
<td>Yes</td>
<td>Peers</td>
<td>Not a specific program</td>
<td>School</td>
<td>Health belief model &amp; Social learning theory</td>
<td>No change in contraceptive behaviors. Improvement in knowledge &amp; 2/21 attitudes or beliefs</td>
</tr>
<tr>
<td>Kirby, Korpi, Barth et al. (1997)</td>
<td>Yes</td>
<td>Adult vs. peers</td>
<td>Postponing Sexual Involvement</td>
<td>School</td>
<td>Not mentioned</td>
<td>No change in sexual behavior at either intervention. At 3 mos. improvement in attitudes, behaviors, &amp; intentions r/t sexual activity.</td>
</tr>
<tr>
<td>Lundin Kvalem et al. (1996)</td>
<td>Yes</td>
<td>Peers</td>
<td>Not a specific program</td>
<td>School</td>
<td>Cognitive social learning &amp; Social influence theories</td>
<td>No influence on condom use following intervention</td>
</tr>
</tbody>
</table>