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The Impact of Schools and School Programs Upon Adolescent Sexual Behavior

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Because most youth are enrolled in school for many years before they initiate sex and when they initiate sex, schools have the potential for reducing adolescent sexual risk-taking. This paper reviews studies which examine the impact upon sexual risk-taking of school involvement, school characteristics, specific programs in school that do not address sexual behavior, and specific programs that do address sexual risk-taking. Multiple studies support several conclusions. First, involvement in and attachment to school and plans to attend higher education are all related to less sexual risk-taking and lower pregnancy rates. Second, students in schools with manifestations of poverty and disorganization are more likely to become pregnant. Third, some school programs specifically designed to increase attachment to school or reduce school dropout effectively delayed sex or reduced pregnancy rate, even when they may not address sexuality. Fourth, sex and HIV education programs do not increase sexual behavior, and some programs decrease sexual activity and increase condom or contraceptive use. Fifth, school-based clinics and school condom-availability programs do not increase sexual activity, and either may or may not increase condom or contraceptive use. Other studies reveal that there is very broad support for comprehensive sex- and HIV-education programs, and accordingly, most youth receive some amount of sex or HIV education. However, important topics are not covered in many schools.

Schools are the one institution in our society regularly attended by most young people—nearly 95% of all youth aged 5 to 17 years are enrolled in elementary or secondary schools (National Center for Education Statistics, 1993). Furthermore, virtually all youth attend schools for years before they initiate sexual risk-taking behaviors, and a majority are enrolled at the time they initiate intercourse. These facts raise a variety of questions that this paper will attempt to partially answer: (a) Does simply being in school have an impact upon adolescent sexual risk-taking? Does greater attachment to school? (b) Does enrollment in schools with particular characteristics reduce the chances of sexual risk-taking? (c) Through what mechanisms do schools reduce sexual risk-taking? (d) Are there school-based programs that do not focus on any aspect of sexuality but that nevertheless reduce sexual risk-taking? (e) Are there school-based programs that do focus upon some aspect of sexuality and do reduce sexual risk-taking? (f) If so, is there broad public support for these programs and how broadly are they implemented?

Impact of School Involvement

There are a variety of kinds of evidence suggesting that being in school does reduce sexual risk-taking behavior. In a multitude of developing countries around the world, as the percentage of girls completing elementary school has increased over time the teen birth rates have decreased. In the United States, youth who have dropped out of school are more likely to initiate sex earlier (Brewster, Cooksey, Guilkey, & Rindfuss, 1998), to fail to use contraception (Darroch, Landry, & Oslak, 1999), to become pregnant (Manlove, 1998), and to give birth (Manlove, Terry, Gitelson, Papillo, & Russell, 2000). Clearly, there are self-selection effects in these analyses, but the evidence also suggests that there is some causal impact. That is, youth who drop out of school are different in many ways from youth who do not drop out of school, even before they drop out, but dropping out appears to increase their sexual risk-taking behavior.

In addition, among youth who are in school, greater attachment is associated with less sexual risk-taking. In particular, investment in school, school involvement, attachment to school, or school performance have been found to be related to age of initiation of sex, frequency of sex, pregnancy, and childbearing (Billy, Brewster, & Grady, 1994; Brewster et al., 1998, Gibbs, 1986; Gibson & Kempf, 1990; Holden, Nelson, Velasquez, & Ritchie, 1993; Ireson, 1984; Lammers, Ireland, Resnick, & Blum, 2000; Manlove, 1998; Miller & Sneesby, 1988; Murry, 1992; Ohannessian & Crockett, 1993; Plotnick, 1992; Raine et al., 1999; Resnick et al., 1997; Robbins, Kaplan, & Martin, 1985). Finally, plans to attend college are also related to initiation of sex, use of condoms, use of contraception, pregnancy, and childbearing (Blum, Buehring, & Rinehart, 2000; Halpern, Joyner, Udry, & Suchindran, 2000; Manlove, 1998; Moore, Manlove, Glei, & Morrison, 1998; Pleck, Sonenstein, & Swain, 1988; Plotnick, 1992; Scher, Emans, & Grace, 1982).

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Characteristics of Schools with High Pregnancy Rates

Just as youth in communities with high rates of poverty and social disorganization are more likely to become pregnant (Kirby et al., 2001), so youth in schools with high rates of poverty and social disorganization are also more likely to become pregnant. In particular, when female teens attend schools with higher percentages of students receiving a free lunch (Manlove, 1998), with higher school dropout rates (Singh, 1986), and with higher rates of school vandalism (Chandy, Harris, Blum, & Resnick, 1994), they are more likely to become pregnant. Reflecting the relative lack of opportunity and greater disorganization in some minority communities in this country, teens in schools with higher percentages of minority students are also more likely to have higher pregnancy rates than teens in schools with lower percentages of minority students (Manlove, 1998). In these studies, it is often difficult to distinguish the impact of school characteristics from the impact of the community characteristics in which they reside.

Aside from the studies which (a) measure the relationship between student characteristics and student sexual behavior or (b) measure the impact of particular programs in schools (e.g., sex- and HIV-education programs, school-based clinics, or school condom-availability programs), remarkably few studies have measured the impact of school structure and school characteristics upon adolescent sexual behavior. Because school characteristics and programs can undoubtedly have an impact upon adolescents' plans for their future and their motivation to avoid childbearing, this is an understudied area of research. More research is clearly needed in this area.

Possible Mechanisms of School Impact

Social scientists and educators have proffered a wide variety of explanations for how schools reduce sexual risk-taking behavior. Some of their explanations have empirical research supporting them, while others are plausible, but lack supporting research. For example, educators concerned with adolescent sexual behavior have suggested that:

1. Schools structure students' time and limit the amount of time that students can be alone and engage in sex.
2. Schools increase interaction with and attachment to adults who discourage risk-taking behavior of any kind (e.g., substance use, sexual risk-taking, or accident-producing behavior). More generally, they create an environment which discourages risk-taking.
3. Schools affect selection of friends and larger peer groups that are important to them. Because peer norms about sex and contraception significantly influence teens' behavior, this impact of schools may be substantial. However, just how schools affect selection of friends and peers is not clearly understood.
4. Schools can increase belief in the future and help youth plan for higher education and careers. Such planning may increase the motivation to avoid early childbearing. As noted above, multiple studies demonstrate that educational and career aspirations are related to use of contraception, pregnancy, and childbearing.
5. Schools can increase students' self-esteem, sense of competence, and communication and refusal skills. These skills may help students avoid unprotected sex.

Although all of these explanations (as well as others) are plausible, and some have empirical support, in general, this is also an understudied area of research.

Impact of Non-Sexuality-Focused School-Based Programs

If school involvement, attachment to school, school performance, and educational and career aspirations are related to sexual risk-taking, then educational programs that improve any of these protective factors may also reduce sexual risk-taking. Thus, there may be a multitude of educational programs that affect adolescent sexual behavior. Unfortunately, most studies of educational interventions designed to improve academic performance and involvement fail to measure impact upon sexual risk-taking, and thus, the actual impact of these programs upon sexual behavior is largely unknown. This is yet another area for productive research.

However, there is one study that measured the impact upon sexual behavior of a program specifically designed to improve attachment to school. The Seattle Social Development Project was designed to increase bonding to elementary school (and family) through improved instructional techniques (and voluntary programs for parents) (Hawkins, Catalano, Kosterman, Abbott, & Hill, 1999). The results indicated that it did reduce teen pregnancy among youth followed by the study to age 18.

In addition, there are four studies of service learning programs demonstrating that voluntary service combined with small group preparation and reflection can either delay sex or reduce teen pregnancy rates (Allen, Philliber, Herrling, & Kuperminc, 1997; Melchior, 1998; O'Donnell et al., 1999, 2000; Philliber & Allen, 1992). Many of these programs are implemented in schools and some have been demonstrated to increase attachment to schools or to reduce school failure, among other things.

In sum, the correlational studies showing the relationship between attachment to school, success in school, and career plans, on the one hand, and sexual risk-taking behavior, on the other hand; the one experimental study of the Seattle Social Development Project; and the studies of service learning programs all suggest that if schools can implement programs that keep youth in schools, make them feel more attached to school, help them succeed, and help them develop plans for higher education and future careers, they may delay their students' onset of sex, increase their contraceptive use, and decrease their pregnancy and childbearing.

Impact of Sexuality-focused School Programs

Abstinence-only, Sex Education, and STD/HIV Curriculum-based Programs

Using large national samples, numerous studies have examined statistically the relationship between previous participation in a sex or STD/HIV education program and adolescent sexual and contraceptive behavior. The studies measuring the relationship between receipt of sex education and initiation of sex have produced mixed results: Some indicated such education delayed sex, some indicated no impact, and others indicated it hastened the onset of sex (Billy et al., 1994; Dawson, 1986; Furstenberg, Moore, & Peterson, 1985; Ku, Sonenstein, & Pleck, 1993; Marsiglio & Mott, 1986; Zelnik & Kim, 1982). Studies measuring the impact of sex and STD/HIV education programs upon contraceptive use have more consistently found that they increased contraceptive use (Dawson, 1986; Marsiglio & Mott, 1986; Mauldon & Luker, 1996; Zelnik & Kim, 1982).

While these studies attempt to measure the impact of the diversity of sex and STD/HIV education programs actually implemented in this nation's schools, these studies are fraught with methodological problems. For example, these studies have extremely limited data on the quality of any of these programs. In addition, measuring the causal impact is challenging, particularly when sex and STD/HIV education programs are more commonly implemented in higher risk schools. Consequently, much greater weight should be given to the evaluations of individual programs that employed experimental or quasi-experimental designs.

The experimental research measuring the impact of school-based abstinence, sex education, and STD/HIV education programs is reviewed in a separate paper in this issue (Kirby, 2002). That review concluded that there are no published evaluations of abstinence-only curricula indicating that these programs delayed sex, but it is premature to draw conclusions about the impact of these programs because (a) abstinence-only programs are a very heterogeneous group of programs, (b) too few rigorous studies have been completed, and (c) there is some evidence that the abstinence pledge can lead to a delay in sex in some conditions and that one community-wide abstinence media campaign may have delayed sex among young teens.

Regarding sex- and HIV-education programs, that review concluded that the overwhelming weight of the evidence indicates that sex- and STD/HIV-education programs that emphasize abstinence, but also cover condoms or contraception, do not increase sexual intercourse by hastening the onset of intercourse, increasing the frequency of intercourse, or increasing the number of sexual partners. In addition, some, but not all, of these programs delay the initiation of sex, reduce its frequency, reduce number of sexual partners, or increase use of condoms or other forms of contraception. These effective programs share common identifiable characteristics.

School-based and School-linked Health Centers

School-based health centers are clinics located on schools that offer services to students in their respective schools, while school-linked clinics are adolescent clinics located near schools that provide many of the same services, and can be integrated into the schools. Both types of clinics typically provide basic primary health care services; some of them also prescribe or dispense contraceptives. In 1999, there were at least 800 school-based health centers serving students in grades 7 through 12 (Making the Grade, 2000).

When these clinics are well staffed and well run and dispense contraceptives, they have many of the characteristics of ideal reproductive health programs: Their location is convenient to the students, they can reach both females and males, they provide comprehensive health services, they are confidential, their staff is selected and trained to work with adolescents, they can easily conduct follow-up, their services are cost free, and they can integrate education, counseling, and medical services. On the other hand, they may not easily reach older males, the males who are most likely to father children born to adolescent females.

School-based and school-linked clinics do provide contraceptives to substantial percentages of the sexually experienced youth in their respective schools. For example, in a study of four clinics that provided prescriptions or actually dispensed contraceptives, the proportion of sexually experienced females who obtained contraceptives through the clinic varied from 23% to 40% (Kirby, Waszak, & Ziegler, 1991).

Six studies have examined the impact of these health centers (Edwards, Steinman, Arnold, & Hakanson, 1980; Kirby et al., 1993; Kirby, Waszak & Ziegler, 1991; Kisker, Brown & Hill, 1994; Newcomer & Duggan, 1996; Zabin, Hirsh, Smith, Streett, & Hardy, 1986). Five of these studies examined programs in three or more schools. The outcomes they measured and their quasi-experimental designs varied considerably, but in general they were not strong designs. In addition, these studies measured population effects. That is, they measured the effects upon the entire school population and not just upon those students who actually used the clinics for family planning services. Consequently, inferences should be drawn cautiously from these studies.

These studies consistently demonstrated that providing contraceptives in school-based or school-linked clinics did not hasten or increase student sexual activity. Other results were more mixed. Most findings indicated that these clinics did not increase school-wide contraceptive use significantly; to the contrary, the data indicated that there was a large substitution effect. On the other hand, one study found that sexually experienced students in a school with a clinic run by Planned Parenthood were more likely to use contraception than students in a comparison school (Kirby, Waszak, & Ziegler, 1991), and a second study found that

students became more likely to use contraception after a school-linked family planning clinic was opened (Zabin et al., 1986). The results suggest that school-based or school-linked clinics that focus upon sexual and contraceptive behavior and give a clear message about avoiding sex or always using condoms or contraception may be effective.

School Condom-availability Programs

Given the threat of AIDS, as well as the threat of other STDs and pregnancy, more than 300 schools without school-based clinics have begun making condoms available through school counselors, nurses, teachers, vending machines, or baskets (Kirby & Brown, 1996). These schools are in addition to the 92 schools which make condoms available to students through school-based clinics.

The number of condoms obtained by students from schools varies greatly from program to program; in some schools students obtain very few condoms from the school, while in other schools they obtain large numbers (Kirby & Brown, 1996). In general, when schools make condoms available in baskets (a barrier-free method), students obtain many more condoms than when they must obtain condoms from school personnel or from vending machines. Finally, if schools have clinics, students obtain many more condoms than when schools do not have clinics.

There have been only four published studies of school condom-availability programs. All four of these studies found that making condoms available in schools did not significantly increase rates of sexual activity. However, the measured impact upon condom use varied with the study.

Only one of these studies evaluated the impact of making condoms available in multiple schools, collected baseline and follow-up data, had a comparison group, and had large sample sizes (Kirby et al., 1999). That study found that students did obtain very large numbers of condoms from the schools when condoms were made available without any restrictions in open baskets of condoms in school health centers. However, that study also found that condom use among sexually experienced youth did not increase. Students simply obtained condoms from the schools' health centers instead of from other sources. Focus groups with groups of students found that even before condoms were made available in the schools, condoms were readily available from other sources in the communities, and that the reasons youth gave for not using condoms typically did not include lack of access to condoms. Thus, the condom availability program may not have addressed the real needs of the students.

Of the three other published studies, two found significant increases in condom use and the third found non-significant trends in that direction (Furstenberg, Geitz, Teitler, & Weiss, 1997; Guttmacher et al., 1997; Schuster, Bell, Berry, & Kanouse, 1998). However, each of these three studies was limited by one or more of the following methodological problems: lack of baseline data, lack of comparison groups, insufficient sample sizes, or changes in parental consent procedures resulting in serious attrition at follow-up. In addition, two of these studies measured the impact of broader, more comprehensive HIV prevention or health promotion programs, not school condom availability alone.

What conclusions should one reach from these four studies of school condom availability? Logically, there are three possibilities. First, the differences in results could be caused by differences in the research methods. Second, the differences in results could be caused by differences in the communities and in student needs. If youth already have ample access to condoms in their communities, then making condoms available in schools may not increase condom use. In contrast, if communities do not provide condoms in convenient, confidential, and comfortable locations, then making them available in schools may increase student access to condoms and subsequently increase use of condoms. Third, the differences in study results could be due to the addition of other programmatic components (e.g., educational components) in two of the studies. This is consistent with the data showing that some sex programs increase condom use.

In sum, the results from these studies are similar to those of school-based clinics—they confirm that making condoms available on school campuses does not increase sexual activity, but their impact upon use of condoms is mixed. It is unclear why results suggest that school condom availability may have increased condom use in some cities, but not others.

Public Support for Sexuality-Focused Programs in Schools

For decades there has been and continues to be widespread support for sexuality and HIV education in schools. For example, four national Gallup polls conducted between 1981 and 1998 revealed continual increases from 70% in 1981 to 87% in 1998 in the percent of American adults who believed that public high schools should include sex education in their instructional programs (Rose & Gallup, 1998). Similarly, a 1999 Hickman-Brown national opinion poll found that 93% of adults supported sexuality education in schools (Haffner & Wagoner, 1999).

The approval for sexuality and HIV education also is manifested in state policy: 18 states require that sexuality education be taught in schools, while 34 states require that schools offer STD/HIV education (NARAL Foundation, 2000).

Thus, the controversies surrounding sexuality and HIV education programs do not focus on whether these programs should be offered in school, but rather on what topics should be taught and emphasized. Some groups believe that only abstinence, or only abstinence until marriage, should be taught, whereas other groups believe that condoms and contraception and other topics related to sexuality should be covered in a medically accurate manner.

Despite the growing strength of the abstinence movement across the country, large majorities of adults favor sex and AIDS education that includes discussions of condoms

and contraceptives. For example, a 1998 poll of American adults found that 87% thought birth control should be covered (Rose & Gallup, 1998), a 1999 poll found that 90% of adults thought condoms should be covered (Haffner & Wagoner, 1999), and another 1999 poll found that 82% of adults believed all aspects of sex education including birth control and safer sex should be taught (Hoff, Greene, McIntosh, Rawlings, & D'Amico, 2000).

Despite these majorities, an increasing number of states place restrictions on instruction about condoms and contraceptives, and a substantial proportion of schools limit instruction to abstinence. According to a large national study of school district policies, of the 69% of school districts that have policies on sex education, 35% teach abstinence as the only option outside of marriage, and either prohibit instruction on condoms or contraceptives or focus upon their shortcomings (Landry, Kaeser, & Richards, 1999).

Among adults in this country, there has also been considerable support for the provision of condoms or contraceptives through school condom-availability programs and school-based health centers. For example, a 1991 Roper poll indicated that 64% of American adults favored making condoms available in high schools (Roper Organization, 1991), a 1992 Gallup poll found that 68% of adults approved of condom distribution in public schools ("Adults Favor," 1992), and a 1999 poll found that 53% of adults thought school personnel should make condoms available for sexually active young people (Haffner & Wagoner, 1999).

Prevalence of Sex and STD/HIV Education Programs in Schools

Given both the need for effective educational programs and public support for such programs, schools have responded. According to a 1999 national survey of school teachers in grades 7 to 12, about 93% of their schools offered sexuality or HIV education (Darroch, Landry, & Singh, 2000). Of those schools teaching any topics in sexuality education, between 85% and 100% included instruction on consequences of teenage parenthood, STD, HIV/AIDS, abstinence, and ways to resist peer pressure to have sex. Between 75% and 85% of the schools provided instruction about puberty, dating, sexual abuse, and birth control methods. Teachers reported that the most important messages they wanted to convey were about abstinence and responsibility.

During the same year, survey results from a second survey of teachers and students in grades 7 to 12 were completed (Hoff et al., 2000). Their results were similar to the study above. They revealed that at least 75% of the students and similar percentages of the teachers indicated the following topics were covered in their instruction: basics of reproduction, STD and HIV/AIDS, abstinence, dealing with pressures to have sex, and birth control.

Despite the fact that most adolescents receive at least a minimum amount of sexuality or HIV education, it is widely believed by professionals in the field that most programs are short, are not comprehensive, fail to cover some important topics, and are less effective than they could be (Britton, deMauro, & Gambrell, 1992; Darroch, Landry, & Singh, 2000; Gambrell & Haffner, 1993; Hoff, et al., 2000). For example, both surveys of teachers discussed above found that only half to two thirds of the teachers covered how to use condoms or how to get and use birth control.

Furthermore, there is very little information about the extent to which sex- and HIV-education curricula that have been found to be effective are implemented with fidelity in additional schools. However, considerable anecdotal information indicates that even when schools purchase these effective curricula, few implement most of the lessons. Thus, there is a widely held belief that schools have established a foundation for programs, but that effective programs need to be implemented more broadly and with greater fidelity throughout the country.

There are at least three important reasons why effective programs are not implemented more broadly. First, schools devote relatively little time to health education more generally, and to sex and HIV education more specifically. Because the effective programs last for numerous class periods, teachers have difficulty fitting them into their semester curricula. Second, the effective programs include activities that some parents and communities oppose, because they fear they will sanction and encourage sexual activity. Third, many teachers and school districts do not realize that some sex- and HIV-education programs have strong evidence for their success.

Conclusions

The research on the impact of schools upon adolescent sexual behavior is quite uneven. On the one hand, there is relatively little research on the impact upon sexual behavior of school structure and non-sexuality-focused school programs. On the other hand, there is much more research on school programs that address sexuality, especially sex- and HIV-education programs and, to a lesser extent, school-based clinics and school condom-availability programs. Additional research on the impact of school structure and non-sexuality-focused programs may be very productive.

Despite the limitations of this body of research, there is evidence to support several conclusions. Programs that effectively decrease school dropout and improve attachment to school, school performance, and educational and career aspirations are likely to either delay sex, increase condom or contraceptive use, or decrease pregnancy and childbearing. Service learning programs have especially strong evidence for reducing teen pregnancy. Those sex- and STD/HIV-education programs with identified common characteristics can also delay sex, reduce the frequency of sex, increase condom or contraceptive use, or decrease pregnancy and childbearing. School-based clinics and school condom-availability programs do not increase any measure of sexual behavior, but may or may not increase condom or contraceptive use.

Despite the many controversies, there is broad public support for sex education in public schools, including support for instruction about condoms and contraceptives. Consequently, most schools provide some sex education instruction, but many do not cover important topics and relatively few schools implement with fidelity those programs that have been demonstrated to be effective. Thus, implementing effective programs both with fidelity and more widely may reduce sexual risk-taking behavior among adolescents.

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