Among Female Adolescents, STD History Is Associated With Demographically or Socially Dissimilar Partnering

Urban, sexually active female adolescents who have recently had a main or casual sexual relationship with a partner they met through a venue other than school have significantly increased odds of being dissimilar in age to their partner (odds ratios, 3.2–21.5). Females who have ever had a sexually transmitted disease (STD) have elevated odds of having had a recent main partner whose ethnicity or history of hard drug use is different from their own (2.2–3.1). For males, no such associations are apparent when all of these factors are considered simultaneously. These findings come from a 1997–1999 study of teenage clinic clients in San Francisco.[1]

Participants were 14–19-year-olds recruited at two clinics (a municipal STD clinic and a general adolescent medicine clinic). In a baseline interview, research assistants elicited information on participants' demographic characteristics and social and sexual histories. At a second interview six months later, data were collected on characteristics of the participants' main sexual partners ("someone...you are serious about") and casual partners ("not a main partner") since baseline and on where or how they had met.

The analyses included the 473 teenagers who reported at follow-up having had intercourse in the previous six months. Among the 151 male participants, the average age was 17.2. Half were black or Hispanic (29% and 22%, respectively); the rest were Asian (16%), white (12%), or of other or mixed ethnicities (22%). Ninety-eight percent considered themselves heterosexual; the mean lifetime number of sexual partners was 8.2. One-third of males had been with main and casual partners in the previous six months; 7% had ever had an STD. Eighty-four percent had used drugs; 79% of males' recent main partners, and 70% of their casual partners, had never used hard drugs.

The average age among the 322 females was 16.9. Blacks comprised the largest female ethnic subgroup (27%); next came whites (20%), Hispanics (18%) and Asians (17%). Eighteen percent reported other or mixed ethnicities. Ninety-four percent identified themselves as heterosexual; the mean lifetime number of partners was 5.4. In the past six months, 29% had had main and casual partners. Twenty-two percent had had an STD. Most females had used drugs (81%) but thought that their recent main (68%) and casual (68%) partners had never used hard drugs.

Among males, the most popular venues for meeting main partners were social networks (31%) and school (30%), followed by street locations, such as public transportation or parks (17%); work (15%); and clubs or parties (7%). The most frequently cited venue for meeting casual partners was school (31%); then came social networks (21%), clubs or street locations (18% each), and work (13%). Females had met more than one-third of recent partners—main (39%) or casual (35%)—through social networks. For meeting main partners, the next most popular venues were school (23%), street locations (18%), work (13%) and clubs (8%); for casual partners, street locations, work or school (18% each), and clubs (11%).

Males' partners were generally age-concordant (i.e., partners were less than two years older or younger than they were). However, 50% of casual partnerships among males with a history of STDs and 60% of those among males who had met their partner at a street venue involved an age-discordant partner. After adjustment for age, ethnicity, drug use, meeting venue and STD history, logistic regression analysis revealed no significant associations with age discordance (although in bivariate analysis, meeting a casual partner at a street venue was associated with significantly higher odds than meeting at school).

Among females, most recent relationships involved age discordance (a difference of three years or more). The subgroups with the greatest prevalence of discordance were females who had met their main partner at a street location, females who had met their casual partner at a club and females with an STD history who were in casual partnerships (76–83%). Only three female subgroups had age discordance in fewer than half of the relationships: blacks with casual partners and females with main or casual partners they had met at school (20–49%). In multivariate analysis, the odds of age dissimilarity were significantly elevated for females in main or casual partnerships involving a meeting venue other than school (odds ratios, 3.2–21.5), for female hard drug users in main partnerships (2.1) and for females in casual partnerships who had had an STD (3.0).

Most relationships were between partners of the same ethnicity. The highest proportions of ethnicity discordance among males' relationships were seen between casual partners who had met through friends and main partners who had met at work (61–65%). In most subgroups, 20–50% of males reported ethnicity discordance, but the proportions were even lower among males who had met their partners at street locations and blacks with main and casual partners (13–16%). Bivariate analysis revealed decreased odds of discordance for black males in main partnerships and for males meeting casual partners at street locations, and showed increased odds for hard drug users in main partnerships; however, these relationships did not retain significance after adjustment for potential confounders.

Among females, Asians and Hispanics with casual partners had the highest proportions of ethnicity discordance (71–73%), blacks with main or casual partners had the lowest (13–14%), and most other subgroups reported discordance in 24–48% of relationships. For black females with main partners, the odds of ethnicity discordance were one-10th those for whites (odds ratio, 0.1). The odds of dissimilar partnering were elevated for females who had met their main partner at a street location or work (3.8–5.5) and for those with a main partner and an STD history (2.2). Although no associations were found for females' casual partnerships in the multivariate analysis, meeting at work was associated in the bivariate analysis with decreased odds of ethnicity discordance; Hispanics and Asians had increased odds of discordance with casual partners.

The majority of partnerships involved couples with the same drug use status (i.e., both

had tried, or not tried, hard drugs). Most male subgroups had a prevalence discordance falling in the range of 13–48%; the exceptions were blacks in casual partnerships and males in main relationships who had never tried hard drugs (6–8%) and whites and drug users in main relationships (56–59%). In bivariate analysis, black males had reduced odds of discordance with main partners; in main and casual partnerships, drug users' odds of discordance were higher than those of nonusers. However, in logistic regression analysis, no variables were associated with drug use discordance in males' partnerships.

Among female subgroups, proportions of drug use discordance ranged from 11% to 43%; the subgroups with the greatest proportions of discordant couples were females with main partners they had met at work and drug users with casual partners. Multivariate analysis showed that compared with white females, black females had decreased odds of drug use discordance with their main partners (odds ratio, 0.2). Females had increased odds of discordance if they had met their main partner at work (5.1) or had had an STD (3.1).

The researchers had sought to identify teenagers likely to have sex with persons within and outside of their own sexual networks—which presumably consist of sexually active persons who share a demographic trait or social behavior; who have mutual friends; or who work, attend school or congregate together. They note that persons with dissimilar partners may spread STDs between demographically and socially disparate populations. However, as the researchers point out, their study did not examine whether discordant partnering was associated with STD transmission.

The researchers believe that adolescents should be considered at increased risk for dissimilar partnering, and possibly for STDs, if they have a history of drug use or STDs. They also conclude that interventions for STD prevention should concentrate on venues associated with elevated likelihoods of discordant partnering.–*C. Coren*

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Large Proportions of Men and Women with HIV Have Sex Without Telling Partners That They Are Infected

Substantial proportions of HIV-positive adults engage in oral, anal or vaginal sex without telling their partner that they are infected, according to findings from a national survey; the risks associated with such behavior often are exacerbated by characteristics of the partnership.[1] Four in 10 gay or bisexual men with HIV, and two in 10 infected heterosexual men and women, have had sex with a partner to whom they have not revealed their HIV status; for gay or bisexual men, most such sexual encounters have occurred within a nonexclusive partnership. Thirteen percent of partnerships between an infected individual and one who is HIV-negative or whose HIV status is unknown have involved unprotected intercourse without disclosure.

The data, from a national probability sample of HIV-infected men and women aged 18 or older, were gathered through in-person interviews in late 1998. At the time of interview, all respondents—606 men who identified themselves as gay or bisexual, 287 men who identified themselves as heterosexual and 504 women—had been receiving medical care for more than two years. The analyses were based on information they provided about their sexual activity in the previous six months.

Overall, about half of respondents were at least 40 years of age; 51% were white, 32% black, 13% Hispanic and 3% members of other racial or ethnic groups. The majority had at least a high school education. One in five had injected drugs before learning that they had HIV; four in 10 had AIDS. Background characteristics differed significantly among the three groups of respondents. For example, gay or bisexual men were more likely than heterosexual men or women to be white and to have AIDS; heterosexual men were the most likely to be 40 or older and to have injected drugs; and women were, on average, the youngest.

Twenty-eight percent of gay or bisexual men had not had sex within the previous six months; the proportion was about the same among women (34%) but significantly greater among heterosexual men (39%). Reports of sex only after disclosure of one's HIV status were significantly less common among gay or bisexual men (29%) than among heterosexual men (41%) or women (48%). Similarly, 42% of gay or bisexual men reported having had any sex without telling their partner of their HIV infection, compared with 17–19% of other respondents. Eight in 10 gay or bisexual men who reported having had sex without disclosing their HIV status (35% overall) said that they had done so in the context of nonexclusive partnerships; for heterosexual men and women, episodes of intercourse without disclosure were about evenly divided between exclusive and nonexclusive partnerships. The proportion who said they had had unprotected anal or vaginal intercourse without disclosing their infection status was significantly higher among gay or bisexual men (16%) than among other respondents (5–7%).

Roughly half of each group of respondents reported having had any serodiscordant partners (i.e., partners who were HIV-negative or whose HIV status was unknown) during the previous six months; 30% of gay or bisexual men and 9–10% of others had had at least two such partners. Thirteen percent of all partnerships in which the couple were serodiscordant involved unprotected intercourse in the absence of the infected partner's disclosure of his or her HIV status; the proportions in all three groups were similar. In each group of men, most unprotected sex in the absence of disclosure occurred within nonexclusive partnerships and involved a partner whose HIV status was unknown. Among women, such sexual encounters were equally likely to have occurred within nonexclusive and exclusive partnerships.

Using their findings, the analysts estimate that 45,300 gay or bisexual men, 8,000 heterosexual men and 7,500 women with HIV have sex without disclosing their HIV status to their partner; these totals may include as many as 17,400 gay or bisexual men, 2,000 heterosexual men and 2,900 women who have unprotected intercourse without disclosure. While acknowledging that these estimates are subject to a number of limitations, the analysts nevertheless conclude that they "suggest that substantial numbers of new HIV infections could occur among partners of HIV-positive persons who do not disclose their status." They add that the different rates of intercourse without disclosure among the groups studied may indicate that "the norms regarding disclosure [are] quite different" among these groups. Therefore, they recommend that HIV prevention interventions for HIV-positive populations "focus on specific relationships and contexts

in which disclosure is most likely to affect behavior."–*D. Hollander*

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For Whites, but Not Blacks, Binge Drinking Is Linked To Unintended Pregnancy

Binge drinking in the three months before conception is associated with unintended pregnancy, but the relationship appears to vary by race.[1] In a population-based case-control study of women with pregnancies resulting in a live birth, one in seven women reported bingeing (consuming at least five alcoholic drinks on one occasion) in the preconception period; nearly half of pregnancies were unintended. In analyses accounting for other risk factors, white women who reported preconception binge drinking had 60% higher odds of unintended pregnancy than women who had not binged. In contrast, among black women, those reporting binge drinking did not have increased odds. Women who reported preconception binge drinking had a higher prevalence of other factors posing a risk to their own health and the health of their fetus, including smoking and physical abuse during the preconception period, and consuming alcohol, binge drinking and smoking during pregnancy.

To assess the relationship between preconception binge drinking and unintended pregnancy, and to identify characteristics of women who binge drink in the preconception period, researchers analyzed data from 15 states participating in the Pregnancy Risk Assessment Monitoring System for the years 1996–1999. Within six months of delivering a live infant, women were contacted by mail or telephone and questioned about their pregnancy intention and about binge drinking, as well as other possible risk factors, during the preconception period and the last trimester of pregnancy. Women who reported that they had wanted to get pregnant later or had not wanted to get pregnant at all were classified as having had an unintended pregnancy.

Analyses were based on 72,907 women. Half of the women were aged 26 or older. Most were white (80%) and married (70%). Nearly half (47%) had an education beyond the high school level. For 42%, the birth was their first.

Pregnancy was unintended in 45% of women. Compared with women whose pregnancy was intended, women with an unintended pregnancy had a significantly higher prevalence of reported binge drinking during the preconception period (16% vs. 12%). This difference corresponded to a roughly 40% increase in the odds of reporting preconception binge drinking among women with an unintended pregnancy (unadjusted odds ratio, 1.4). Other factors related to having an unintended pregnancy were being aged 13–20, black or unmarried; having no more than a high school education; lacking health insurance, being covered by Medicaid, smoking, experiencing physical abuse or using birth control during the preconception period; delaying pregnancy recognition or the start of prenatal care; and binge drinking or smoking during pregnancy.

Fourteen percent of women reported that they binged on alcohol in the preconception period. Binge drinkers were significantly older than non–binge drinkers (15% and 18%, respectively, were aged 13–20), and larger proportions were white (89% vs. 78%), were unmarried (37% vs. 31%) and had given birth for the first time (49% vs. 41%). Binge drinkers had significantly higher prevalences of a variety of other risk factors when compared with non–binge drinkers, both during the preconception period and during pregnancy. They more frequently reported having smoked (50% vs. 20%) and been physically abused (10% vs. 6%) during the preconception period. Similarly, they more often said that they had smoked (27% vs. 11%), consumed alcohol (13% vs. 4%) and binged on alcohol (3% vs. 0%) during pregnancy.

The more preconception episodes of binge drinking women reported, the greater the proportion of pregnancies that were unintended. Among women reporting any preconception alcohol consumption, the proportion of pregnancies that were unintended increased significantly from 40% among those reporting no binge drinking episodes to 60% among those reporting four or more episodes. The odds of unintended pregnancy were more than doubled among women reporting four or more episodes relative to women reporting none (unadjusted odds ratio, 2.3).

In adjusted analysis, the odds of unintended pregnancy were 60% higher for white women reporting preconception binge drinking than for those not reporting this behavior (odds ratio, 1.6); no association between binge drinking and unintended pregnancy was found for black women. Both white women and black women had significantly elevated odds of unintended pregnancy if they were 20 or younger (2.6 and 2.1, respectively), were unmarried (2.5 and 2.9), had given birth at least twice (1.5 for each), had no health insurance before conception (1.5 and 1.4) and were using birth control at the time of conception (7.0 and 3.2). Two additional factors were significantly associated with increased odds of unintended pregnancy only among white women: preconception smoking and preconception physical abuse (1.5 for each).

Commenting on the findings, the researchers note that the observed association between preconception binge drinking and unintended pregnancy is likely an underestimate because the study did not include pregnancies ending in abortion or miscarriage. They further observe that women who binged in the preconception period often had other risk factors for poor health and pregnancy-related outcomes. "Therefore, effectively addressing binge drinking and other risk factors in community and clinical settings might not only reduce rates of unintended pregnancy but . . . also improve the overall health and well-being of mothers and their children," the researchers conclude.–*S. London*

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Sexual Behavior Is Safer When Students Can Get Condoms at Their Schools

Massachusetts teenagers who attend schools where condoms are distributed are less likely than those whose schools do not make condoms available ever to have had intercourse and to have done so recently; moreover, if youth are sexually experienced, those in schools that provide condoms are more likely than those whose schools do not make condoms available to use condoms.[1] Students in schools with condom distribution programs receive instruction about more HIV-related topics than those whose schools do not provide condoms; they also have elevated odds of learning about how to use a condom or to prevent HIV. These are some high-

lights of an analysis of 1995 data for the state, which has what the analysts label "one of the most progressive and far-reaching...HIV/AIDS education policies in the country."

The data came from the Massachusetts Youth Risk Behavior Survey, which was conducted among a representative sample of high school students. At the time of the survey, the state had a four-year-old policy recommending that local school districts consider adopting policies regarding the provision of condoms and instruction for their use in high schools. In most districts with condom availability programs, school personnel distributed condoms, and students did not need parental consent to obtain them.

One-fifth of the 4,166 survey respondents attended schools with condom distribution programs. Compared with respondents from other schools, these youth were slightly younger (mean age, 16.0 vs. 16.1 years), were more likely to be in lower grades (59% and 53%, respectively, were in grades 9–10) and were more likely to be members of racial or ethnic minority groups (49% vs. 20%). The researchers used analyses of covariance and logistic regression to examine differences in HIV-related education and high-risk behavior between these two groups, controlling for student and community characteristics.

Nine in 10 youth surveyed had had any instruction about HIV in school, and the same proportion had learned about how to prevent HIV; students in schools with condom distribution programs were more likely than those in other schools to have received such instruction (odds ratios, 1.5–1.6). Overall, 50% had seen a presentation by a person with AIDS or been taught how to use a condom; the likelihood of these experiences, too, was elevated among respondents whose schools made condoms available (2.6 and 1.7, respectively). These students also reported having learned about a significantly larger number of HIV-related topics than those in schools that did not distribute condoms (2.2 vs. 1.8).

Half of respondents were sexually experienced, and one-third had had intercourse within the three months preceding the survey; odds of both lifetime and recent sexual experience were reduced among youth attending schools with condom distribution programs (odds ratio, 0.8 for each). Slightly more than half of those with sexual experience said they had used a condom at last intercourse or had used a condom for pregnancy prevention at that time; in both cases, the odds of use were doubled (2.1) for students at schools where condoms were available. Three-quarters of sexually experienced respondents had used any contraceptive at last intercourse, and one in four had used a method other than condoms; students in schools with condom distribution programs had reduced odds of giving these responses (0.5–0.6). Notably, the two groups did not differ with respect to age at first intercourse, number of lifetime or recent partners, or pregnancy involvement.

Another striking finding was that the two groups of youth were similar in their views about the accessibility of condoms and where they were most likely to obtain them: Although the great majority (89% both overall and among those with sexual experience) considered condoms easy to obtain, fewer than half said that they would most likely get them in school. The analysts suggest that these findings reflect the ease with which young people can obtain condoms in the community and students' potential reluctance to seek them from school personnel.

The researchers acknowledge that studies comparing condom use before and after schools implement a condom distribution program would be more "compelling" than their cross-sectional analyses. They further point out that unmeasured community and student characteristics may have influenced the results. Nevertheless, they contend that given their large, statewide representative sample of students, the findings suggest that school-based condom distribution programs "may improve HIV prevention practices."–*D. Hollander*

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Reinfections Make Up A Large Share of Gonorrhea Cases Diagnosed at Clinics

One-fifth of gonorrhea infections diagnosed in heterosexually active individuals during visits to two Baltimore public sexually transmitted disease (STD) clinics in 1998 were reinfections.[1] Individuals receiving a gonorrhea diagnosis at an initial clinic visit between 1994 and 1998 had a risk of reinfection of about 4% per year, and half of first reinfections occurred within a year. The risk of reinfection was nearly twice as high among men as among women. Men had an elevated risk of reinfection if, at the initial visit, they reported having multiple sex partners in the prior month or having ever had a partner who exchanged sex for drugs or money; additionally, men aged 25 or younger had a higher risk than older men. Women had an increased risk of reinfection if they reported using condoms or having multiple sex partners in the prior month; their risk was reduced if they were visiting the clinic because they had had a partner who had an STD.

To assess the incidence of and risk factors for a first reinfection with gonorrhea, researchers analyzed data on 8,327 heterosexually active individuals aged 12 or older who visited the two clinics between January 1994 and October 1998, and who had at least one visit during which genital gonorrhea infection was diagnosed by culture. Sexual behavior, drug use and the reason for the visit were assessed at the initial visit. Reinfection was defined as another diagnosis of gonorrhea infection during a visit made at least three months after the initial visit.

More than 95% of individuals served at both clinics are black. Most of those included in the study were male (79%), and half were 25 or younger at the initial visit. The most common reason for visiting the clinic was symptoms of STD (83%). Only 10% reported using any condoms, and 42% reported having had two or more sex partners in the prior month. Sixteen percent reported ever having inhaled cocaine, and 7% reported ever having injected drugs. Overall, 4% had ever had sex in exchange for money or drugs, 7% had had sexual contact with someone who used injection drugs and 12% had had sexual contact with someone who engaged in exchange sex.

During 21,246 person-years of observation, a first reinfection occurred in 11% of individuals. Overall, four of every 100 individuals became reinfected per year, and half of these reinfections occurred within one year of the initial infection.

Between 1994 and 1998, the proportion of clinic visits for gonorrhea infection that were due to reinfection increased significantly (from 19% to 21%), and the average age at initial infection among individuals who became reinfected decreased significantly (from 28 to 23 years). During the same time period, there were significant decreases in the proportions of infected individuals reporting that they had ever injected drugs (from 8% to 5%), inhaled cocaine (from 20% to 14%) or had sexual con-

tact with someone who engaged in exchange sex (from 13% to 10%).

In multivariate analysis of the study group overall, the risk of reinfection was significantly elevated for men (hazard ratio, 1.8) and for individuals who, at the initial visit, were aged 25 or younger (1.4), had had two or more sex partners in the prior month (1.2), used any condoms (1.6) and had ever had sexual contact with someone who engaged in exchange sex (1.5). The risk was significantly reduced for individuals who visited the clinic because they had had a partner with an STD (0.6), and the risk was marginally reduced for individuals who had ever injected drugs (0.8).

Three combinations of factors were also significantly associated with the risk of reinfection. The risk was increased more than sixfold for individuals who had ever engaged in exchange sex and visited the clinic as an STD contact (hazard ratio, 6.2). The risk was moderately increased for individuals who had ever engaged in exchange sex and had no reason recorded for their clinic visit (1.3), and for individuals who had had two or more sex partners in the prior month and had no reason recorded for their visit (1.7).

In sex-stratified multivariate analyses, women had an elevated risk of reinfection if they reported using any condoms (hazard ratio, 1.6) or having two or more sex partners in the prior month (1.6), whereas they had a reduced risk if they were visiting the clinic as an STD contact (0.6). Men had an elevated risk of reinfection if they were aged 25 or younger at first visit (1.5), had had at least two sex partners in the prior month (1.2) or had ever had sexual contact with someone engaging in exchange sex (1.5).

Commenting on the findings, the investigators note that reinfections account for a substantial proportion of all gonorrhea infections in this population. Moreover, they point out that because they did not have data on patients' STD history or on infections diagnosed at other facilities, they cannot determine whether individuals who tested positive for gonorrhea at only one visit had ever had another gonorrhea diagnosis. They stress that certain risk factors for reinfection present at the time of a first infection may help providers identify individuals who will benefit from preventive interventions. "Targeting interventions to people at risk for reinfection may be an effective way of maximally preventing gonorrhoea transmission and reducing resource utilisation," they conclude.–*S. London*

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Partner Violence During Pregnancy Increases Risk Of Adverse Outcomes

Women who are physically abused by an intimate partner during pregnancy have significantly elevated odds of experiencing certain adverse pregnancy outcomes, according to a study in two hospitals in Vancouver, British Columbia.[1] Physical abuse was found to be associated with an increased risk of hemorrhage in the second or third trimester, intrauterine growth restriction and perinatal death (odds ratios, 3.1–8.1). In the absence of physical abuse, fear of an intimate partner was not associated with any of the pregnancy outcomes studied.

To determine whether exposure to or fear of intimate partner violence is associated with certain negative pregnancy outcomes, researchers trained obstetric nurses from two Vancouver hospitals to gather relevant information from women admitted for delivery between January 1, 1999, and December 31, 2000. During routine patient assessment, the nurses asked women "Since you've been pregnant, have you been hit, slapped, kicked or otherwise physically hurt by a current or former intimate partner?" and "Have you been afraid of a current or former intimate partner during your pregnancy?" Interviews were conducted in private and in the same language spoken by the patient.

Researchers considered women to have experienced a specific adverse pregnancy outcome if such a condition was documented in the women's medical charts. The pregnancy outcomes studied were antepartum hemorrhage after the first trimester, preterm labor or delivery (i.e., before 37 weeks' gestation), intrauterine growth restriction (indicated by an infant's birth weight in the 10th percentile or less) and perinatal death (fetal death after 20 weeks' gestation or death of a newborn before hospital discharge). Women's demographic information, substance use histories and reproductive histories were collected from medical charts. Data were analyzed using logistic regression.

Of the 9,794 women who delivered infants at 20 or more weeks' gestation during the study period, 4,750 were interviewed; 56 reported having been physically abused by an intimate partner during the pregnancy, and 69 reported being afraid of a partner. Significantly greater proportions of women who were exposed to abuse or who feared a partner than of others were younger than 25 (32% vs. 11%), single parents (42% vs. 6%), members of the First Nations (24% vs. 2%), in the lowest quintile of household income (69% vs. 35%), users of alcohol or illicit drugs (14–17% vs. 2%), or current smokers (30% vs. 5%). In addition, 33% of women who were exposed to abuse or who feared a partner had had at least one induced abortion, in comparison with 21% of other women.

Among the women in the sample, 824 experienced one of the adverse pregnancy outcomes studied: 126 antepartum hemorrhage, 233 preterm labor, 308 preterm delivery, 134 intrauterine growth restriction and 23 perinatal death. In multivariate analysis adjusted for income and race or ethnicity, women who were physically abused during pregnancy were significantly more likely than others to have experienced antepartum hemorrhage (odds ratio, 3.8), intrauterine growth restriction (3.1) and perinatal death (8.1). In analyses additionally adjusted for use of alcohol, illicit drugs or tobacco, women who had been physically abused continued to have an elevated risk of antepartum hemorrhage (3.5) and perinatal death (7.3); the odds ratio for intrauterine growth restrictions was elevated (2.8), although it was only marginally significant. Fear of an intimate partner was not significantly associated with adverse pregnancy outcomes in univariate models and, thus, was not included in further analyses.

When the researchers stratified the analyses to further examine the associations between substance use, physical abuse and adverse pregnancy outcomes, they found that physical abuse was significantly associated with an increased risk of antepartum hemorrhage among nonusers of alcohol, illicit drugs or tobacco (relative risks, 3.5–3.8) and of intrauterine growth restriction among users of those substances (5.3–7.1). Perinatal death was positively associated with physical abuse among nonusers of alcohol (10.1) and among users of illicit drugs (5.1).

The researchers acknowledge the possibility of selection bias or underreporting in the study because nurses were not able to communicate with all patients in their own language or in private. Even so, they note that their study confirms the previously reported

association between physical abuse and intrauterine growth restriction and reveals an association with antepartum hemorrhage and perinatal death. The researchers conclude that "intimate partner–perpetrated violence in pregnancy is preventable" and suggest that women be asked about exposure to intimate partner violence during prenatal visits to "facilitate access to information and resources."–*J. Rosenberg*

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Disease Risk Is Elevated Among People Who Feel Bad About Having Sex

Emotional experiences surrounding intercourse may be important predictors of high-risk teenagers' and young adults' likelihood of acquiring a sexually transmitted disease (STD).[1] In a decision-tree analysis based on data from patients at an STD clinic, the majority of factors that distinguished those who had an STD diagnosed from those who tested negative for all STDs reflected patients' reasons for engaging in intercourse or emotional reactions to having sex. The strongest associations were found between STD diagnosis and patients' reports that they usually do not feel good about themselves after having intercourse or do not feel comfortable during sex. Traditional behavioral variables had little association with the odds of diagnosis.

The sample consisted of 188 patients attending a Virginia STD clinic during five months of 1997. Participants were, on average, 25 years old, and 54% were women. Fifty-six percent were white, 38% black and 6% members of other racial groups. The majority had had at least a high school education and had never been married. All participants underwent the clinic's standard examination and STD testing; 55% had no STD diagnosed. Eighteen percent had gone to the clinic to obtain an HIV test; all tested negative for the virus.

Responses to a self-administered questionnaire that participants completed during their clinic visit indicated that on average, these men and women had been about 16 years old the first time they had intercourse; they had had about 12 partners, including three during the six months preceding their clinic visit. Thirty-two percent of participants said they had never used condoms during intercourse in the past six months, and another 25% had used them less than half the time; only 11% reported always having used condoms.

In response to questionnaire items about emotional reactions to intercourse, 37% of participants reported feeling good about themselves no more than half the time they had sex, 22% said that sex feels comfortable no more than half the time and 19% said that sex feels good only half the time or less. Twenty-two percent reported feeling angry, and 35% reported feeling sad, at least some of the time they have sex. Twenty-one percent said that they are scared at least half the time they have sex. Other questions addressing the emotional context of sexual relations covered participants' reasons for having sex and experiences of coerced sex.

The researchers used decision-tree analysis to ascertain what variables distinguished respondents who had an STD diagnosed from those who did not. Of the 18 most important variables identified in this analysis, six reflected emotional responses to sex, seven pertained to reasons for having sex (e.g., to get back at someone, to express love or intimacy, or to relieve sexual tension) and five reflected risk-related behavior (e.g., using condoms inconsistently, initiating intercourse at an early age or having multiple partners).

In univariate analyses, only four of these 18 variables—three emotional factors and one behavioral factor—emerged as significant predictors of STD diagnosis. The likelihood of diagnosis was elevated among participants who reported feeling good about themselves no more than half the time after having sex (odds ratio from univariate analysis, 3.2) and those who said they were comfortable during sex only half the time or less (2.2). Participants who used condoms only half the time or less also had elevated odds of having an STD diagnosed (2.0). Decision-tree analysis showed that risk factors operate differently for different subgroups: Condom use was a protective factor only for participants who felt good about themselves more than half the time after having sex.

Results of logistic regression analysis confirmed the significance of variables measuring emotional reactions to intercourse; the addition of behavioral variables to the multivariate model did not improve its ability to predict STD diagnosis.

Given these results, the researchers suggest that questions about emotional reactions to sex could be used "to improve selective mass screening for all STDs" and "to further explore the psychological states or traits that contribute to behaviors that are more proximal risks for STD." Additionally, they conclude that the emotional aspects of sex should be taken into account in the design of programs geared to reducing sexual risk and models of healthy sexual decision-making.–*D. Hollander*

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Few U.S. School-Based Health Centers Offer Contraceptives On-Site

School-based health centers offer U.S. adolescents a wide range of reproductive health counseling, testing and treatment services, both on-site and through referrals. The centers face important barriers in providing these services, however: Reproductive health services are significantly less likely to be available in rural centers and in centers serving younger students than in urban centers and those serving high school students, according to a national survey of centers conducted in 1998–1999.[1] Overall, only about one-quarter of centers offer contraception on-site; 55–82% offer other reproductive health services, such as counseling or testing on-site. Seventy-seven percent of centers prohibit the provision of contraceptive methods to adolescent students.

The data come from 551 programs that responded to the Census of School-Based Health Centers and were located in schools with middle or high school students (i.e., schools with at least one grade between seven and 12). The survey asked whether 16 reproductive health care services (including various types of exams, screening and counseling, as well as contraceptive method provision) were available during the 1998–1999 school year on-site or through referrals. The researchers used logistic regression to assess which characteristics of health centers were associated with services they offered and their policies.

Fifty-seven percent of the responding centers were in high schools, 18% in middle schools and the remaining 25% in schools that included elementary, middle and high school grades. A majority of centers operated out of

the main school building (90%), stayed open throughout the school day (76%) and were located in urban areas (55%). Fourteen percent were less than two years old, and 24% had been established for 10 or more years.

Most centers (80% or more) offered every reproductive health service, either on-site or through referrals, except emergency contraception and implant insertions. On-site provision of reproductive health testing, counseling and treatment was available at 55–82% of centers. Contraceptives were not widely available on-site: The methods most commonly offered were the condom (28%), the pill (24%) and the injectable (20%); the implant was available at a negligible proportion of sites (3%). In addition, 15% of school-based centers provided emergency contraception. Despite the relatively low proportions of centers that dispensed methods, 69% offered contraceptive counseling and 58% provided contraceptive follow-up.

School-based health centers also provided a variety of educational services, in the health center itself and in the classroom. Overall, 71% each offered HIV education and pregnancy prevention education in the center itself, whereas 52–59% offered these services in the classroom. The proportions providing prevention education were 45–65% among middle school centers and 58–81% among high school centers.

Although school-based health centers generally required minors to obtain parental permission to use the center, 48% allowed students to obtain treatment for sexually transmitted diseases (STDs) independently, in accordance with state minor consent laws. Forty percent had policies allowing adolescents independent access to family planning services. Overall, 77% of school-based health centers prohibited on-site dispensing of contraception.

Centers located in rural (rather than urban) areas and those serving elementary and middle school students (rather than high school students) had a significantly reduced likelihood of offering the majority of the 16 reproductive health services, according to the logistic regression results; this lower likelihood of reproductive services provision adds to the barriers to care that rural and younger students already face (for example, inadequate transportation). For the majority of reproductive health services offered, centers that provided them on-site were staffed significantly more hours per week than centers that did not offer such services (means of 25–32 hours vs. 11–15). Centers that had been open for 10 or more years were more likely than ones open for fewer than two years to offer contraceptive counseling, condoms, the injectable or emergency contraception.

Middle school centers were significantly less likely than high school centers to conduct both HIV and pregnancy prevention education in the center itself. Centers' years of operation and the number of hours they were open per week were significantly and positively associated with HIV and pregnancy prevention education in both the center and the classroom. Middle school centers and rural centers were significantly less likely than high school centers and urban ones to allow adolescents independent access to family planning services; centers that had been open for at least 10 years were significantly more likely than recently established ones to provide contraceptives without parental consent. Further, the longer that a center had been open, the more likely it was to allow students to receive STD services without parental permission.

Rural centers were significantly more likely than urban centers to prohibit contraceptive provision. Finally, the mean number of weekly provider staffing hours was significantly lower among centers that prohibited contraceptive provision than among centers that did not (22 hours vs. 29 hours).

The data indicate that the majority of U.S. school-based health centers do not allow contraceptives to be provided on-site; the researchers observe that this prohibition stems more from local community and school policies than from restrictive state laws. Despite the widespread prohibitions on dispensing contraceptives, most centers can still refer their clients off-site for these services and are able to provide other reproductive health services on-site, although many face logistic barriers (i.e., limited staffing) in doing so. The researchers conclude that "more community and resource development" is needed for centers to realize their potential as an entry point into reproductive health care for adolescents and as "an important tool in a portfolio of other comprehensive approaches to improve access and to reduce poor health outcomes."–*L. Remez*

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