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School-Based Health Center Access, Reproductive Health Care, and Contraceptive Use Among Sexually Experienced High School Students

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A B S T R A C T

Purpose: The current analyses compared receipt of reproductive health care, contraceptive use, and screening for sexually transmitted diseases (STD) among adolescents who are sexually experienced, with or without access to a school clinic.

Methods: A total of 12 urban California high schools, selected from areas with high teen pregnancy and STD rates, half with school-based health centers (SBHCs), participated in an intervention study designed to improve sexual health among adolescents. Of the participating students, 44% indicated that they had ever had intercourse and were included in these analyses.

Results: Access to an SBHC did not influence receipt of reproductive health care for either males or females and did not influence contraceptive use, either hormonal or condoms, for males. For females, however, those with access to an SBHC had increased odds of having received pregnancy or disease prevention care (adjusted odds ratio [AOR] = 1.45, 95% confidence interval [CI] = 1.16–1.80), having used hormonal contraceptives at last sex (AOR = 1.68, 95% CI = 1.24–2.28), and were more likely to have ever been screened for an STD (AOR = 1.85, 95% CI = 1.43–2.40). Also among female students, those with access to an SBHC were more likely to have used emergency contraception at last sex (AOR = 2.1, 95% CI = 1.08–4.22).

Conclusion: Although access to an on-site clinic does not seem to lead to increases in all types of reproductive care in the population as a whole, sexually active females are more likely to have received more specific care and to have used hormonal contraceptives if their school has an SBHC.

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School-based health centers (SBHC) have long been seen by public health professionals as a means to reach adolescents for reproductive health care services and to prevent teen pregnancy and sexually transmitted diseases (STD) [1–6]. The Patient Protection and Affordable Care Act of 2010 provides significant

funding for school-based health centers, particularly those that serve Medicaid-eligible populations. Although the number of school-based or school-linked clinics has risen dramatically over the past 20 years [4,7,8], the provision of contraceptives, condoms, and screening for STD remains controversial in many areas. Many SBHCs are restricted from providing reproductive health care at all, and even where they are allowed, may not be able to provide a full range of contraceptive services [8]. In their most recent survey of school-based health centers across the country, the Nation Assembly on School-Based Health Care

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found that while a minority of SBHCs do not provide any on-site reproductive health services or referral to off-site providers, services vary greatly. Most available on-site services include abstinence counseling (84%), pregnancy testing (81%), and counseling for birth control (70%), about 60% are prohibited from dispensing contraception [9]. Many SBHCs have as their mission to provide primary care services rather than specialized care; however, as health care has become more expensive, funds have become scarcer, and school nursing programs have been decreased or eliminated or are inadequately trained for these purposes, even those school-based clinics who can include family planning in their range of services may not have time, space, or funds to do so. Finally, even when reproductive healthcare services are allowable and available, the existing literature is mixed regarding whether access affects the overall receipt of services or the use of contraceptives and condoms at a population-level within schools that have clinics as compared with those that do not have one.

The purpose of the current analyses is to examine whether students from urban high schools, selected from areas with high rates of teen births and STDs, will differ in their receipt of reproductive health care and use of contraception depending on whether they have access to a school-based health center.

Methods

Data were collected at baseline (Spring, 2005) in 12 high schools participating in Project Connect, a teen pregnancy, HIV, and STD prevention study underway in a large, urban, public school district in the Los Angeles, CA area. Schools were selected based on rates of chlamydia and live births among adolescents aged 15–19 years in high school attendance areas which exceeded Healthy People 2010 goals [10]. Half the schools had SBHCs, and schools were matched on SBHC (yes/no), the racial/ethnic makeup of the student body, school size, and geographic location. All study materials and protocols were approved by the school district and collaborating institutions' Institutional Review Boards.

Participant recruitment and data collection

A classroom-based sampling strategy was used to recruit participants for the study. Classes were randomly selected from the Spring schedule of classes. By virtue of being enrolled in a selected class, all students in the class were eligible to participate. A total of 19,078 high school students were enrolled in selected classes, and were therefore eligible to participate in the study.

Parental consent and student assent were required for participation if the student was aged <18 years, whereas students aged ≥18 could consent for their own participation. For the survey sample, 8,215 consent forms were returned (43%) and 1,262 students either declined for themselves (i.e., if they were over 18) or had parents who declined for them (6.6%). Of the 6,953 students who consented, 5,930 (85.3%) completed a survey for a total response rate of 31%. Of those students who completed a survey, 2,603 (44%) indicated that they had ever had sex and were included in these analyses.

Measures

The survey instrument was developed to capture a variety of constructs, including demographics, sexual behavior, and receipt of services. The survey was created in English and translated into Spanish. Participants self-administered the paper and pencil survey in their preferred language during one class period, taking approximately 30 minutes to complete.

Demographics

Students reported their age, grade, and gender. Self-identified race/ethnicity was assessed with a “mark all that apply” format and recoded to the following categories: African American (non-Latino), white (nonLatino), Latino, and other.

Sexual behavior

Wherever possible, we used questions from the Youth Risk Behavior Survey [11] to assess sexual behavior, which does not include explicit descriptions and is widely accepted for use in high school populations. For the purposes of this study, the following variables were created: *ever had sexual intercourse (yes/no)*, *used condoms at last sex (yes/no)*, *used hormonal contraceptives (i.e., pills, patch, ring, or shots) at last sex (yes/no)*, *used emergency contraception (i.e., morning-after pill, plan b) at last sex (yes/no)*.

Health care services

Survey questions on use of health care services were developed specifically for this study; because we used a classroom-based survey it was necessary to make questions regarding health care as objective and easily understood as possible. Thus, we centered these on medical and physical aspects of reproductive health care. For these analyses, we defined receipt of services in several ways. First, we examined whether students *ever received reproductive health care*, which we defined as ever having had a doctor or nurse check genitals, having been examined for symptoms like discharge, bleeding, or sores, given birth control, a pregnancy test, or an STD/HIV test or diagnosis. Second, we examined whether students had received *STD or pregnancy prevention care*, defined as having been examined for symptoms like discharge, bleeding, or sores, given birth control, a pregnancy test, or an STD/HIV test or diagnosis. Finally, we looked specifically at whether students had *ever had an STD test*.

Data analyses

We first examined differences in sample characteristics between students with access to SBHCs and those without access using *t*-tests and χ^2 analyses. In analyses examining the relationship between access to an SBHC, receipt of services, and contraceptive use, a series of multiple logistic regression analyses were conducted, controlling for age and race/ethnicity (The intraclass correlation for classroom effects on outcomes was trivial (<.01). Results reported here do not include this covariate). Males and females were examined separately.

Table 1
Sample characteristics (n = 2,603)

	Male (n = 1,226)			Females (n = 1,374)		
	No SBHC	SBHC	<i>p</i>	No SBHC	SBHC	<i>p</i>
Age (mean in years)	16.8	16.7	.07	16.7	16.7	.42
Grade						
9	18.7%	12.2%	.004	11.8%	12.1%	.89
10	17.4%	15.4%		19.7%	18.2%	
11	24.1%	25.1%		26.3%	25.9%	
12	39.8%	47.4%		42.3%	43.8%	
Race/ethnicity						
African-American	13.8%	11.7%	.01	14.6%	13.8%	.01
Latino	77.1%	78.5%		74.0%	77.8%	
White	3.2%	1.1%		3.4%	.9%	
Other	5.6%	8.7%		8.1%	7.6%	
Ever received reproductive health care	71.6%	71.0%	.81	67.0%	71.2%	.10
Ever received STD or pregnancy prevention care	39.0%	40.2%	.68	53.1%	61.4%	.002
Ever tested for STD	15.8%	17.9%	.34	22.7%	33.8%	<.001
Used condom last intercourse	74.3%	71.1%	.23	59.6%	63.4%	.16
Used hormonal contraception last intercourse	15.1%	13.1%	.30	12.4%	18.1%	.003
Used emergency contraception last intercourse	2.5%	2.3%	.83	1.8%	3.8%	.03

Results

Table 1 presents sample characteristics and responses to survey questions used in these analyses as well as *p* values for bivariate group differences from *t*-test and χ^2 analyses.

Table 2 presents the results from the multiple logistic regression analyses indicating that among male students, those with access to an SBHC were no more likely to have ever had reproductive health care, to have ever had STD or pregnancy prevention care, to have used contraceptives at last sex (i.e., either hormonal or condoms), or to have ever been tested for an STD. Similar results were seen among female students regarding reproductive health care and condom use. However, female students who had access to SBHCs, were more likely to have had STD or pregnancy prevention care (adjusted odds ratio [AOR] = 1.45, 95% confidence interval [CI] = 1.16–1.80), to have used hormonal contraceptives at last sex (AOR = 1.68, 95% CI = 1.24–2.28), and to have been screened for an STD (AOR = 1.85, 95% CI = 1.43–2.4). Also among female students, those with access to a school-based health center were more likely to have used emergency contraception at last sex (AOR = 2.1, 95% CI = 1.08–4.22).

Discussion

Among sexually experienced female students from inner-city areas with high rates of teen births and STDs who participated in this study, access to school-based health centers is associated

with increased contraceptive use and STD screening. Interestingly, more than 70% of both males and females across all schools had received some form of reproductive health care, regardless of whether they had access to an SBHC and most students used a condom the last time they had sex. In general, more sexually active females than males received disease and pregnancy prevention care, and females with SBHCs were more likely than those without access to have received such services. However, despite greater use of hormonal contraceptives among females with access to an SBHC, less than 20% used hormonal contraceptives the last time they had sex and almost a third used neither condoms nor hormonal contraception. This population of sexually experienced adolescent females who use no form of contraception—despite access to services—are at extremely high risk for pregnancy and sexually transmitted diseases and warrant further attention. Similarly, although SBHCs provide increased access to STD screening, rates of screening among this population are still quite low. Centers for Disease Control guidelines recommend that sexually active females between the ages of 15 and 24 be screened for chlamydia yearly, yet just over a third or less receive such screening despite high rates of some form of reproductive health care.

In addition, sexually active male students with access to SBHCs are not more likely to receive reproductive health care services of any sort. These data do not help us determine why this is the case, whether SBHC services are more geared toward female students or whether there are some other barriers that prevent

Table 2
Impact of SBHC access on reproductive health care and contraceptive use: multiple logistic regression analyses

	Males			Females		
	AOR	95% CI	<i>p</i>	AOR	95% CI	<i>p</i>
Reproductive health care	1.01	.79–1.29	.93	.21	.96–1.58	.10
STD/pregnancy prevention	.95	.72–1.25	.67	1.45	1.16–1.8	.01
STD test				1.85	1.43–2.4	.001
Used condoms last sex	.89	.68–1.16	.40	1.19	.95–1.50	.13
Used hormonal contraception last sex	.88	.63–1.22	.44	1.68	1.24–2.28	.001
Used emergency contraception last sex	.95	.72–3.4	.99	2.10	1.08–4.22	.04

male students from using their services. If a goal is to increase the use of SBHCs by male students, more work is clearly needed to move in that direction.

SBHCs clearly play an important role in prevention of teen pregnancy and STD for female students, providing access to sensitive services for which students can consent themselves. However, our data suggest that even with access to care on-site in school a significant portion of at-risk students remain underserved. Although efforts to increase sexually active students' use of available services and increase the capacity of SBHCs to meet adolescents' need for reproductive health care are warranted, in large urban schools, there is no possibility that a single clinic can provide all needed care for the entire population of students without significant increases in funding, staffing, and facilities; several of the schools in this study have student populations of more than 4,000. The Patient Protection and Affordable Care Act of 2010 provides more than \$50 million a year for the next 4 years specifically for the funding of SBHCs that will serve Medicaid-eligible populations, potentially increasing dramatically the proportion of students with access to comprehensive care in a school setting. It is likely that SBHCs will increasingly become a source of primary care for students. Efforts to increase emphasis on SBHCs need to ensure that access to reproductive health care remains a priority.

Given the effect that SBHCs can have on contraceptive use and, therefore, on teen pregnancy, it is important that they make a concerted effort to provide family planning services or to link sexually active adolescents to community-based services. As an important conduit to health care services more broadly, risk assessment in the context of primary care or care for an illness may also increase the likelihood that students receive reproductive health care that they may otherwise miss.

There are several limitations to this study, including a response rate hampered by parental consent requirements, and findings that may not generalize beyond the population under study. Our study methodology required that parental consent forms be sent home to parents with students. There is no way for us to know how many students actually brought the forms home or how many parents did not return them as a means to decline participation for their children. At face value, our very low response rate limits our ability to generalize our findings. However, our study population did not differ from the school population in terms of racial, ethnic, or gender make-up and looks similar,

behaviorally, to surveillance data on this age group and from this geographic area. Although we have no way of knowing the effect the low response rate has on the results of the study, our sample is large and representative of the student population in the schools that participated in the study. In addition, there are few studies, that assess the impact of an SBHC on the receipt of services at a school population-level and our data provide some insight into this question. Clearly, SBHCs offer increased access to services and having an on-site clinic appears to encourage contraceptive use among female students, which is quite important. Further study is needed to examine how to increase the capacity of SBHCs to provide reproductive health care services and complement the work of SBHCs with community-based sources of care.

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