Using Multiple Sampling Approaches to Measure Sexual Risk-taking Among Young People in Haiti: Programmatic Implications

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No previous published research has examined the applicability of varying methods for identifying young people who are at high risk of experiencing unintended pregnancy and acquiring HIV infection. This study compares three surveys of young people aged 15–24 in Port-au-Prince, Haiti, in terms of their sociodemographic characteristics and sexual behaviors and the surveys' usefulness for identifying young people at high risk and for program planning. The surveys consist of responses from: a representative sample of young people in the 2005–06 Haiti Demographic and Health Survey (HDHS), a 2004 facility-based study, and a 2006–07 venue-based study that used the Priorities for Local AIDS Control Efforts (PLACE) method. The facility-based and PLACE studies included larger proportions of single, sexually experienced young people and people who knew someone with HIV/AIDS than did the HDHS. More respondents in the PLACE sample had multiple sex partners in the past year and received money or gifts in return for sex, compared with respondents in the facility study. At first and last sex, more PLACE respondents used contraceptives, including condoms. Experience of pregnancy was most commonly reported in the data from the facility-based sample; however, more ever-pregnant PLACE respondents than others reported ever having terminated a pregnancy. Program managers seeking to implement prevention activities should consider using facility- or venue-based methods to identify and understand the behaviors of young people at high risk. (STUDIES IN FAMILY PLANNING 2009; 40[4]: 277–288)

Research on sexual risk-taking among young people aged 15–24 in developing countries frequently focuses on participants in population-based, household surveys that are representative at the national, regional, or city levels. These studies demonstrate varying results in terms of demographic factors associated with risk of HIV transmission among the young. For example, some population-based studies indicate that among sexually experienced young people, those who are less educated and those who live in rural areas are less likely to use condoms and other forms of contraception, increasing their risk of acquiring HIV infection or experiencing an unintended pregnancy (Eggleston 1998; Adih and Alexander 1999; Koenig et al. 2004; Voeten et al. 2004; Prata et al. 2006). Other factors associated with young people's sexual risk-taking include age at first sex (Geary et al. 2006; Thurman et al. 2006), experience of forced first sex (Koenig et al. 2004; Geary et al. 2006; Maharaj and Munthree 2006), and low self-efficacy (Adih and Alexander 1999; Boer and Mashamba 2007). Although population-based studies provide a comprehensive perspective on risk factors for transmission and prevalence of HIV, sexually transmitted infections (STIs), and unintended pregnancy, they often fail to offer clear strategies for risk-prevention programs because they do not examine young people's access to and use of specific reproductive health (RH) services. Moreover, population-

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based studies often include large proportions of sexually inexperienced adolescents who are not yet at risk of adverse reproductive health outcomes and who are, therefore, often dropped from analyses (ORC Macro n.d.).

An alternative approach to understanding the risk of experiencing an unintended pregnancy or of HIV transmission among the young is to collect data in health facilities that serve them, such as HIV voluntary counseling and testing (VCT) centers and reproductive health clinics (Varga 1997; Meyer-Weitz et al. 2000; Horizons Program et al. 2001; Bailey et al. 2003; Newmann et al. 2005; Reynolds and Kimani 2006). Most young people visiting clinics are sexually experienced, increasing the sample of those surveyed who are at risk. Another advantage of collecting data at clinics is that information can be obtained on the receipt and quality of health services. Data from clinic sites can demonstrate which clients are exposed to the risk of acquiring HIV infection because they do not use condoms, have multiple sex partners, or initiated sexual activity at an early age. Additionally, findings from facility-based studies of young people can be used to develop programmatic recommendations to improve their reproductive health knowledge, attitudes, and skills, and reduce their risky sexual behavior. Although facility-based studies can provide the information described above, one limitation of such studies is their inability to describe the family planning and VCT needs of young people who do not visit clinics and who, therefore, may have less need than those who attend clinics for reproductive and sexual health services or who may experience barriers to accessing such services.

A novel approach to identifying individuals at high risk of acquiring and transmitting HIV is the Priorities for Local AIDS Control Efforts (PLACE) method, a rapid-assessment monitoring tool used to identify high-risk venues where AIDS-prevention programs could be focused and to determine the extent of risk-taking within these venues (Weir et al. 2003 and 2004). The PLACE method focuses on sites where new sexual partnerships are formed, because the pattern of new partnerships in a community shapes its HIV epidemic (Anderson 1999). This method was developed to respond to gaps in information provided to local- and district-level program planners from nationally representative surveys. Such surveys are not cost-effective for obtaining an in-depth understanding of risk-taking behaviors, particularly when those engaged in the most risky behaviors (concurrent partnerships, nonuse of condoms, sex in exchange for goods or money, and sex with older/younger partners) are a subsample of the total population or clustered in certain geographic areas (Weir et al. 2004; MEASURE Evaluation Project 2005). Findings from a PLACE study can be used to inform or develop HIV-transmission-prevention programs situated at high-risk sites. The PLACE approach also has its limitations. It may not represent all people at high risk if any hidden or dangerous sites are not included in the sample, either because they are not named by key informants or because interviewers are unable to collect data as a result of safety concerns. Also, at the time of the interview, some respondents may be under the influence of alcohol or drugs and may not provide an accurate portrayal of their sexual risk-taking and health-seeking behaviors, or they may be unable to participate in the survey.

Although previous studies have examined differences in the prevalence of HIV between clinic-based and population-based samples (Fylkesnes et al. 1998; Changalucha et al. 2002; Dandona et al. 2006), few have compared the different methodologies for describing characteristics and behaviors of people at risk of acquiring HIV infection and experiencing unintended pregnancies (Tate et al. 2007). To date, no studies have determined the applicability of each method for identifying young people at high risk of adverse reproductive health outcomes or the usefulness of each method for designing risk-prevention programs for the young. This study compares sociodemographic and sexual behaviors among young people aged 15–24 in Port-au-Prince, Haiti, who were interviewed for the 2005–06 nationally representative Demographic and Health Survey, for a facility-based study in 2004, or as part of a PLACE study conducted in 2006–07.

Methods

Data for the Haiti Demographic and Health Survey (HDHS) were collected between 2005 and 2006 (Cayemittes et al. 2007). A nationally representative sample of 10,757 women aged 15–49 and 4,958 men aged 15–59 were surveyed. Using a multistage sampling design, a random sample of enumeration areas was selected from which a random sample of households were chosen from a listing of all households in the selected enumeration areas. All eligible women in the sampled households were approached and asked to participate in the interview. In half of the households, all eligible men were invited to participate. Women and men who consented were questioned by trained interviewers. The survey provides data about the demographic, socioeconomic, and cultural characteristics of Haitian women and men. For the analyses presented here, we selected the subsample of women and men aged 15–24 interviewed in the Port-au-Prince metropolitan area and compared it with the two other surveys that focus on young people in the same urban environment. A total of 970 young women and 345 young men living in Port-au-Prince are included from

the HDHS study sample (the weighted sample sizes are 1,385 and 530, respectively). The HDHS data are compared with the other data sources on background demographic characteristics and sexual experience.

A facility-based study conducted in Port-au-Prince in 2004 with the clients of four youth centers and one reproductive health clinic for women of all ages provides the second data set (Murray et al. 2005). The youth centers provide places for the young to socialize; play games; learn skills (such as computer skills and English); obtain information about reproductive health; see a provider for family planning services, pregnancy tests, prenatal care, or STI counseling and testing; and be tested for HIV. The youth centers also distribute condoms to anyone who walks in and registers at the condom-distribution window. The reproductive health clinic included in the study is available to men and women of all ages; however, it generally serves women. At this clinic, only clients aged 15–24 were recruited for the facility-based study. All of the facilities included in the study were managed by the Fondation pour la Santé Reproductrice et l'Education Familiale (FOSREF), the primary provider of reproductive health services for the young in Haiti. The four FOSREF youth centers were selected to represent diverse urban neighborhoods. The FOSREF all-age clinic was included because it is the main such facility serving the urban poor in Cité Soleil, a densely populated slum. FOSREF was also the local implementing partner for the facility-based study and for the PLACE data collection described below. The facility-based study was reviewed and approved by the sponsoring international agency as well as by an in-country institutional review board.

All young women and men aged 15–24 visiting the targeted facilities for VCT or reproductive health services during the three-month study period (from September to December 2004) were approached and asked to participate in the exit interview. Clients who visited the facility multiple times during the study period were interviewed only once to avoid duplicate responses. A screening tool was used to ask clients whether they had been interviewed previously as part of this study. In addition to VCT and RH clients, young people who visited the four youth centers to obtain free condoms were also asked to participate in the survey (no condom-distribution program existed at the clinic). A total of 807 young women and 478 young men were interviewed. Interviewers reported few refusals but did not record the exact number. Because the study did not collect information about those who refused to be interviewed, determining whether nonrespondents differed from respondents is not possible. Future studies should keep records of nonrespondents and, when possible, obtain basic information from them (for example, sex, age, and reason for visit). Because few men (n = 35) sought reproductive health services and few women (n = 39) visited the condom-distribution program, these participants were dropped from the analysis. The final analyses are based on 583 female clients of reproductive health services, 168 female VCT clients, 197 male VCT clients, and 242 male recipients of condoms from the youth centers.

The third data set was collected using the PLACE methodology. This study was undertaken by the MEASURE Evaluation Project in collaboration with FOSREF between October 2006 and February 2007 (Speizer et al. 2007). Because the PLACE methodology is new, we describe it here in greater depth than the other two methods. The PLACE method has five main steps. In the first step, the project team engages local stakeholders to help identify the priority areas for a rapid assessment of HIV risk-taking and transmission-prevention approaches. Stakeholders review existing data on the HIV epidemic and use this information to identify the study area, known as a priority prevention area (PPA). For this application of the PLACE methodology, the emphasis was on young people's sexual risk-taking, so we were seeking a PPA with a large population of people aged 15–24 who were engaged in sexual risk-taking. The selected PPA included two adjacent neighborhoods in Port-au-Prince: Bizoton and Thor. The second step involves interviewing knowledgeable community informants to identify venues where residents of the PPA meet sex partners. Community informants are defined as men and women who are aware of the movements and behavior of young people in the area. Ten types of community informants were listed (for example, taxi drivers, truck drivers, hotel managers, teachers, police officers) with input from the stakeholders prior to undertaking the fieldwork. Interviewers were instructed to try to contact a predetermined number of each type of community informant. In a two-week period, a total of 494 community informants were found who were willing to identify young people's sexual rendezvous locations. The informants identified 1,686 sites.

In the third step, the list of sites is reviewed to determine which ones represent unique locations. Data were entered and cleaned to eliminate duplicate locations. A total of 303 unique venues were identified. Of these, 257 were in the Port-au-Prince metropolitan area. Interviewers visited each site to verify its existence and location and to interview a venue representative (such as a bar manager or owner or someone who worked in the vicinity of an outdoor site) to determine characteristics of the venue that are important for HIV-prevention interventions. Where no one was available for interview on the first visit, an appointment was requested for a second

visit. Verbal consent to an anonymous interview was obtained prior to completing the survey. Interviewers used closed-ended surveys to obtain such information from a venue representative as the name of the venue and number of years it had been in operation; the types of activities occurring at the venue; the estimated number of patrons present at the site at peak times; estimates of the amount of alcohol consumed daily at the site; the different types of staff; characteristics of patrons, including residence, employment status, age, and sex; whether people meet both new and previous sex partners at the venue; the extent of AIDS/STI-prevention activities and materials onsite, including condoms and posters; and the manager's willingness to offer condoms for sale. In addition, a global positioning system (GPS) point was recorded for each site to permit mapping of the sites identified and selected for study. Of the 257 sites in the Port-au-Prince area, 155 were located and verified; of these, only 109 were in the targeted neighborhoods of Bizoton and Thor. The most commonly identified types of sites were in transportation, public, and commercial areas (32 percent), followed by educational sites (12 percent), hotels (12 percent), and isolated/private sites (13 percent).

Based on the list of all sites identified in Bizoton and Thor and the estimated number of individuals reported to frequent the sites, a systematic sampling approach was used to choose 40 clusters where individual interviews would take place in step 4. Step 5, dissemination of results to the community and stakeholders, was undertaken at the completion of the project but is not discussed here. For sampling purposes, each venue was assigned numbers that corresponded to the estimated number of patrons visiting the site. The systematic sampling approach involves choosing a random number between one and the assigned number; sites are selected systematically based on that number. Larger sites had a greater probability of being selected; some of the largest sites were selected twice (representing two clusters). Two rounds of data collection were undertaken in step 4: the first round mimicked a typical PLACE study, in which site patrons of all ages were interviewed, and the second round targeted young people specifically and included questions about reproductive health, in addition to the standard HIV-related questions. In the first round of patron interviews, 24 individuals were interviewed at each site selected. Larger sites (those with 50 or more patrons) represented two clusters, and in these, 48 individuals were surveyed. Interviewers were instructed to select people in a random manner to be interviewed. Interviewers were told to imagine a large X in the middle of the floor and to approach people on the X. When a person was approached, the interviewer asked him or her to move to a quiet place to be interviewed, such as in a corner of the room or outside the venue. A total of 876 interviews with eligible and consenting individuals socializing at the sites were conducted in the first round of data collection, which was similar to a standard PLACE study. In this round, 31 unique sites were included, representing 40 clusters.

The data used in the present study are drawn from the second round of data collection, which focused specifically on the sexual risk-taking behaviors of young people. About two months after the first round of data collection, interviewers returned to the same sites to interview individuals aged 15–24. In each facility, we sought to interview about 12 people, 24 at the larger sites (representing two clusters). A total of 504 young people (237 females and 267 males) were interviewed in round two. An additional six sites were added (for a total of 37) at the time of round-two data collection; six of the original sites were lower-risk sites that had been selected according to the numbers of patrons rather than risk-taking behaviors (for example, school-based sites). Interviewers approached a potential participant and briefly described the study and asked for the person's verbal consent to be interviewed. The interviewer used a closed-ended questionnaire to record the participant's sociodemographic information; reason for visiting the site; frequency of visits; whether she or he had ever met a sex partner at the site; and sexual behaviors, including age at first sex, use of a contraceptive at first and last sex, experience of cross-generational and transactional sex, and number of sex partners; pregnancy history; fertility desires; and exposure to HIV-prevention programs. Most patrons approached in both rounds of data collection were willing to participate. Unfortunately, no information is available about those who refused to be interviewed. As noted above, in future studies researchers should keep track of the number of individuals who refuse to participate and, if possible, obtain basic information from them. The PLACE study was reviewed by the Institutional Review Board of the University of North Carolina at Chapel Hill and considered to be exempt from IRB approval.

Variables

Data from the three studies are compared to provide perspective on the demographic characteristics and sexual behavior of the young respondents and to demonstrate the various types of programmatic recommendations that each source may generate. Across the three studies, similar demographic questions were included. For the examination of HIV risk-taking behaviors, the presentation focuses on the comparison between the facility-based

data and the PLACE data. The main HIV risk-taking behaviors of interest include: sexual experience, age at first sex, number of sex partners in the past year, condom use, and engagement in transactional sex (sex in exchange for money or goods). All measures were included using a similar format in the facility-based and PLACE studies. A question about previous experience of STIs was also included in each study in varying formats. In the PLACE study, respondents were asked whether they had experienced any of three sex-specific symptoms indicative of an STI in the past four weeks. In the facility-based study, respondents were asked whether they had had an STI in the past year. (No description of symptoms was given with the question.) Although the STI variables are not directly comparable, they demonstrate patterns that are indicative of risk-taking for the two study populations.

Factors associated with the risk of experiencing an unintended or teenage pregnancy were also included in the studies. In the PLACE and facility-based studies, participants were asked whether they had used a contraceptive during their first and last sex. Additionally, sexually experienced young women were asked about their pregnancy experience, number of pregnancies, whether they had wanted their last pregnancy, and pregnancy-termination experience. Young men were asked comparable questions about whether they had ever impregnated a woman and, if so, the number of such pregnancies; wantedness of the last pregnancy; and whether any of the pregnancies had been terminated.

Analysis

The HDHS data were analyzed using weights and adjusting for the survey sampling design. Because of the different study designs and weights, separate distributions are presented for each study. Chi-square tests were performed to compare, by sex, the PLACE respondents with the facility-based participants. A limitation of this analysis is that no significance tests are presented that compare the HDHS with the other two studies in terms of demographic characteristics because of the weights and the survey sampling design used in the HDHS; this limitation makes undertaking accurate statistical comparisons difficult. All analyses were conducted using Stata/SE 9.2 statistical software.

Results

In Table 1, participants' demographic characteristics for the HDHS, PLACE, and facility-based study (by type of facility where the survey was conducted) are presented by sex. Marital/union status for females varied considerably across the studies. The majority of those surveyed at the reproductive health clinic were married or living in union (61 percent), whereas smaller proportions were in union in the HDHS (32 percent) and VCT clinic sites (31 percent). Only 6 percent of females interviewed for the PLACE study reported being in union. Results differed less for males: in all four settings the majority were not living in union. Both males and females in the HDHS were less educated than those in the other studies. A greater proportion of males surveyed at VCT sites and at condom-distribution sites had completed secondary school, compared with male participants in the HDHS study; among females, those at the VCT clinics had the highest level of education.

Exposure to HIV/AIDS is measured by the proportion of respondents who reported knowing someone with HIV/AIDS. Within the HDHS and PLACE studies, the proportions of males and females who knew someone with HIV/AIDS were similar. For both sexes, a greater proportion of respondents in the facility-based study than in the HDHS and PLACE studies reported knowing someone with HIV/AIDS. Whereas 54 percent of males responded affirmatively to this question in both the VCT and condom-distribution facilities, only 35 percent in the PLACE study and 16 percent in the HDHS reported knowing someone with HIV/AIDS. The pattern was similar for females; a greater proportion in the reproductive health (40 percent) and VCT clinics (42 percent) responded affirmatively, compared with those responding to the PLACE (28 percent) and HDHS (15 percent) surveys. The differences between the facility-based study and the PLACE study (by sex) were significant for all of the demographic variables included, with the exception of age group for males.

Although male and female respondents reported similar levels of sexual experience in the HDHS and PLACE studies, respondents in the facility-based study, particularly females, reported much higher levels. Nearly 92 percent of females at the RH clinic and 89 percent at VCT clinics were sexually experienced, compared with 62 percent in the HDHS and 67 percent in the PLACE study. Males were more likely to be sexually experienced than females in the HDHS and PLACE surveys (84 percent and 81 percent, respectively), and nearly all males surveyed in the VCT and condom-distribution settings were sexually experienced.

The differences between the HDHS and the other two studies are generally expected, in that the HDHS captures all female and male young people, not necessarily only those at higher risk of HIV, STIs, or unintended

Table 1 Percentage distribution of young people aged 15–24, by selected demographic characteristics, according to sex and data-collection method, Port-au-Prince, Haiti, 2004–07

	Females				Males			
Characteristic	HDHS (2005–06)[a] (n = 970)	PLACE (2006–07) (n = 237)	FOSREF (2004) RH facilities (n = 583)	FOSREF (2004) VCT facilities (n = 168)	HDHS (2005–06)[a] (n = 345)	PLACE (2006–07) (n = 267)	FOSREF (2004) VCT facilities (n = 197)	FOSREF (2004) condom distribution facilities (n = 242)
Age (years)		***						
15–19	53.6	62.0	31.5	50.3	44.7	49.4	54.3	48.4
20–24	46.4	38.0	68.5	49.7	55.3	50.6	45.7	51.7
Marital/union status		***				***		
In union[b]	31.6	6.0	61.0	31.3	11.9	3.8	27.1	32.3
Not in union	68.4	94.0	39.0	68.7	88.1	96.2	72.9	67.7
Education		***				**		
None	2.5	0.9	4.4	0.6	2.0	2.0	0.0	0.0
Primary	30.8	10.3	16.9	1.8	22.2	5.3	1.5	2.5
Secondary	62.0	78.1	72.0	87.0	67.9	80.2	91.4	85.5
Higher	4.7	10.7	6.7	10.7	8.0	12.6	7.1	12.0
Religion		***				***		
Catholic	48.4	50.2	51.0	43.7	38.3	45.1	33.9	43.8
Protestant	45.6	34.2	36.2	39.5	46.7	33.8	43.1	44.2
Voodoo/none/other	6.0	15.6	12.8	16.8	15.0	21.1	23.0	12.0
Knows someone with HIV/AIDS		**				***		
No	84.8	71.7	60.5	57.9	84.5	65.5	46.3	46.4
Yes	15.2	28.3	39.5	42.1	15.5	34.5	53.7	53.6
Sexual experience		***				***		
Never had sex	37.8	32.9	8.2	11.3	15.8	18.7	1.5	1.2
Sexually experienced	62.2	67.1	91.8	88.7	84.2	81.3	98.5	98.8

[a] HDHS data are weighted and analyzed adjusting for survey sampling; unweighted numbers are shown here (weighted numbers are 1,385 for females and 530 for males). [b] Includes married and in union.

Notes: Some cells have fewer than the total number of observations because data are missing, and some columns do not sum to 100 percent because of rounding. Chi-square comparisons: **p ≤ 0.01; ***p ≤ 0.001 for comparison between distributions for PLACE and joint FOSREF facility-based respondents, by sex.

pregnancy. The remainder of the present study focuses on comparing risky behaviors recorded with the facility-based study methodology and the PLACE methodology in terms of identifying programmatic strategies to reduce the risk of HIV and STI transmission and unintended pregnancy among the young.

Sexual Risk-taking

Among sexually experienced girls and young women, the median age at first sex was 16; the mean (not shown) was similar according to the PLACE and the facility-based data-collection approaches as shown in Table 2. With the PLACE approach, female respondents were significantly more likely to report having had multiple sex partners in the past year and having used a condom at last sex, compared with respondents receiving reproductive health or VCT services who were surveyed in such facilities. The majority (74 percent) of female respondents in the PLACE study reported experiencing any of three STI symptoms (abdominal pain, vaginal discharge, or genital ulcers) in the past four weeks, compared with much smaller proportions in the facility-based survey, which asked about STI experience in the past year without giving a description of specific symptoms. Female respondents in the PLACE study were also significantly more likely to report having experienced transactional sex, with 3 percent giving and 10 percent receiving money or goods in exchange for sex. The corresponding proportions were smaller in the RH and VCT clinics.

Among sexually experienced male respondents, the median age of first sex was 13 for those at the facility-based sites and 14 for those in the PLACE survey (see Table 3). A large proportion of male respondents in the PLACE and facility-based studies reported having had first sex at age 12 or younger, ranging from 41 percent to 48 percent; only 26 percent of their counterparts in the HDHS had had first sex at age 12 or younger (not shown). A significantly greater proportion of male respondents in the PLACE study reported having had multiple sex partners in the past year, compared with those surveyed for the facility-based study. Condom use at last sex was highest among men in the PLACE study (70 percent), although it was also high among those surveyed at the condom-distribution site (67 percent). STI symptoms (painful urination, urethral discharge, or genital ulcers) were also reported more frequently by PLACE respondents (49 percent). Although male respondents in the

Table 2 Percentage distribution of women aged 15–24, by sexual experience and reproductive health behaviors, according to data-collection method, Port-au-Prince, Haiti, 2004–07

Variable	PLACE (2006–07) (n = 157)	FOSREF (2004) RH facility (n = 533)	FOSREF (2004) VCT facilities (n = 148)
Age at first sex (years)			
≤ 12	8.5	4.3	4.7
13	5.9	5.5	3.4
14	12.4	9.8	12.2
15	13.1	17.2	16.9
16	17.0	16.2	21.6
17	16.3	16.0	22.3
18–21	25.5	29.3	15.5
22–24	1.3	1.8	3.4
Median age (years)	16	16	16
Number of sex partners in past 12 months[a]	***		
0	5.7	2.5	3.4
1	59.2	87.5	73.7
2	7.6	6.8	13.5
3+	14.7	3.2	9.5
Condom use at last sex[b]	***		
No	40.0	79.3	57.1
Yes	60.0	20.8	43.0
Experienced STI symptoms[c]	***		
No	25.8	84.5	90.3
Yes	74.2	15.5	9.7
Ever gave money/goods for sex	*		
No	96.8	99.4	99.3
Yes	3.2	0.6	0.7
Ever received money/goods for sex	***		
No	89.9	98.1	98.0
Yes	10.1	1.9	2.0
Used contraceptive at first sex	***		
No	56.5	87.0	75.8
Yes	43.5	13.0	24.2
Used contraceptive at last sex	***		
No	28.7	59.9	51.0
Yes	71.3	40.1	49.0
Ever pregnant	***		
No	76.4	31.9	71.4
Yes	23.6	68.1	28.6
Yes (n)	(37)	(363)	(42)
Number of pregnancies	**		
1	48.6	57.9	83.3
2	37.1	30.9	11.9
3+	14.3	11.2	4.8
Wanted last pregnancy	**		
No	48.6	70.1	82.5
Yes	51.4	29.9	17.5
Ever had an abortion	***		
No	41.7	78.6	57.1
Yes	58.3	21.4	42.9

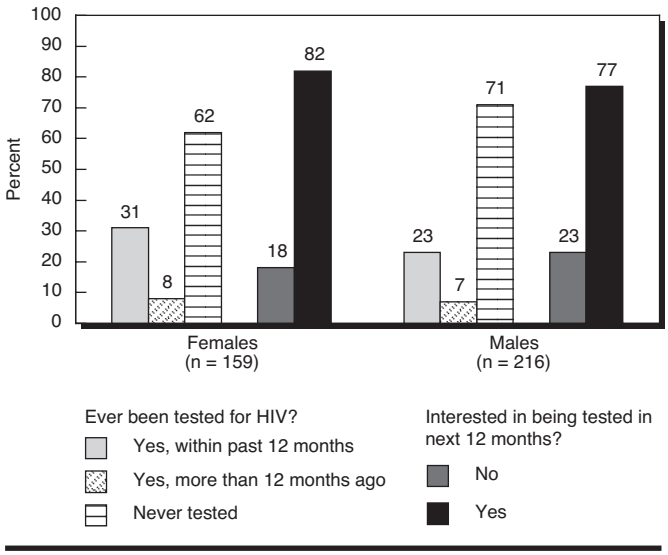
[a] The percentages in the PLACE column sum to 88.2 percent rather than 100 percent because, in the PLACE survey, the responses of respondents who were unable to recall the precise number of partners were coded as estimates, and 12.7% of the estimates were coded as "fewer than five partners," a coding that cannot be grafted onto the four categories presented here. [b] Question about condom use at last sex was asked only of respondents who had had sex in the past year. [c] Some data are missing because respondents did not know STI symptoms or did not answer. PLACE survey asks about experience with three specific symptoms in past four weeks; clinic survey asks only if respondent had an STI in the past year.
Notes: Some cells have fewer observations than others because data are missing; some columns do not sum to 100 percent because of rounding. Chi-square comparisons: *p ≤ 0.05; **p ≤ 0.01; ***p ≤ 0.001 for comparison between distributions for PLACE and FOSREF facility-based respondents jointly.

Table 3 Percentage distribution of men aged 15–24, by sexual experience and reproductive health behaviors, according to data-collection method, Port-au-Prince, Haiti, 2004–07

Variable	PLACE (2006–07) (n = 212)	FOSREF (2004) VCT facilities (n = 533)	FOSREF (2004) Condom distribution facilities (n = 148)
Age at first sex			
≤ 12	40.6	48.0	41.7
13	7.6	8.5	11.3
14	16.5	8.5	13.0
15	13.2	11.3	14.8
16	9.4	7.9	6.1
17	7.1	6.8	5.7
18–21	5.7	7.9	6.1
22–24	0.0	1.1	1.3
Median age (years)	14	13	13
Number of sex partners in past 12 months[a]	***		
0	5.5	14.0	2.5
1	23.5	28.5	33.5
2	8.3	15.5	15.3
3+	54.4	42.0	48.7
Condom use at last sex[b]	***		
No	30.2	51.0	33.5
Yes	69.9	49.0	66.5
Experienced STI symptoms[c]	***		
No	50.7	92.1	94.0
Yes	49.3	7.9	6.0
Ever gave money/goods for sex			
No	71.8	80.2	76.8
Yes	28.2	19.8	23.2
Ever received money/goods for sex	***		
No	93.9	87.4	81.9
Yes	6.1	12.6	18.1
Used contraceptive at first sex	***		
No	52.6	82.9	84.8
Yes	47.4	17.1	15.2
Used contraceptive at last sex	***		
No	20.8	46.6	31.8
Yes	79.2	53.4	68.2
Ever impregnated a woman			
No	76.8	77.0	74.3
Yes	23.2	23.0	25.8
Yes (n)	(49)	(44)	(60)
Number of pregnancies			
1	52.1	63.6	67.3
2	14.6	20.5	18.2
3+	33.3	15.9	14.5
Wanted last pregnancy			
No	76.9	78.1	89.1
Yes	23.1	22.0	10.9
Any pregnancy aborted			
No	24.5	25.0	35.0
Yes	75.5	75.0	65.0

[a] The percentages in the PLACE column sum to 91.7 percent rather than 100 percent because, in the PLACE survey, the responses of respondents who were unable to recall the precise number of partners were coded as estimates, and 8.3% of the estimates were coded as "fewer than five partners," a coding that cannot be grafted onto the four categories presented here. [b] Question about condom use at last sex was asked only of respondents who had had sex in the past year. [c] Some data are missing because respondents did not know STI symptoms or did not answer. PLACE survey asks about experience with three specific symptoms in past four weeks; clinic survey asks only if respondent ever had an STI in the past year.
Notes: Some cells have fewer observations than others because data are missing; some columns do not sum to 100 percent because of rounding. Chi-square comparisons: ***p ≤ 0.001 for comparison between distributions for PLACE and FOSREF facility-based respondents jointly.

Figure 1 Percentage of sexually experienced PLACE-survey respondents, by their HIV testing experience and interest in being tested, according to sex, Port-au-Prince, Haiti, 2006–07



PLACE study were more likely to report giving money or goods in exchange for sex (28 percent; not significant), those surveyed at the condom-distribution and VCT sites were significantly more likely than those surveyed at the PLACE sites to report receiving money or goods in exchange for sex.

Family Planning and Fertility Behaviors

Female respondents in the PLACE study were significantly more likely to report using a contraceptive at first sex (44 percent) and last sex (71 percent) than were those surveyed at the FOSREF facilities (see Table 2). The condom was the most frequently used contraceptive (not shown). Two-thirds of female respondents surveyed at the reproductive health clinic had ever been pregnant; the proportion who had ever been pregnant was significantly smaller at the PLACE and VCT sites. Among those who had ever been pregnant, the respondents in the PLACE study were more likely to report having experienced multiple pregnancies. Responses to pregnancy desirability varied considerably across the data-collection approaches. Only 18 percent of ever-pregnant girls and young women at the VCT clinic and 30 percent at the reproductive health clinic reported that they had wanted their last pregnancy. Although 51 percent of female respondents in the PLACE study said they had wanted their last pregnancy, they were also more likely to report ever having had an abortion (58 percent).

Male respondents in the PLACE study also reported significantly higher levels of contraceptive use at first sex (47 percent) and last sex (79 percent). Similar levels of male respondents in the PLACE and facility-based studies reported ever having impregnated a woman (ranging from 23 to 26 percent). Among those who reported ever fathering a child, a greater proportion in the PLACE study reported being responsible for multiple pregnancies (33 percent reported three or more), although the results for this variable did not statistically significantly differ between the PLACE and facility-based studies. The desirability of the last pregnancy was generally low, particularly at the condom-distribution site, where 89 percent of male respondents said their partner's last pregnancy was not wanted. At all three sites, those who had ever impregnated a woman also reported high levels of abortion.

Access to Reproductive Health Services in the PLACE Study

An advantage of the PLACE approach is that because it is not based at a facility, it can be used to assess young people's interest in and access to reproductive health services. The PLACE method identifies young people at high risk of acquiring STIs and HIV and experiencing unwanted pregnancy. In Figure 1, use of voluntary counseling and testing and interest in using such services in the next 12 months are presented for sexually experienced respondents interviewed in the PLACE study. Nearly a third of sexually experienced females reported having undergone an HIV test in the past 12 months, whereas about a fourth of sexually experienced male respondents reported undergoing testing recently. The majority of respondents, including those who had been tested before, were interested in being tested in the next 12 months. In response to another question, 63 percent of sexually experienced female respondents reported ever having used clinical services (not shown); the comparable proportion of their male counterparts was 59 percent. When asked the reason for their last clinic visit, most respondents reported that it was for something other than reproductive health or VCT services (not shown). In the PLACE study, a high proportion of respondents of both sexes reported having had symptoms of STIs and that they had never been tested for HIV but were interested in VCT. This finding suggests that these respondents have greater access to general clinical services than to RH and STI services, including VCT.

Discussion

This study examines three approaches to studying sexual risk-taking among the young to inform future reproductive health programming. The conventional ap-

proaches, such as undertaking a population-based study and obtaining exit interviews with people visiting RH facilities, are limited in terms of informing the design of interventions to benefit young people at risk. In particular, population-based studies, such as the Demographic and Health Surveys, often include in their samples large proportions of young people who are sexually inexperienced or living in union, and thus not at high risk of acquiring HIV or experiencing unintended pregnancy. Furthermore, population-based approaches are generally costly to implement. Facility-based studies, although less expensive and more likely to include sexually experienced young respondents, are limited because they focus on young people who already have access to RH and VCT services; responses from these individuals cannot be used to identify strategies to target adolescents and young men and women who do not visit such facilities. The PLACE methodology, which is a rapid and low-cost approach, provides an alternative survey method for examining sexual risk-taking among the young that can be conducted at identified venues and within communities. Moreover, because the PLACE approach identifies respondents at nonclinical locations, their RH-service needs can be determined.

This study demonstrates that young people surveyed in Haiti using the PLACE and facility-based sampling methods are different in terms of their demographic characteristics from those included in a population-based sample. Specifically, compared with the HDHS, the PLACE and facility-based studies generally included a larger proportion of young people who were not in union, who have secondary or higher levels of education, and who know someone with HIV/AIDS.

In the comparison of the PLACE and facility-based studies, we find that female respondents in the PLACE study reported higher levels of protective behaviors such as condom use at last sex and contraceptive use at first and last sex, compared with their counterparts in the facility-based study. This finding is likely related to the fact that the young women visiting the RH clinic are significantly more likely than their counterparts to have ever been married and to have ever been pregnant. This result is not surprising, because some of the young women interviewed for the study were visiting the reproductive health clinics for pregnancy testing and prenatal care. Conversely, the sexually experienced female respondents in the PLACE study were more likely than the respondents interviewed at the RH and VCT sites to be single, to have had multiple sexual partnerships in the past year, and to have participated in transactional sex. The PLACE respondents were, therefore, at greater risk of acquiring HIV and other STIs than were the respondents at the RH and VCT sites.

The comparison of the facility-based and PLACE data indicates that the male respondents in the two studies were similar in terms of their risk-taking behaviors. Those who received free condoms at participating youth centers were similar to respondents surveyed at high-risk venues. Most male and female participants in the PLACE study had never been tested for HIV, although many were interested in being tested in the next 12 months.

A number of differences by sex are also apparent within and across the data sources. In particular, a smaller proportion of males than females were in union and a greater proportion had ever had sex. Males also reported a much earlier age at sexual initiation than females. Whether their reports indicate that they initiated sex with older females or that females underreported their own sexual activity cannot be determined with the data available. Across each data source, a similar proportion of female and male respondents reported having had experience with a pregnancy. Conversely, a smaller proportion of males than females reported that the last pregnancy was wanted and a greater proportion reported that they had ever had a partner who terminated a pregnancy. This finding suggests that males are highly motivated to avoid an unwanted pregnancy. Programs that target males for HIV prevention may want to use this motivation to promote condom use for HIV-transmission prevention and contraception.

This study presents a picture of sexual risk-taking among the young in Port-au-Prince from three different survey approaches. We were unable to locate prior research comparing different approaches for determining the characteristics and sexual behaviors of young people. Most studies comparing clinic- and population-based approaches focus on differences in HIV seroprevalence between sentinel surveillance and community-based samples of adults (Fylkesnes et al. 1998; Changalucha et al. 2002; Dandona et al. 2006), and very few compare sexual behaviors (Tate et al. 2007). The present study demonstrates that household surveys may not reach those young people at greatest risk of acquiring HIV infection or experiencing unintended pregnancy and that alternative approaches are needed for the development of targeted prevention programs for this age group.

Facility-based and PLACE studies can be used to make recommendations for prevention programming. For example, a large proportion of young respondents in the PLACE study reported interest in being tested for HIV, although most had not been tested, and few had accessed RH services. This finding suggests that sending outreach workers to the PLACE sites may be a viable approach to attract young people at high risk to the youth centers for VCT and other RH clinical services.

The facility-based data showed high levels of pregnancy experience; many pregnancies were reported as having been unwanted, and one-fifth of ever-pregnant respondents reported ever having undergone an abortion. Reports of unwanted pregnancies and abortions indicate that the pregnancies were unintended (both mistimed and unwanted) in this population. Some of the pregnancies reported as unwanted are likely to have been considered mistimed rather than not wanted at all, but this distinction was not documented in the study. The data from the RH clinic survey indicate the need for pregnancy-prevention programs targeting sexually active women who are identified at a clinic. The data from female and male respondents at VCT sites and from male respondents at the condom-distribution sites indicate that those using these services are at high risk of acquiring STIs and HIV. Strengthening and intensifying prevention programs at the youth centers could help these young people to avoid future risk of negative health outcomes. These programs should also target those at risk of unintended pregnancy; about a fourth of female and male respondents identified in facility-based sites had ever experienced (or had a partner who experienced) a pregnancy, and nearly three-fourths reported that the last pregnancy was unwanted. Particularly high proportions of abortions were reported by male respondents.

The PLACE data provide rich information on: (1) the types of locations where young people meet new sex partners, (2) the potential for implementing STI- and HIV-prevention programs at these sites, and (3) site-patron sexual risk-taking. This study does not highlight the data from step 3 of the PLACE methodology; however, in this step, information is obtained on the types of sites, the hours when the sites are most frequently visited, the characteristics of people visiting the sites (for example, estimates of age and sex distributions), activities at the sites (for example, drinking, socializing, sports), and the physical locations of sites (by recording GPS data). This information could be used by program managers seeking to focus on high-risk sites using outreach workers who can provide information on HIV risk-taking and who can also refer clients for RH services to local facilities. Outreach workers could also sell condoms and other contraceptives or refer patrons for other services. Specific high-risk behaviors may also be targeted at the venues. For example, in the present study, we found that respondents in the PLACE study reported higher levels of multiple partnerships and transactional sex than did those visiting facilities. Programs that promote alternative income-generating activities or target reduction of multiple and concurrent partnerships are important for these young people at high risk. Moreover, if all sites are clustered in a particular area or along a main road, the program can undertake community-wide events and one-on-one activities in these specific neighborhoods and locations.

To date, epidemiological evidence is lacking that links interventions in PLACE sites with reduced levels of HIV risk-taking behaviors. This lack of evidence may be a consequence of poor or no intervention development, of a failure to evaluate programs in these sites, or of the possibility that some of the highest-risk sites (and, ultimately, the highest-risk individuals) are not identified using the PLACE method (Weir et al. 2004). A randomized controlled trial is currently underway in Jamaica to test the targeting of sites based on PLACE findings (Weir et al. 2008).

The PLACE methodology can also be used for program conceptualization, modification, and evaluation. In particular, collecting PLACE data (with or without facility-based data) provides an indication of gaps in existing programs in terms of outreach in the community and young people's sexual risk-taking behaviors and needs. Although a limitation of our PLACE data is that the survey did not include specific questions about accessing FOSREF clinics, programs can collect such data and identify gaps in their interventions. Programs can use this information to target new locations, revise program messages and approaches, and increase access to VCT and other RH services. Moreover, if the PLACE data are collected at the beginning of the program to inform program strategies, they also can be collected again at follow-up to determine whether patron's sexual risk-taking has changed once the program has been fully implemented at the sites.

Limitations of the PLACE approach include the possibility of missing some of the groups at highest risk if they visit unknown or dangerous locations not included among the study sites. Also, those interviewed in identified sites may be inebriated or under the influence of drugs and thus may not report their sexual and RH behaviors accurately. In the Haiti application of the PLACE methodology, every effort was made to include some of the highest-risk sites identified. Interviewers who worked late at night at the high-risk sites stayed at hotels in the area to avoid requiring study drivers to work in the neighborhoods in the middle of the night. Although not all of the study sites served alcohol (for example, taxi stands and other outdoor public venues), at those that served drinks inebriated individuals may have been underrepresented because they were less likely to be approached by the interviewers. With the data available, determining the extent of bias introduced by not interviewing inebriated individuals is not possible. An additional limitation of the PLACE approach is that when respondents are asked about facility use, they may not know the name of the facility or be able to give its specific

address or location. The possibility of examining their access to reproductive health services at specific facilities is, therefore, limited.

A number of limitations of this comparative study are worth noting. First, significance testing is lacking for the three data sets on demographic characteristics as a result of the variations in study design and weighting procedures. Additionally, although most of the variables were measured in similar fashion across the studies, the STI variable was not, making interpretations more difficult. Moreover, other variables that are risk factors for acquiring HIV infection and experiencing an unintended pregnancy, such as partner's violence, history of child abuse, and cross-generational sex, were not included in this comparison because such survey items were lacking across the studies. For example, although we found in a separate analysis that among PLACE respondents sexual violence was a risk factor for nonuse of condoms, pregnancy experience, and recent STI symptoms, we were not able to explore differences in experiences of violence in this study because measures of this variable were lacking in the facility-based data (Gómez et al. forthcoming). Finally, although the young people surveyed for the HDHS represent the entire Port-au-Prince metropolitan area, the PLACE study occurred in an area targeted specifically because of the occurrence of high-risk behaviors in the vicinity. The facility-based study was conducted at FOSREF youth centers in four areas of Port-au-Prince and at a reproductive health clinic on the outskirts of Cité Soleil, a densely populated slum. The study areas, therefore, are not entirely comparable.

Identifying and characterizing young people at high risk is an important first step in improving HIV-transmission-prevention and unintended-pregnancy-prevention programs among the young. Population-based surveys provide important indicators of prevalence but are less useful for determining appropriate programmatic approaches. Facility-based studies are useful for identifying young people who initiated sex at an early age, who have ever been pregnant, who have ever experienced an unintended pregnancy, and who use condoms to protect against STIs. Facility-based approaches, however, are limited to those who have access to the clinics and often do not include young males. The PLACE approach is a newer methodology that identifies individuals (young people aged 15–24 in this case) who socialize at high-risk sites that could be targeted for prevention programming. Future studies should determine whether interventions that take place in these high-risk sites lead to behavioral changes and subsequent reductions in HIV transmission and unintended pregnancies. Additionally, data are lacking to determine how well the PLACE method characterizes high-risk sites and whether certain types of sites (for example, outdoor or public sites or places where young people engage in drug use or other higher risk-behaviors) are less likely to be mentioned by knowledgeable community informants and, therefore, may be missed in the survey. This research will require not only interviewing key informants but also undertaking participatory methods that engage various community members in learning about places where young people form sexual partnerships. As these questions are answered, greater understanding of the usefulness of each approach will be gained. Using these methodologies for program design, program improvements, and evaluation can provide insights into how rates of HIV transmission and unintended pregnancy can be reduced and can lead to improved health outcomes for young people.

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