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Homeless Women: Who is Really at Risk for Unintended Pregnancy?

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Abstract *Objective* To identify correlates of failure to use contraception among homeless women at risk for unintended pregnancy. *Study Design* A representative sample of 974 homeless women surveyed in Los Angeles County in 1997 included 457 who were at risk for unintended pregnancy. Logistic regression modeling was used to identify important predictors of contraceptive nonuse or rare use in the past year. *Results* One third of the sample used contraception rarely or never in the past year. Having a partner, being monogamous, and not engaging in sex trade predicted contraceptive nonuse or rare use (odds ratios 2.43–4.73, $P < .05$). Partner dislike and uncertainty about which contraceptive to use were also associated with failure to use contraception (odds ratios 2.64–2.96, $P < .05$). Having a regular source of care and having been encouraged to use contraception protected against failure to

use contraception. *Conclusions* Homeless women, including those at apparently low risk for unintended pregnancy, need to be targeted with integrated services that include education, a regular source of medical care, and encouragement to use contraception.

Keywords Homeless persons · Contraception · Women's health

Introduction

Homeless women are a high-risk group for unintended pregnancy. At any given time, approximately 10% of homeless women are pregnant [1], a rate twice that of all US women of reproductive age, and significantly higher

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than that of low-income women who are not homeless [2–4]. One recent study found that nearly three-fourths (73%) of pregnancies among homeless women were unintended at the time of conception [5].

In the general US population, approximately half (49%) of the 6.4 million pregnancies each year are unintended at the time of conception [6]. More than half (53%) of these unintended pregnancies occur in women who are not using contraception [7]. Contraceptive use in the general population is influenced by numerous factors, including contraceptive knowledge and access, personal attitudes and feelings about sexuality and fertility, interpersonal communication and partner support, cultural, religious and political preferences, the content of the media, gender bias, racism, and violence against women [7]. Over the past two decades, concerns about HIV and other sexually transmitted infections (STIs) may have been the driving force behind the changing patterns of contraceptive use in the general population, with increased reliance on condoms and decreased use of the pill and the diaphragm [8].

Much less is known about contraceptive use among homeless women at risk for unintended pregnancy. Few studies have examined the use of contraceptive methods by homeless women [5, 9–11] particularly in relation to protection against unintended pregnancies. In addition to risk factors identified in the general population, such as lack of contraceptive knowledge and access, homeless women may face endemic barriers to contraceptive use including lack of storage space, lack of control and normalcy, victimization by sex trade and sexual violence, substance abuse, mental illness, and other obstacles common among the homeless population. To our knowledge, no study has examined predictors of contraceptive use or nonuse among homeless women at risk for unintended pregnancy.

The aim of this study is to identify factors associated with failure to use any form of contraception among homeless women at risk for unintended pregnancies. Such information can guide prevention programs targeting unintended pregnancies among homeless women and the poor outcomes that frequently accompany such pregnancies [12].

Materials and Methods

Subjects and Procedures

The women examined in this article participated in a larger study that inquired about health care issues relevant to homeless women of reproductive age. Data were collected on a total of 974 homeless women aged 15–44 between January and October of 1997 in 50 shelters and 16 meal programs located within Los Angeles County using a weighted, two-stage sampling strategy. The

random sampling of study sites from all Los Angeles County sites that conformed to our definition of “homeless site” and the construction of sampling weights are described in detail elsewhere [13, 14]. A woman was defined as homeless if she spent at least one night in the past month in a mission, homeless shelter, transitional shelter, a hotel paid for by a voucher, a church or chapel, an all-night theater or other indoor public place, an abandoned vehicle, the street or other outdoor place, or in a rehabilitation program that she entered from one of the places listed above.

A 1-hour in-person interview was conducted by trained lay interviewers using a pre-tested, structured survey. Women were paid \$2.00 for completing an eligibility screener, and non-repeaters (i.e., those screened for the first time) were paid \$10.00 for completing the interview. Of the estimated 1,668 homeless-women visits that were eligible for the study, 461 were identifiable repeats from previous occasions. Non-response attributable to loss of selected sites was 5.6%, and non-response of women within sites contributed 13.2%, for an 81.2% response rate overall. No information was obtained on non-respondents.

For the analyses presented in this paper, we excluded women who said they had intended to become pregnant in the past 12 months (i.e., those who said yes to the question “Were you trying to get pregnant at any time during the past 12 months?”), those who were currently pregnant, those who had not been sexually active with men in the past year, and those who reported a hysterectomy or tubal sterilization. We were left with a sample of 457 homeless women at risk for unintended pregnancy. The study was approved by the UCLA and RAND IRB’s.

Measures: Outcome

The outcome variable was derived from the women’s reported frequency of contraceptive use with vaginal sex over the past year. To obtain this information, women were first asked about their past-year use of each of the following contraceptive methods: birth control pill; condom or rubber; partner’s vasectomy or sterilization; diaphragm; foam, jelly or cream; cervical cap; suppository or insert; female condom or vaginal pouch; Norplant implant; and Depo-Provera injectable (shot). Those who reported using any type of contraception were then asked how often they had used one or more of the preceding methods when they had vaginal sex in the past year. Responses included “never,” “rarely,” “some of the time,” “most of the time” and “all of the time.” To identify women who did not use contraception, or who used it infrequently, we created a dichotomous variable that separated women who rarely or never used contraception from those who used it more frequently.

Measures: Predictors

Predictors were selected from a large array of variables based on our experience with the Behavioral Model for Vulnerable Populations [15]. *Sociodemographic Characteristics* consisted of age, ethnicity, education, partnership status, working status, past-month income from all sources, religious affiliation, number of live births, number of children the respondent lived with in the past year, and competing needs. All but two of these characteristics were measured by single items: income was the sum of money obtained from ten sources (job, panhandling, recycling, family or friends, SSI, etc.) and competing needs included four items that inquired about how often respondents had problems (1 = never, 4 = usually) getting a place for the night, getting food to eat, finding a place to wash up and finding a place to go to the bathroom. For competing needs, a mean-item scale with a potential range of 1–4 was constructed; Cronbach's alpha for the scale was 0.85.

Homeless History was assessed by reports of total time homeless, time homeless in the past year, and living arrangements for each of the past 60 nights (timeline follow-back procedure). Sum scores over the 60-day period were used to measure time spent in four basic types of living places: (1) shelter/institution (including shelters for the homeless, residential drug treatment programs, jails/prisons, hospitals, board and care facilities, and hotels paid for by a voucher); (2) traditional housing (including homes, apartments, rental hotels, and staying with friends or family); (3) limited housing (including vehicles, abandoned buildings, and all-night theaters); and (4) outdoor areas. *Sexual History* was measured by an item asking about frequency of sex with men in the past year on a 6-point scale (1 = once a month or less, 6 = every day), an item asking about number of male sex partners in the past year and five dichotomous (yes/no) items regarding trading sex for money, shelter, food, drugs or alcohol, or other items in the past year. Women who reported sexual activity in the past year were also asked how frequently they used condoms on a Likert scale ranging from 1 (never) to 5 (every time they had sex).

Victimization History was assessed by two dichotomous items asking about physical and sexual assault before age 18 and two dichotomous items asking about physical and sexual assault in the past year.

Substance Abuse/Dependence was determined by a three-item screener for alcohol abuse/dependence and a three-item screener for drug abuse/dependence. These screeners have high sensitivity (.87–.92) and specificity (.91) against the full DIS [16].

Psychological Resource measures included a single item, a brief depression screener and four scales. The item asked whether respondents had ever stayed overnight in a

hospital or treatment program for emotional or mental health problems. Depression or dysthymia in the past year was assessed with a three-item screener that had sensitivity and specificity of .81 and .95, respectively, against the full DIS (23). The 5-item RAND Mental Health Inventory measured past-month psychological distress. Scores were linearly transformed to the standard 0–100 range, with higher scores indicating less distress; Cronbach's alpha for the scale in this study was .89. Current psychotic symptomatology was assessed by five items from the Brief Symptom Inventory. A mean-item scale ranging from 1–5 was constructed, with higher scores representing more psychotic symptomatology; inter-item reliability was .76. Respondents' feelings of self-esteem and mastery (i.e., sense of control over forces that impacted their lives) were each measured using three items with a 1–5 response set from the Rosenberg [17] and Pearlin [18] scales, respectively. Mean-item scores were formed for each subset of items, with higher scores representing more of the construct. Cronbach's alpha was .85 for self-esteem and .77 for mastery.

Perceived Barriers to Contraceptive Use were examined by nine items asking respondents whether they had a big problem, a small problem or no problem with: not knowing how to use contraceptives; feeling unsure about which method to use; partner dislike; cost; not knowing where to get them; side effects experienced; feeling uncomfortable or unnatural using contraception; fear of contraceptive use harming health; and having a place to store contraceptives [10]. Based on distributions, responses were dichotomized as "a big problem" versus other.

Health Care was assessed by five items that elicited yes/no information about having a regular source of medical care; any health insurance; a case manager; a source of encouragement to use birth control in the past year; and a Pap smear in the past year versus longer time periods.

Data Analysis

All variables were examined with descriptive statistics. Based on these preliminary analyses, age was dichotomized at 25 or older and number of male sex partners in the past year was dichotomized into one versus more than one. Logarithmic transformations were applied to three variables: total number of years homeless, number of months homeless in the prior year, and income in the previous 30 days. However, we present the untransformed means and standard deviations for these variables in Table 1. Sampling weights for analysis were set inversely proportional to the separate probabilities of selection for each woman, which, in turn, were directly proportional to the frequency of their use of sampling-frame-sites during the data collection period. All analyses were weighted and

Table 1 Associations between homeless women's failure to use contraception and sample characteristics^a

Characteristic	Total sample N = 457	Use birth control rarely or never		P-value
		Yes N = 146	No N = 311	
<i>Sociodemographic</i>				
Ethnicity				0.001
White (%)	13.7	14.3	13.3	
African-American (%)	60.0	52.8	63.5	
Hispanic (%)	17.9	29.7	12.2	
Other (%)	8.4	3.2	10.9	
Age < 25 (%)	20.6	14.2	23.8	0.019
High school/GED (%)	63.0	61.3	63.8	0.607
Any religious affiliation (%)	10.5%	93.4	89.7	0.204
Working full- or part-time (%)	14.2	8.4	17.0	0.014
Total monthly income (mean, SD)	459 (881)	562 (1461)	412 (377)	0.089
Living with partner (%)	18.1	11.7	31.6	0.001
Number of live births (mean, SD)	2.1 (1.7)	2.5 (2.0)	2.0 (1.5)	0.002
Number of children living with them, past year (mean, SD)	1.1 (1.4)	1.2 (1.6)	1.0 (1.4)	0.214
Competing needs (mean, SD) (range 1–4)	1.5 (0.8)	1.5 (0.7)	1.5 (0.8)	0.604
<i>Homeless history</i>				
Usual living place, past 60 days				0.010
Shelter (%)	64.9	55.2	69.6	
Limited shelter (%)	5.6	8.2	4.4	
Outdoors (%)	7.8	11.9	5.8	
Traditional housing (%)	21.7	24.8	20.2	
Time homeless, lifetime (mean years, SD)	2.6 (3.7)	2.8 (3.4)	2.5 (3.9)	
Time homeless, past 12 mos (mean months, SD)	6.1 (4.3)	6.3 (4.8)	6.0 (4.1)	
<i>Sexual activity</i>				
Multiple sex partners, past 12 months (%)	45.5	30.8	52.9	0.001
Traded sex, past 12 months (%)	26.0	13.5	32.1	0.001
Frequency of vaginal sex, past 12 months (mean, SD) (range 1–6)	2.9 (1.7)	2.9 (1.6)	2.9 (1.7)	0.644
<i>Victimization history</i>				
Sexually assaulted before age 18	25.8	21.8	27.8	0.172
Physically assaulted before age 18	39.4	42.5	37.9	0.348
Sexually assaulted, past 12 months	15.6	20.3	13.3	0.056
Physically assaulted, past 12 months	31.7	32.3	31.3	0.834
<i>Substance abuse/dependence</i>				
Alcohol abuse, lifetime	39.9	36.3	41.6	0.273
Drug abuse, lifetime	50.0	52.3	48.9	0.500
<i>Psychological resources</i>				
Psychological well-being (mean, SD)(range 0–100)	65.8 (23.0)	65.1 (23.3)	65.9 (22.8)	0.727
Psychoticism (mean, SD)(range 1–50)	1.3 (0.6)	1.3 (0.6)	1.3 (0.6)	0.694
Mental health hospitalization, ever (%)	22.6	11.7	28.0	0.001
Depression, past 12 months (%)	47.6	42.9	49.9	0.158
Self esteem (mean, SD) (range 1–5)	3.9 (0.9)	3.8 (0.9)	3.9 (0.9)	0.878
Mastery (mean, SD) (range 1–5)	2.8 (1.7)	2.8 (0.8)	2.8 (0.9)	0.970
<i>Perceived contraceptive barriers</i>				
Don't know how to use contraceptives (%)	11.1	18.3	7.5	0.001
Don't know which method to use (%)	16.2	29.1	9.9	0.001
Partner dislike (%)	19.1	29.8	13.8	0.001

Table 1 continued

Characteristic	Total sample N = 457	Use birth control rarely or never		P-value
		Yes N = 146	No N = 311	
Cost (%)	15.0	22.7	11.2	0.001
Don't know where to get contraceptives (%)	10.8	11.6	10.4	0.687
Side effects of contraceptive methods (%)	29.1	36.1	25.6	0.021
Unnatural/uncomfortable feeling (%)	18.2	21.4	16.5	0.203
Health concerns (%)	26.7	30.3	24.9	0.215
No place to store contraceptives (%)	9.7	11.8	8.7	0.293
<i>Health care access/utilization</i>				
Has regular source of medical care (%)	70.1	65.4	72.4	0.124
Health insurance (%)	72.0	57.3	79.2	0.001
Case manager	55.8	48.9	59.2	0.038
Pap smear, past 12 months	66.6	56.4	71.5	0.001
Encouraged to use birth control, past 12 months	21.6	13.9	25.4	0.005

^a All figures are weighted except for *N*s

conducted using the SAS and Stata statistical software packages. The Stata logistic regression program for survey data appropriately utilizes sampling weights and generates estimates of effects corrected for intraclass correlations. Hence, it was used for final multivariable analysis. All *N*s presented are unweighted and all statistics are weighted.

Unadjusted associations between potential predictors and failure to use contraception were assessed with Pearson's chi-square and two-sample *t*-tests, depending on the variable types. Variables associated with nonuse or rare use of contraception at the $P < .15$ level in unadjusted analyses were submitted to stepwise backward logistic regression analysis to create a core model of important predictors of failure to use contraception. This core model was confirmed with stepwise forward analysis using the same predictors. Regardless of results found in the preliminary analyses, variables not included in the formation of the core model (i.e., not significant at .15 in the preliminary analyses) were added one at a time to it to estimate their effects, controlling for the other predictors in the model. The final model in Table 2 consists of predictors in the core model that was produced by the stepwise analysis and predictors that were significant at the .10 level when added to the core model, provided they did not introduce multicollinearity.

Results

One-third of the sample reported no use or rare use of contraception in the past year, with more than one-fourth (27%) reporting no contraceptive use at all during this

time. The average age of the women in the sample was 32 years ($SD = 7.4$) and their mean level of education was 12 ($SD = 2.2$). As shown in Table 1, the women were predominantly African-American (60%), with relatively small proportions of Latinas (18%), whites (14%), and those of other races/ethnicities (8%). About two-thirds typically resided in shelters, almost one-third had been physically assaulted in the previous year, and about half had histories of lifetime drug abuse/dependence and past-year depression. Over two-thirds reported having a regular source of medical care, and a similar proportion reported health insurance.

Additional descriptive information, not reported in Table 1, is of interest. Among women who used some form of contraception at least once in the past year, 92% reported condom use, 16% said they had used birth control pills, 14% said they had received shots, and 11% reported using foam, gel, or cream. All other methods were used by less than 10% of women with any recent (i.e., past year) contraceptive use. In terms of using combinations of condoms with other methods of birth control, 193 used condoms only, 17 used condoms and foam only, 23 used condoms and shots only, and 28 used condoms and birth control pills only. Over one-tenth (12%) of recent contraceptive users said they never used condoms with vaginal sex and another 16% reported rare condom use; 36% reported using condoms every time. For the total sample, compared to non-monogamous women, monogamous women were much less likely to use condoms (53% vs. 84%), somewhat more likely to use Depo-Provera (11% vs. 5%), and they had sex less often in a given week. Close to half of the total sample (46%) reported a history of a sexually transmitted infection (STI).

Table 2 Results of logistic regression analysis for homeless women who rarely or never used birth control in the past 12 months ($N = 442$)^a

Characteristic	Adjusted OR	95% CI	P-value
Race/ethnicity (vs. African-American)	–	–	–
White	0.88	(0.36, 2.12)	0.769
Latina	2.82	(0.96, 8.34)	0.060
Other	0.28	(0.09, 0.95)	0.041
Aged 25 or older	2.32	(0.98, 5.50)	0.055
Any religious affiliation	2.26	(0.84, 6.05)	0.104
Competing needs ^b	0.65	(0.42, 1.01)	0.054
Living with partner, past 60 days	2.47	(1.23, 4.93)	0.011
Less than two children with them, past 12 months	2.42	(1.21, 4.84)	0.013
Living situation (vs. emergency shelter)	–	–	–
Lived mostly in traditional housing	2.32	(1.08, 5.00)	0.032
Lived mostly in limited housing	2.32	(0.54, 10.05)	0.257
Lived mostly outdoors	2.74	(0.67, 11.17)	0.157
Not engaged in sex trade, past 12 months	4.73	(1.86, 11.97)	0.001
Monogamous	2.43	(1.18, 5.00)	0.016
Vaginal sex at least once a week	1.42	(0.81, 2.50)	0.222
Drug abuse/dependence, lifetime	1.86	(1.00, 3.47)	0.050
No lifetime history of psychiatric hospitalization	2.77	(1.24, 6.19)	0.014
Partner dislike of contraception	2.64	(1.27, 5.48)	0.010
Don't know which contraceptive method to use	2.96	(1.29, 6.85)	0.012
No regular source of care	2.75	(1.35, 5.60)	0.006
No Pap smear, past 12 months	1.74	(0.81, 3.24)	0.151
Not encouraged to use birth control, past 12 months	3.87	(1.70, 8.79)	0.002

^a All figures are weighted, except for the N s

^b Range 1–4

In unadjusted analyses (Table 1), nonuse of contraception was associated with being Latina (compared to African-American), being at least 25-years old, being unemployed, living with a partner, residing primarily outside of shelters, having more live births, being monogamous, not engaging in sex trade, lacking a history of hospitalization for mental health or substance abuse, and having a variety of perceived barriers to contraceptive use. Perceptual barriers that were positively related to lack of contraceptive use included not knowing how to use contraceptives, not knowing which method to use, partner dislike, the cost of contraceptives, and side effects respondents had experienced with contraceptive use. In terms of health care measures, women who did not use contraception were less likely than contraceptive users to have health insurance, to have a case manager, to have gotten a Pap smear in the past year, and to have been encouraged to use birth control in the past year. Several variables in our model were not associated with contraceptive use, these include education, self-esteem and mastery.

In multiple logistic regression analysis, compared to African-American women, Latinas had over two and a

half times greater odds of not using contraception, and women of “other” races were less likely to fail to use contraception (Table 2). Women aged 25 and older and those living with a partner had more than twice the odds of not using contraception than younger women or those with other living arrangements, respectively. Similarly, women who had at most one child living with them in the previous year were more likely to eschew contraceptive use than those who had more children with them, and greater competing needs tended to be inversely associated with failure to use contraception. Residence also influenced contraceptive use: women who usually stayed in traditional housing in the previous 2 months had twice the odds of not using contraception as those who generally stayed in shelters. Women citing a religious affiliation had over twice the odds of reporting nonuse of contraception as women with no religious affiliation; however, this finding was not statistically significant.

Two measures of sexual activity had independent associations with contraceptive use. Women who reported being monogamous in the past year had almost two and a half times greater odds of not using contraceptives than

those who reported multiple partners. Similarly, women who did not engage in trading sex had over four times greater odds of not using contraception than those who traded sex for money, drugs or other things.

Lifetime drug abuse/dependence and psychiatric history had opposite effects on contraceptive use. Women with a history of drug abuse were more likely to be nonusers of contraception than those without this history. In contrast, women who had a psychiatric hospitalization were more likely to use contraception than those who had not been hospitalized for a psychiatric problem.

Two perceptual barriers predicted failure to use contraception. Women who expressed uncertainty about which contraceptive method to use had almost three times the odds of not using birth control as those who felt more secure about selecting contraceptive methods. Similarly, women who reported partner disapproval or dislike had over two and a half times greater odds of not using contraception than those who did not cite their partner's attitude as a substantive problem.

Finally, two health care factors also influenced the women's contraceptive use. Compared to women who had a regular source of care, those who lacked one were more likely to be nonusers of contraception. Women who were not encouraged to use birth control by lay persons, such as family, friends or shelter staff, also had over three times greater odds of not using contraception than those who received such support.

Discussion

The homeless women in this study reported high rates of contraceptive nonuse or rare use despite their risk for unintended pregnancy [19–21]. One-third of sexually-active homeless women at risk for unintended pregnancy were not using contraception, or did so only rarely; one in four (27%) were not using any form of contraception at all, compared to 5% in the general population [8]. Few women in the sample used long-term methods of birth control that do not require action at each sexual encounter; instead, 92% used condoms, which do require consistent use for birth control. The reliance on condoms suggests that contraceptive use among homeless women is driven primarily by availability and by concerns about HIV and STIs, rather than by concerns about pregnancy. This study confirms previous findings of high-risk sexual behavior among homeless persons [22]. Further, it expands on previous research by presenting data from a representative sample of homeless women not limited to adolescents, and it includes data on the use of contraceptive methods other than condoms.

Who is really at risk for unintended pregnancy? In this study, we identified a multitude of factors associated with

failure to use contraception among homeless women at risk for unintended pregnancy; here, we will highlight four key sets of findings and discuss their implications for maternal and child health (MCH) programs serving homeless women and families.

First, the most important and unexpected findings were that being partnered, being monogamous, and not engaging in sex trade all predicted nonuse or rare use of contraception. Thus, homeless women with sexual lifestyle characteristics that are generally regarded as lower risk for sexually transmitted infections and other undesirable outcomes may actually be at increased risk for unintended pregnancy. The reasons for these findings are unclear. They contrast with findings from the general population and among homeless youth, where having multiple sexual partners has been shown to be associated with greater risk-taking behaviors, including contraceptive nonuse [19, 20]. This discrepancy may be because homeless women who are married or living with partners and those in monogamous relationships may be less averse to becoming pregnant than those who have multiple partners and no committed relationship. Homeless women who depend on a partner for support or protection may also be reluctant or afraid to raise the issue of contraception. Alternatively, they may perceive less risk of sexually transmitted infections because of the supposedly committed relationship and, thus, be less inclined to use condoms, which are the principal form of contraception in this population. Ambivalence about pregnancy, inability to negotiate condom use, or a false sense of security may not only put homeless women who are monogamous at increased risk for unintended pregnancies, but also put them at risk for STIs, given the high STI prevalence in this sample.

With respect to sex trade, homeless women engaged in prostitution may be more likely to use condoms with their clients than with their regular partners. Thus, the higher level of contraceptive use among women who reported sex trade here could reflect condom use with clients. Since we were not able to question women separately about their behaviors with different partners, we cannot determine whether the relatively safe sexual behavior of women who reported sex trade applied to both their clients and their regular partners. The important implication for MCH programs is that targeting reproductive health education and services to only "high-risk" homeless women (e.g., those with multiple sexual partners or those who engage in prostitution) may miss a large group of homeless women at risk for unintended pregnancy and STIs. Providers need to pay equal (if not greater) attention to the contraceptive needs of homeless women who live with a partner, are involved in a monogamous relationship, and are not engaged in sex trade. Given the high rates of contraceptive nonuse or rare use, STIs, and unintended pregnancy

reported among homeless women, all homeless women should be considered high-risk and afforded access to high-quality contraceptive counseling and services. Further, contraceptive efforts need to be flexible enough to be targeted to individuals, since previous work has shown substantial variation in the acceptability of specific contraceptive methods.

Second, homeless women who were unsure about which contraceptive method to use had nearly three times greater odds of never or rarely using contraception during the past year compared to those who had settled on a method. We previously reported that not knowing which contraceptive method to use was perceived as an important deterrent to contraception by chronically homeless women, particularly by those who were African-American and Latina and by those with a lifelong history of substance abuse [10]. These findings suggest a need for more reproductive health education to close the knowledge gap. Since having a regular source of care had a strong protective effect on nonuse or rare use of contraception, expanding the availability and appropriateness of the safety net so that more homeless women can find a regular source of care, as well as expanding the role of health care professionals at these regular health care sites to assist homeless women in finding methods best suited to their needs and preferences, may help to reduce unintended pregnancies in this population. Data from the RTe Care Program in Rhode Island suggest that pregnancy reduction is an attainable goal when family planning and health services are made widely available to address short birth-spacing issues, including poor perinatal outcomes, among uninsured women and those on Medicaid.

Third, partner disapproval or dislike was also an important predictor of contraceptive nonuse or rare use. In this study, women who reported partner disapproval or dislike had over two and a half times greater odds of not using contraception than those who did not cite partner disapproval as a substantive problem. Several studies in the general population have identified partner disapproval as an important deterrent to effective and consistent use of contraception [23–25] and we previously reported that a substantial proportion of chronically homeless women, particularly those with a low level of educational attainment, also perceive it to be an important deterrent to contraception [10]. In addition to lack of skills on the part of the women to negotiate contraceptive use with their partners, concerns about partner reactions may reflect lack of knowledge or support for pregnancy prevention on the part of the male partners. The importance of partner disapproval underscores the need for interventions that offer women contraceptive methods not subject to partner consent and, when feasible, enhance male involvement and

shared contraceptive decision-making among homeless women and their partners.

Lastly, having a regular source of medical care and having been encouraged to use contraception were identified as important protective factors against failure to use contraception. Homeless women who have a regular source of health care may be more satisfied with the care they receive than those without a regular source of care; their satisfaction may be reflected in increased adherence to contraceptive use. Alternatively, homeless women who have a regular source of care may be more motivated or more able to use preventive health services, including family planning services, than women without a regular source of care. In any case, the apparent efficacy of contraceptive encouragement suggests an important role for a variety of individuals who assist homeless women.

A prior descriptive study of these women's current and past use of individual contraceptive methods and their willingness to use them in the future found differences related to ethnicity, access and age. Further research is needed to understand cohort, ethnic/racial, and other factors that influence homeless women's contraceptive use. More generally, educational changes and/or other secular changes and cultural attitudes and beliefs play an important role in use of contraception and method preferences. Since male condoms do not require a prescription, protect against STIs, and are relatively cheap and easy to store, they may be especially appealing to many homeless and impoverished persons. However, over one-fourth of the women who were 40 or older rejected use of male condoms, supporting the need for more contraceptive alternatives.

Although the women in this study came from a large, representative sample of homeless women in Los Angeles County, the results may not be generalizable to homeless women in other cities. The data were based on self-reports in response to a survey and are subject to well-known errors and biases. Further, we did not obtain information about perceived barriers to specific types of contraception or about variations in contraceptive use with different partners. Last, there are limitations to the conventional classification of "unintended pregnancy." Among this homeless population of women, having a pregnancy may not be deemed the rational choice and therefore may be reported as "unintended." At the same time, these women might have other expectations about the pregnancy that might make it seem desirable, expectations that clinicians and researchers are not always aware of, such as a desire to be loved or beliefs that a baby would motivate them to take care of themselves [26]. Further qualitative information on the context of pregnancy in the lives of these women would help to elucidate this direction of research.

Nevertheless, the results of this study were quite striking and indicate that clinicians need to direct particular attention to homeless women in monogamous relationships, since they are at greatest risk for unintended pregnancies. Further, it appears that education about contraceptive methods, encouragement to use them, and having a regular source of care may play an important role in promoting contraceptive use and in reducing unintended pregnancies among homeless women.

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Reference

- Herndon, B., Asch, S., & Kilbourne, A., et al. (2003). Prevalence and predictors of HIV testing among a probability sample of homeless women in Los Angeles County. *Public Health Report, 118*, 261–269.
- Bassuk, E., Weinreb, L., Buckner, J., Browne, A., Salomon, A., & Bassuk, S. (1996). The characteristics and needs of sheltered homeless and low-income housed mothers. *JAMA, 276*, 640–646.
- Bassuk, E., Browne, A., & Buckner, J. (1996). Single mothers and welfare. *Scientific American, 275*, 60–67.
- Robrecht, L., & Anderson, D. (1998). Interpersonal violence and the pregnant homeless woman. *Journal of Obstetric, Gynecologic & Neonatal Nursing, 27*, 684–691.
- Gelberg, L., Leake, B., Lu, M., et al. (2001). Use of contraceptive methods among homeless women for protection against unwanted pregnancies and STD's. Prior use and willingness to use in the future. *Contraception, 63*, 277–281.
- Finer, L. B., & Henshaw, S. K. (2006). Disparities in rates of unintended pregnancy in the United States, 1994 and 2001. *Perspectives on Sexual and Reproductive Health, 38*, 90–96.
- Henshaw, S. (1998). Unintended pregnancy in the United States. *Family Planning Perspectives, 30*, 24–29.
- Piccinino, L., & Mosher, W. (1998). Trends in contraceptive use in the United States: 1982–1995. *Family Planning Perspectives, 30*, 4–10, 46.
- North American Primary Care Research Group Committee on Building Research Capacity. (2002). What does it mean to build research capacity? *Family Medicine, 34*, 678–684.
- Gelberg, L., Leake, B., Lu, M., et al. (2002). Chronically homeless women's deterrents to contraception. *Perspectives on Sexual and Reproductive Health, 34*, 278–285.
- Ensign, J. (2000). Reproductive health of homeless adolescent women in Seattle, Washington, USA. *Women & Health, 31*, 133–151.
- Brown, S. S., & Eisenberg, L. (Eds.) (1995). *The best intentions—unintended pregnancy and the well-being of children and families*. Washington, D.C.: National Academy Press.
- Sumner, G., Andersen, R., Wenzel, S., & Gelberg, L. (2001). Weighting for period perspective in samples of the homeless. *The American Behavioral Scientist, 45*, 80–104.
- Stein, J., Lu, M., & Gelberg, L. (2000). Severity of homelessness and adverse birth outcomes. *Health Psychology, 19*, 524–534.
- Gelberg, L., Andersen, R., & Leake, B. (2000). The behavioral model for vulnerable populations: Application to medical care use and outcomes. *Health Services Research, 34*, 1273–1302.
- Rost, K., Burnam, M., & Smith, G. (1993). Development of screeners for depressive disorders and substance disorder history. *Medical Care, 31*, 189–200.
- Rosenberg, M. (1965). *Society and the adolescent self-image*. Princeton, NJ: Princeton University Press.
- Pearlin, L. I., Lieberman, M. A., Menaghan, E. G., & Mullan, J. T. (1981). The stress process. *Journal of Health and Social Behavior, 22*, 337–356.
- Bailey, S., Camlin, C., & Ennett, S. (1998). Substance use and risky sexual behavior among homeless and runaway youth. *Journal of Adolescent Health, 23*, 378–388.
- Booth, R., Zhang, Y., & Kwiatkowski, C. (1999). The challenge of changing drug and sex risk behaviors of runaway and homeless adolescents. *Child Abuse & Neglect, 23*, 1295–1306.
- Koopman, C., Rosario, M., & Rotheram-Borus, M. (1994). Alcohol and drug use and sexual behaviors placing runaways at risk for HIV infection. *Addictive Behavior, 19*, 95–103.
- Greenblatt, M., & Robertson, M. (1993). Life-styles, adaptive strategies, and sexual behaviors of homeless adolescents. *Hospital & Community Psychiatry, 44*, 1177–1180.
- Marin, B. V., Tschann, J. M., Gomez, C. A., & Kegeles, S. M. (1993). Acculturation and gender differences in sexual attitudes and behaviors: Hispanic vs. non-Hispanic white unmarried adults. *American Journal of Public Health, 83*(12), 1759–1761.
- cAmaro, H. (1995). Love, sex, and power. Considering women's realities in HIV prevention. *American Psychology, 50*, 437–447.
- Brien, T., Thombs, D., Mahoney, C., & Wallnau, L. (1994). Dimensions of self efficacy among three distinct groups of condom users. *Journal of American College Health, 42*, 167–174.
- Gelberg, L., Browner, C. H., Lejano, E., & Arangua, L. (2004). Access to women's health care: A qualitative study of barriers perceived by homeless women. *Women Health, 40*, 87–100.