

UC Irvine

UC Irvine Previously Published Works

Title

Barriers to condom use and needle cleaning among impoverished minority female injection drug users and partners of injection drug users.

Permalink

<https://escholarship.org/uc/item/7wx2r3gg>

Journal

Public Health Reports, 110(2)

ISSN

0033-3549

Authors

Nyamathi, AM
Lewis, C
Leake, B
[et al.](#)

Publication Date

1995

Copyright Information

This work is made available under the terms of a Creative Commons Attribution License, available at <https://creativecommons.org/licenses/by/4.0/>

Peer reviewed

Barriers to Condom Use and Needle Cleaning Among Impoverished Minority Female Injection Drug Users and Partners of Injection Drug Users

ADELINE M. NYAMATHI, RN, PhD
CHARLES LEWIS, MD
BARBARA LEAKE, PhD
JACQUELYN FLASKERUD, RN, PhD
CRYSTAL BENNETT, RN, DNSc

The authors are with the University of California at Los Angeles. Dr. Nyamathi is Associate Professor, School of Nursing; Dr. Lewis is Professor, Schools of Nursing, Medicine, and Public Health; Dr. Leake is Senior Statistician, Schools of Medicine and Nursing; Dr. Flaskerud is Professor, School of Nursing; and Dr. Bennett is Project Director, School of Nursing. This research has been funded by the National Institute on Drug Abuse (grant No. DA05565-O3).

Tearsheet requests to Adeline Nyamathi, RN, PhD, Associate Professor, School of Nursing, University of California, Los Angeles, 10833 Le Conte Ave., Los Angeles, CA 90024-6918, tel. (310) 825-8609.

Synopsis

This study was undertaken to describe sexual behaviors and drug use and other factors that inhibit condom use and needle cleaning among impoverished women who are injection drug users (IDUs) or sexual partners of IDUs. This study also investigated whether risky sexual behavior or barriers to risk reduction differ with ethnicity and level of acculturation.

Survey instruments to assess drug and sexual activity were administered to 378 African American and Latina women recruited primarily from homeless

shelters and drug recovery programs. The most commonly cited barriers to condom use were belief that partners did not have acquired immunodeficiency syndrome (AIDS), lack of knowledge about where to get and how to use condoms, and discomfort discussing condom use with partners.

African American women were more likely to report having multiple partners and unprotected sex, and more likely to report barriers in using, discussing, and obtaining condoms. Latina women were more likely to report partners' dislike of condoms. African American and highly acculturated Latina women were more likely to be IDUs than less acculturated Latina women.

The most pervasive barriers for needle cleaning were not having personal needles, being high and not interested in needle cleaning, and not having disinfectant available. In a multiple logistic regression analysis for engaging in unprotected sex and cleaning needles, no ethnic or acculturation differences were found after controlling for selected demographic characteristics and risk factors.

The data indicate a need to increase the supply of free or low cost condoms, to provide easily accessible sites for obtaining condoms, to supply clean needles, and to focus counseling for women on negotiating condom use with partners and the skillful and correct placement of the condom.

AQUIRED IMMUNODEFICIENCY SYNDROME (AIDS) is one of the five leading causes of death for women ages 25 to 44 in the United States. However, despite the fact that impoverished African American and Latina women comprise 78 percent of all women with AIDS in the United States (1), few studies to date have specifically addressed risk reduction in this population. Impoverished women are at increased risk for AIDS as a result of injection drug use (IDU) and unprotected sexual exposure (2,3).

Homeless IDUs are more likely to engage in injection drug use more frequently, less likely to use

new needles, less likely to clean needles, and more likely to engage in sexual behaviors with multiple partners than the nonhomeless (4). Homeless persons are also difficult to reach due to higher rates of unemployment, physical and mental illness, and physical abuse, and low self-esteem compared with the general population (5,6). Further, among homeless and impoverished minority women, in particular, little is known about salient barriers to risk reduction, and the relationship of culturally based gender roles to these barriers.

Impoverished women of color now represent the

fastest growing category of persons affected by AIDS in the United States (1). It is imperative that clinic directors, staff physicians, nurses, and other health care professionals, who provide care to increasing numbers of these women in health departments, free clinics, and less structured settings, understand the difficulties the women encounter and start to focus on assessment and followup. The purpose of this study is to present the self-reported sexual and drug use behaviors and the factors that inhibit condom use and needle cleaning among impoverished minority women who are IDUs or sexual partners of IDUs. We also examine whether risky behavior or barriers to risk reduction differ with ethnicity and level of acculturation.

Method

Sample and setting. The nonprobability sample included 256 impoverished African American women and 122 impoverished Latina women who met the following eligibility criteria:

- ages 18–69,
- English or Spanish speaker,
- identified within the last 6 months as being an IDU or a sexual partner of an IDU.

Women were excluded at the time of interview if they demonstrated cognitive impairment, as manifested by stupor, active hallucinations, and so forth. The women, who resided within the skidrow and riot-involved areas of Los Angeles, were recruited from 1 of 11 homeless shelters (40 percent), 1 of 10 residential drug recovery programs (54 percent), and by street outreach (6 percent). The 378 women described in this report were part of a larger convenience sample of more than 3,100 impoverished African American and Latina homeless and drug-addicted women who participated in two AIDS education programs lasting 1–2 hours.

Instruments. Sexual activity was measured by three items that assessed the extent to which subjects engaged in behaviors that put them at risk for the human immunodeficiency virus (HIV). Subjects were asked if they had engaged in unprotected sex in the last 6 months with anyone, and specifically with personal partners, and the number of persons they had sex with in that period.

Drug use was measured by the Drug Use Questionnaire which has been revised from the AIDS Initial Assessment Questionnaire (AIA) (7). The Drug Use Questionnaire has been tested on a population of

'The 378 women described in this report were part of a larger convenience sample of more than 3,100 impoverished African American and Latina homeless and drug-addicted women who participated in two AIDS education programs lasting 1–2 hours.'

women with a history of drug addiction, prostitution, and homelessness (8 and an unpublished 1990 report by Myers, M. H., Snyder, F. R., Bryant, E. E., and Young, P. A.: "Report on Reliability of the AIDS Initial Assessment Questionnaire"). The questionnaire records the use of nine drugs used intravenously or intradermally or orally. The drugs assessed are heroin, cocaine, amphetamines, hallucinogens, other barbiturates, marijuana-hash, designer drugs, and alcohol.

Barriers to condom use were measured by the 14-item condom use subset of the AIA (unpublished report mentioned previously). Barriers to needle cleaning were measured by a 10-item needle cleaning subset of the AIA.

A demographic form was also administered to all participants soliciting information on age, education, religion, ethnicity (selected by participant as African American or Latina), marital status, current employment, and country of birth. Assimilation to the U.S. culture was based on responses of the Latina women to a 12-item acculturation scale based on language use with a range of 12 (Spanish only) to 60 (English only) (9). The median acculturation value in the sample was 36. Latina women were classified as being of a high level (36 or more) or low level (less than 36) of acculturation. This cutpoint of 36 corresponds to being equally comfortable in English and Spanish.

Instruments were translated into the Spanish language by a bilingual researcher of Latina ethnicity; back translation from Spanish to English was performed by an independent bilingual nurse. Content and face validity and semantic equivalence between the two translations were well established (96 percent).

Procedure. Subjects in this study were recruited from June 1989 to April 1992 through a letter describing the study which was addressed to the directors of the homeless shelters and drug recovery programs. All subjects meeting the study criteria were informed of the study and assured anonymity. Those who signed

Table 1. Sociodemographic characteristics by race and acculturation of sexually active women (percentages)

Demographic characteristic	African American (N = 256)	Highly acculturated Latina (N = 93)	Less acculturated Latina (N = 29)	Total (N = 378)
Subject profile during past 6 months:				
Injection drug user only.....	40.2	35.5	27.6	38.1
Sexual partner of injection drug user only ¹	35.2	35.5	65.5	37.6
Injection drug user and sexual partner of injection drug user.....	24.6	29.0	6.9	24.3
Marital status: ¹				
Single.....	44.5	41.9	48.3	44.2
Married.....	10.2	18.3	31.0	13.8
Widowed, divorced, separated.....	45.3	39.8	20.7	42.0
Employed ²	4.7	8.7	37.9	8.2
Country of birth: ²				
United States.....	98.8	86.8	3.5	88.5
Mexico, other.....	1.2	13.2	96.6	11.5
History of sexually transmitted diseases ²	65.2	39.8	44.8	57.4
Sexually active past 6 months.....	92.6	93.6	93.1	92.9
Multiple partners past 6 months ²	68.8	50.5	27.6	61.1
Unprotected sex past 6 months:				
With anyone.....	87.5	81.7	72.4	84.9
With partner.....	85.9	79.6	58.6	82.3
Share needles.....	37.5	40.9	27.6	37.6

¹P < .01. ²P < .001.

consent forms were nominally reimbursed for their time; they were paid \$5. Of women eligible for the study, 92 percent participated. The main reason given for nonparticipation was “lack of time.”

The 311 women who engaged in unprotected sex with their partner(s) within the past 6 months were asked to complete the condom use questionnaire as it pertained to their partners. For the purpose of this study, partner was defined as the woman’s main partner as opposed to a paying client. The 236 women who reported injection drug use were asked to complete the needle cleaning questionnaire.

Data analysis. Descriptive analyses consisted of frequencies and percentiles or means and standard deviations, as appropriate. Ranking of perceived barriers was based on percentiles. Chi-square tests and analysis of variance were used to assess differences in measures as a function of race and acculturation. Logistic regression analysis was performed to estimate the independent effect of race and acculturation and the contributions of other important variables to unprotected sexual activity and needle cleaning. Because of the large number of tests involving race-acculturation, only differences that were significant at the .01 level are reported for the bivariate analyses involving this construct.

Results

The majority of women had at least an 8th grade education, with 76 percent completing high school.

Mean years of education completed was 11.5. The women’s mean age was 33.8 years, 14 percent were married, 8 percent were employed, and the vast majority—82 percent—were born in the United States. More than half—57 percent—of the women reported a diagnosis of a sexually transmitted disease. Of 378 women, 62 percent were IDUs, and 38 percent were only sexual partners of IDUs. About 24 percent of the women were IDUs and also partners of IDUs.

Injectable heroin was used by 84 percent of the 236 IDUs, while injectable cocaine was used by 56 percent. The non-injectable drug of choice for IDUs was crack (80 percent), followed by marijuana (56 percent) and alcohol (54 percent). The 142 women who were not IDUs, but were sexual partners of IDUs, were also involved in drug use within the last 6 months, namely, crack (54 percent), marijuana (31 percent), and alcohol (24 percent).

In total, 38 percent of the sample reported needle sharing. Fifty-seven percent of the 236 IDUs reported sharing their needles, while 71 percent of women who were both IDUs and sexual partners of IDUs reported the same. Eight women who said they had not used IV drugs in the past 6 months reported past sharing of needles. A little more than half (59 percent) of the 142 women who shared needles also cleaned their needles. Forty percent used bleach at least once a week, while 28 percent used bleach at least once a day. The total sample of women and the subsample of IDUs were for the most part sexually active in the last 6 months (93 percent and 90 percent, respectively).

The number of persons the subjects had had sex with over the past 6 months ranged from 0 to more than 98, with a median of 2. No differences in unprotected sex were noted between IDUs and non-IDUs. Women who reported sharing needles were not more likely to have had unprotected sex in the past 6 months than those who did not share.

Table 1 displays demographic characteristics and table 2 risk characteristics of the sample by race and acculturation. Although less acculturated Latinas were younger and less educated than African Americans and highly acculturated Latinas, they were more likely to be married and employed. Less acculturated Latinas were also more likely to be non-IV drug using partners of IDUs than African Americans or high acculturated Latinas, and less likely to have multiple sex partners. African Americans were most likely to have multiple sex partners.

Time effects. Further analyses were conducted to assess whether differences existed over the 3-year data collection period for unprotected sex or for sharing or cleaning needles. The 3-year period was analyzed in seven time segments: June to October 1989, November 1989 to March 1990, April to August 1990, September 1990 to January 1991, February to June 1991, July to November 1991, and December 1991 to April 1992. Chi-square analyses of data across these periods revealed no significant differences over the 3 years for unprotected sex or needle-sharing. However, fewer women—72—were engaged in needle cleaning activity in the fifth and sixth periods (average 22 percent) as compared with women—114—enrolled in the other periods (average 72 percent).

Perceived barriers to condom use. Table 3 shows the most and least frequently endorsed barriers to condom use with partners. The most highly rated barriers to condom use with partners included believing the partner did not have AIDS (69 percent), lack of skills in using condoms (52 percent), inability to get condoms (52 percent), lack of skills in negotiating condom use with partners (49 percent), personal dislike of condoms (47 percent), and discomfort in discussing condoms (46 percent).

African American women were more likely than Latina women to report barriers related to lack of skills in using condoms, inability to get condoms, discomfort and lack of skills in discussing condoms with partners, not thinking about condoms when high, a belief that their partner did not have AIDS, and a belief that they could not transmit HIV to their partners. There was also a trend for African Americans

Table 2. Means and standard deviation (SD) for age, education, and circumstances of unprotected sex for sexually active women by race and acculturation

Category	African American (N = 256)		Highly acculturated Latina (N = 93)		Less acculturated Latina (N = 29)		Total (N = 278)	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Age ¹	34.8	7.1	32.8	8.8	29.0	4.9	33.8	7.6
Education ¹	12.0	1.6	10.9	2.0	8.4	3.5	11.5	2.3

¹P = .001.

'Women who reported sharing needles were not more likely to have had unprotected sex in the past 6 months than those who did not share.'

to be more likely to want a baby ($P < .02$).

On the other hand, Latina women, as compared with African American women, were more likely to report partner's dislike of condoms. This barrier was found among almost three-quarters of the less acculturated Latinas.

Perceived barriers to needle disinfection. As shown in table 4, the most pervasive barrier to needle cleaning among women who shared needles was not having their own needle (62 percent). This finding was closely followed by a need to hide needles (60 percent), being high and not interested in cleaning (59 percent), and not having disinfectant available (57 percent). To a lesser extent, difficulties centered around not being in their own place (51 percent), not having boiled water available (48 percent), and having shooting partners who do not clean needles (47 percent).

The only differences between minorities were that Latina women showed a trend to be more likely than African Americans to report that too much time was needed to clean needles (50 percent versus 28 percent; $P < .02$), and that they were too sick to care about cleaning (58 percent versus 27 percent; $P < .001$) as barriers to needle disinfection.

As shown in table 5, sexually active women who reported having an injection drug-using partner, regardless of their own drug use, were more likely to engage in unprotected sexual activity than women who were only IDUs. Moreover, women who reported having multiple partners were more likely to report unprotected sex than women who reported only

Table 3. Perceived barriers to condom use with partner of 307 sexually active minority women by race and acculturation (percentages)

Barrier	African American (N = 216)	Highly acculturated Latina (N = 73)	Less acculturated Latina N = 18)	Total (N = 307)
Believe partner does not have AIDS ¹	72.7	64.4	38.9	68.7
Do not know how to use condoms ¹	61.6	32.9	11.1	51.8
Not able to get condoms ¹	61.1	27.8	28.6	51.7
Do not know how to discuss condoms with partner ¹	56.5	31.5	22.2	48.5
Do not like to use condoms	48.6	45.8	38.9	47.4
Uncomfortable talking to partners about condoms ¹	54.2	27.8	27.9	46.4
Partner does not like to use condom ¹	36.6	54.2	72.2	42.8
Can not give AIDS to partner ¹	46.3	34.3	16.7	41.7
Do not think of condoms when high ¹	41.7	30.6	0	36.6
Cannot get AIDS from partner	38.0	37.0	16.7	36.5
Partner wants a child	37.7	29.2	22.2	4.8
Want to have a baby	33.0	19.2	11.1	28.4
Partner may feel accused	24.3	30.1	29.4	26.0
Afraid of getting hurt	20.5	12.3	33.3	19.3

¹P < .01.

one partner. Curiously, homeless women were less likely to report unprotected sexual activity than women in drug recovery programs. No racial or acculturation differences were found.

When a similar logistic regression analysis was performed for needle cleaning, none of the predictors were found to be significant.

Discussion

In this study, virtually all women who were IDUs or partners of IDUs, or both, were sexually active, and more than 80 percent had unprotected sex. These findings support the contention that IDUs are not only at risk for HIV transmission from sharing needles but also from unprotected sexual intercourse (10-12).

Ample evidence of risk from injection drug use alone was also found. For example, risk of HIV infection through sharing of needles and syringes is illustrated by the fact that more than half of the African American and Latina IDUs reported sharing their works. Further, only about half of these women who shared needles made attempts to clean them. Among the most pervasive barriers they cited to cleaning their paraphernalia were not having their own needles, lack of supplies (that is, disinfectant), a need to hide their needles, and unfamiliar surroundings. Such barriers can be very difficult for impoverished women to surmount, and thus they present a clear case for increasing the supply of clean needles.

This feat could be accomplished by providing sterile needles through needle exchange programs, along with instruction on needle cleaning and the provision of bleach kits, or, at the very least, by

making low cost needles available in easily accessible places, such as drug stores, health departments, and free clinics. This accessibility may be particularly relevant for Latinas, who more often reported illness as a significant barrier to cleaning their needles.

Despite great public and social debate surrounding the assumed dangers of this practice, research indicates that the provision of clean needles does not lead to increased levels of sharing (13,14). Quite the contrary, the literature supports the contention that needle dispensing centers have actually increased the number of addicts seeking treatment (15).

Both IDUs and non-IDUs in this sample proved to be at risk based on their sexual activity. The strong belief among impoverished women that their partners do not have AIDS, an inability to obtain condoms, lack of adequate skills in using condoms, discomfort about discussing condoms, and dislike of condoms represent significant barriers to safer sex. Consequently, educational programs which provide free or low-cost condoms may be the first strategy to reduce barriers.

A second strategy might involve counseling about condom use and ways to initiate discussions about condoms with partners, followed by distribution of pamphlets with more detailed information. In particular, counseling about condom use should be client-centered, include an assessment of the client's perceived risk, and provide a demonstration of proper condom use.

A third step might be provision of, or referral to, discussion groups that focus on implementing condom use with partners at risk of contracting AIDS or other sexually transmitted diseases, and skillful and correct placement of condoms (16). However, it should be noted that women in crises are often unable

to negotiate change in sexual behaviors (17,18). Therefore, there is also a need to empower women with assertiveness skills in negotiating safer sex with partners or clients (19-21) while being mindful of the potential for physical abuse.

Finally, the need for more programs that directly address drug addiction in women and their partners always deserves mention since eliminating injection drug use would eliminate HIV risk due to exposure to contaminated needles.

Another point which deserves mention is that, despite the fact that in one study 44 percent of homeless women attend family planning clinics (22), barriers to accessing health care and to risk reducing services are nevertheless a reality (23,24). Barriers related to financial, transportation, or child care issues may be dealt with in creative ways, such as providing car pooling services and bus tokens within homeless shelters, and offering child care.

Additional strategies for delivering health education programs to this population may be to set up programs within homeless shelters or use mobile clinics where services may be provided weekly by means of a van. These strategies could be accomplished by nurses, outreach workers, or counselors specially trained in providing culturally competent sessions to impoverished women.

It should be emphasized that all literature provided to the clients should of necessity be culturally relevant and linguistically appropriate. Culturally competent strategies are necessary to motivate effectively women and their partners to reduce risky behaviors and reinforce new health-promoting behavior (18,25).

For example, the findings that African American women were particularly likely to lack the ability to obtain and properly use condoms and were very uncomfortable discussing them with their partners underscore the need for education with this population about where to obtain condoms and how to build skills and negotiation strategies with partners. Moreover, the finding that one-third of African American women perceived condoms as a barrier which interfered with their desire to bear children leads to the need to further investigate the significance children play in the lives of these women, who are surrounded by hostile environmental constraints.

Turning to Latinas, we found many women who reported their partners disliked condoms, and a third of the less acculturated Latinas said they feared physical abuse by their partners. Under these circumstances, Latinas are less likely to carry condoms or feel comfortable discussing them (26). Educators can most effectively use cultural traditions

Table 4. Perceived barriers to needle disinfection in 122 minority women who used injection drugs

Barrier	Percent endorsing
Do not have own needle	62.3
Need to hide your needle	59.8
Interested in the high, not the cleaning.....	59.0
Do not have alcohol or bleach available.....	56.6
Not at your own place	50.8
Do not have boiling water	48.4
Shooting partner does not clean needles	46.7
Too sick to care about cleaning	36.9
Takes too much time.....	35.2
Insult person whose works you are using	25.4

Table 5. Logistic regression analysis for unprotected sex among 350 sexually active women

Demographic and risk factors	Odds ratio	95 percent confidence interval	P
Injection use profile (vs IDU only): partner of IDU	2.82	1.18, 6.78	.02
Race or acculturation (vs low acculturated Latina):			
Highly acculturated Latina74	0.22, 2.49	> .05
African American	1.85	0.55, 6.20	> .05
Age (vs less than 35 years):			
≥ 35 years	2.00	0.78, 5.15	> .05
Share needles: yes	1.20	0.49, 2.92	> .05
Multiple partners: yes	3.05	1.30, 7.16	.01
Site (vs drug recovery):			
Homeless.....	0.21	.08, .53	.001

in a facilitative way with Latinas by linking condom use to the male's role as protector of the family and enlisting the help of male partners in promoting protective behavior (16,27,28).

In this study, 83 percent of the women thought they could reduce their risk of AIDS, and 39 percent were extremely worried about getting AIDS. These figures indicate that these women may be quite receptive to risk reduction strategies. An investigation of the support networks of the women and consideration of strategies to build self-esteem are also warranted. Most important, by being advocates for vulnerable women at risk for AIDS and creating a health-supportive environment, AIDS prevention and treatment strategies can be enhanced.

This study is limited by the fact that the sample is nonrandom and includes only a small number of Latina women and relatively few homeless shelters and drug recovery programs in the Los Angeles area. Therefore, one should be cautious in generalizing findings related to Latinas with a low level of acculturation, in particular, and in generalizing overall results to the population of homeless and

'These findings support the contention that IDUs are not only at risk for HIV transmission from sharing needles but also from unprotected sexual intercourse.'

drug-addicted in Los Angeles and other areas of California. Generalizing outside the West Coast area would be particularly problematic given the differences in ethnic mix, drug use patterns, and AIDS prevalence. However, this study does serve as a step in providing health professionals and educators with specific data that can be used to inform their care of women involved with injectable drugs.

References

1. Centers for Disease Control and Prevention: HIV/AIDS surveillance. Atlanta, GA, January 1993.
2. Cochran, S. D.: Women and HIV infection: issues in prevention and behavior change. *In* Primary prevention of AIDS: psychological approaches, edited by V. Mays, C. Albee, and S. Schneider. 1989, pp. 309-329.
3. Krueger, L., Wood, R., Diehr, P., and Maxwell, C.: Poverty and HIV seropositivity: the poor are more likely to be infected. *AIDS* 4: 811-814 (1990).
4. McLeod, J., and Kessler, R.: Socioeconomic status differences in vulnerability to undesirable life events. *J Health Soc Behav* 31: 162-172 (1990).
5. Nelson, M., and Mondanaro, J.: Health promotion for drug dependent women. *In* Treatment services for drug dependent women. DHHS Publication No. (ADM) 87-1219. National Institute on Drug Abuse, Rockville, MD, 1987, pp. 247-302.
6. Wofsy, C.: Human immunodeficiency virus infection in women. *JAMA* 257: 2074-2076, Apr. 17, 1987.
7. National Institute on Drug Abuse: AIDS assessment questionnaire. National AIDS Demonstration Research Project, AFA-1.0. October 1988.
8. Nyamathi, A., et al.: Outcomes of specialized and traditional AIDS counseling programs for impoverished women of color. *Res Nurs Health* 16: 11-21 (1993).
9. Marin, C.: Development of a short acculturation scale for Hispanics. *Hispanic J Behav Sci* 9: 183-205 (1987).
10. Khalsa, H., Kowalewski, M., Anglin, M. D., and Wang, J.: HIV-related risk behaviors among cocaine users. *AIDS Educ Prev* 4: 71-83 (1992).
11. Masur, H., et al.: Opportunistic infection in previously healthy women: initial manifestations of a community-acquired cellular immunodeficiency. *Ann Intern Med* 97: 533-537 (1987).
12. Nutbeam, D., Blakey, V., and Pates, R.: The prevention of HIV infection from injecting drug use—a review of health promotion approaches. *Soc Sci Med* 33: 977-983 (1991).
13. Brettell, R. P.: HIV and harm reduction for injection drug users. *AIDS* 5: 125-136 (1991).
14. Stimson, C. V.: Syringe-exchange programs for injecting drug users. *AIDS* 3: 253-260 (1989).
15. The public health impact of needle exchange programs in the United States and abroad. University of California, Berkeley, 1993.
16. Schilling, R., et al.: Building skills of recovering women drug users to reduce heterosexual AIDS transmission. *Public Health Rep* 106: 297-303, May-June 1991.
17. Mays, V., and Cochran, S.: Issues in the perception of AIDS risk and risk reduction activities by black and Hispanic/Latina women. *Am Psychol* 43: 949-956 (1988).
18. Ulin, P.: African-American women and AIDS: negotiating behavioral change. *Soc Sci Med* 34: 63-73 (1992).
19. Mondanaro, J.: Strategies for AIDS prevention motivating health behavior in drug dependent women. *J Psychoactive Drugs* 319: 143-149 (1987).
20. Ting, D., and Carter, J.: Behavioral change through empowerment: prevention of AIDS. *J Natl Med Assoc* 84: 225-228 (1992).
21. Worth, D.: Sexual decision-making and AIDS: why condom promotion among vulnerable women is likely to fail. *Stud Fam Plann* 20: 297-307 (1989).
22. Shuler, P.: Homeless women's wholistic and family planning needs. Doctoral dissertation, University of California, Los Angeles, 1991.
23. Gelberg, L., and Linn, L.: Assessing the physical health of homeless adults. *JAMA* 262: 1973-1979, Oct. 13, 1989.
24. Gelberg, L., and Linn, L.: Psychological distress among homeless adults. *J Nerv Ment Dis* 177: 29 (1989).
25. Nyamathi, A., et al.: AIDS-related knowledge, perceptions, and behaviors among impoverished minority women. *Am J Public Health* 83: 65-71 (1993).
26. Marin, B., and Marin, G.: Predictors of condom accessibility among Hispanics in San Francisco. *Am J Public Health* 82: 592-595 (1992).
27. Kline, A., Kline, E., and Oken, E.: Minority women and sexual choice in the age of AIDS. *Soc Sci Med* 34: 447-457 (1992).
28. Marin, G.: AIDS prevention among Hispanics: needs, risk behaviors, and cultural values. *Public Health Rep* 104: 411-415, September-October 1989.