Title

Characteristics of sheltered homeless women in San Francisco and their HIV-related knowledge, attitudes, and behaviors

Author

Hauer, Karen,

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CHARACTERISTICS OF SHELTERED HOMELESS WOMEN IN SAN FRANCISCO AND THEIR HIV-RELATED KNOWLEDGE, ATTITUDES, AND BEHAVIORS

by

Karen Hauer, MSIV

A Thesis

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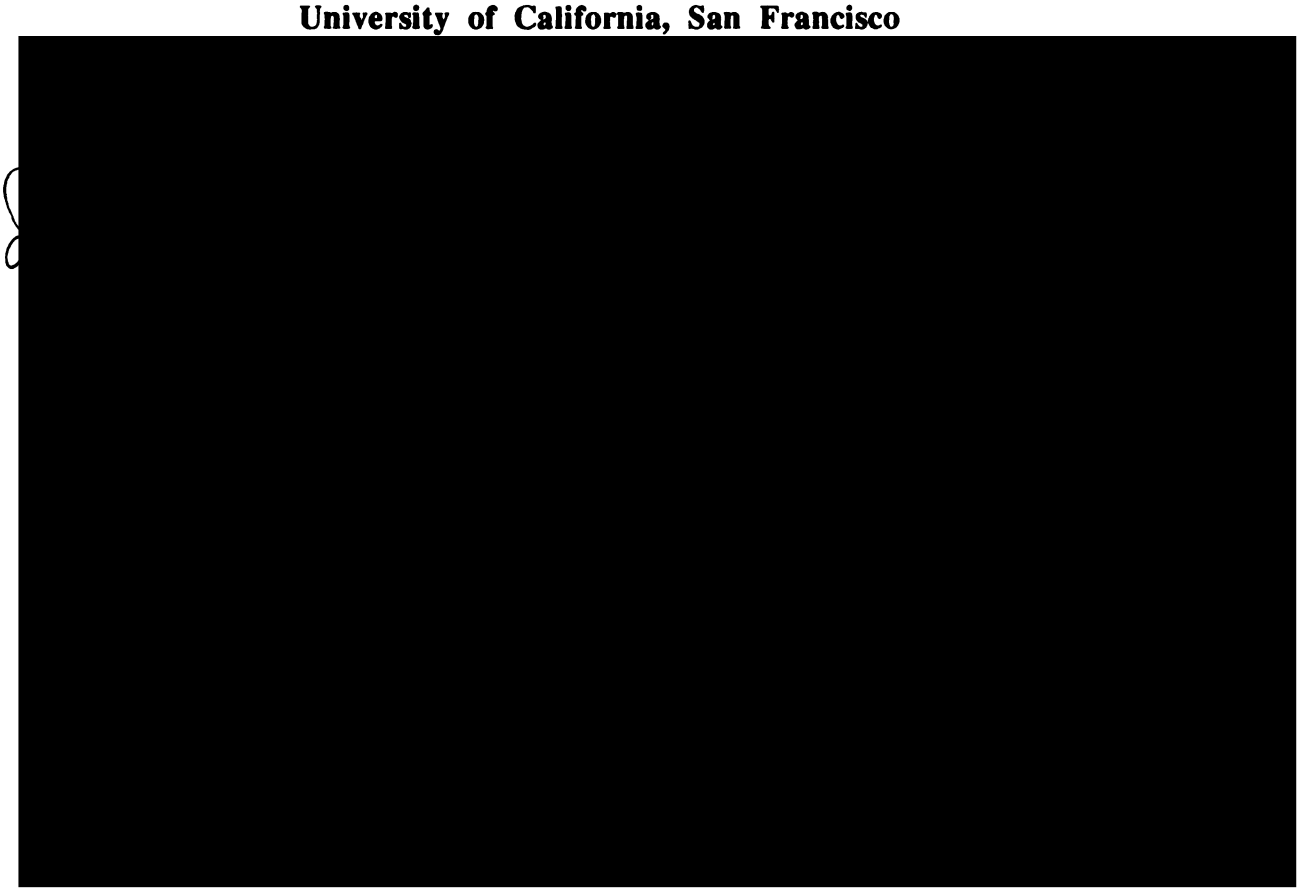

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ABSTRACT

Background: Homeless women may be at high risk for HIV infection because of unsafe sexual practices, intravenous drug use and inadequate health care. This study characterizes sheltered homeless women and investigates their HIV risk factors to identify predictors of high risk.

Methods: We interviewed 120 sheltered homeless women in San Francisco regarding demographics, reasons for homelessness, health status, medical care, substance use, sexual behaviors, and knowledge, attitudes, and behaviors concerning AIDS. Women were categorized as high-risk for HIV infection if they were currently injecting drugs, having multiple sex partners or a high-risk partner, or having sex for money or drugs.

Results: Fifty-eight percent of women scored above 90% on an HIV knowledge test and nearly all recognized the three major modes of HIV transmission. Although the women believed that AIDS is a serious problem requiring public education, only 40% identified AIDS as a major personal concern, with food and shelter being more common concerns. However, 33% of women admitted to prior intercourse with a high-risk partner, 28% had exchanged sex for money or drugs in the past year, and only two women, both of whom knew they were seropositive, felt their risk of AIDS exceeded 50%. Forty-five percent were categorized as currently high-risk for HIV. Living without children (OR = 4.9, 95% CI = 1.5, 15.4) and younger age (OR = 1.9, 95% CI = 1.2, 2.8) were independent predictors of high-risk behavior.

Conclusions: Despite good understanding of HIV transmission, many homeless women currently practice behaviors that place them at risk for HIV infection. Public education must emphasize recognition of personal risk and behavioral modification skills as well as the dissemination of factual information to facilitate risk reduction.

INTRODUCTION

Although it is impossible to determine the number of homeless persons with precision, this segment of the population is clearly increasing.[1] It is estimated that there are up to three million homeless persons in the United States.[2] In San Francisco, there are approximately 6,000 homeless persons on any given day.[3] In addition to individuals who are currently homeless, other members of society are acutely vulnerable to homelessness, living on the margin either economically, mentally, or physically.[4] For these people, a seemingly small acute event may push them over the edge into homelessness. In a 1987 survey of 29 major United States cities, every one cited inadequate affordable permanent housing as a main contributor to homelessness.[2] In San Francisco, housing units and job opportunities decreased dramatically in the 1980s due to federal cutbacks and disjointed employment programs.[5]

The traditional image of the skid row homeless -- the middle-aged alcoholic male -- has diversified in the past 20 years to encompass a more heterogeneous group of people, including those who are younger, better educated, or from minorities, as well as both males and females.[1] In particular, women constitute a growing percentage of the homeless population, up from virtually zero 40 years ago to approximately 25%.[1] One third of the homeless in this country are families, usually headed by women, and an additional 12% of the homeless are single women.[2]

Although some have cited a single factor such as the lack of affordable housing or the deinstitutionalization of the mentally ill as the cause of the expanding homeless population, female homelessness appears to result from a complex interaction of many factors. The increasing percentage of women among the homeless has been attributed inadequate housing, deficient social service programs, a lack of jobs and job skills, failure of welfare entitlements to increase with inflation, substance abuse, and

victimization.[5,6] Deficiencies in housing and social services have had particularly dramatic impact on women with children because families need larger living spaces, more income, and child care. Many shelters for the homeless require guests to leave each day and then wait in long lines to check in again each night for a bed.[2] Sheltered and nonsheltered homeless women also have safety concerns that are exacerbated by their unstable living environments. This type of unstable living situation adds to the safety concerns of homeless women, promotes short term stays, and limits free time during the day that could be used to seek employment or benefits. For unsheltered homeless women and for women staying temporarily with friends or family, the lack of a stable address hinders applications for jobs or aid.

Homeless women are far more likely than housed poor women or men to report a history of domestic violence, including child abuse.[7,8] However, the prevalence of sexual abuse among the homeless and the long term effects of sexual abuse on homelessness have not been well-studied. Previously reported prevalence rates of sexual abuse among all women vary widely, from 3.5% to 50%.[9-11] A history of sexual abuse has been associated with multiple adverse outcomes, including chronic pelvic pain, headache, psychiatric disorders, gastrointestinal disorders, increased lifetime surgeries, and multiple somatic complaints.[9,12-14] Child sexual abuse among women has also been linked to high risk behaviors such as prostitution and teenage pregnancy.[15]

Homeless and poor women represent a group at particularly high risk for HIV infection. The absolute number of AIDS cases in women has increased every year from 1981 to 1991.[16,17] Through 1990, 9.8% of AIDS cases in this country occurred in women and 73% of those occurred in non-whites.[16] AIDS is now the leading cause of death among young black women in the United States.[18] In 1990, 48% of women

diagnosed with AIDS were infected through injection drug use (IDU) and 22% from sexual intercourse with an IDU partner.[16] The proportion of AIDS cases attributed to heterosexual activity in this country was 7% among the second 100,000 persons diagnosed with AIDS in this country, a 44% increase compared to the first 100,000 persons.[19]

Homeless women are at high risk for AIDS since the factors that contribute to homelessness include behaviors that can lead to both HIV infection and continued poverty. The increasing numbers of homeless women suffer many stresses, such as housing instability, employment problems, and victimization.[20] The rate of alcoholism among homeless women is estimated to be 2-15 times higher than among the general population.[7,21,22] Estimates of drug use among the homeless vary widely, although the rate is likely to be 25-50%.[22,23] Homeless women exhibit high rates of IDU, a behavior which is associated with a 2% conversion rate to HIV seropositivity per year among IDUs in treatment in San Francisco.[24,25] Women, the homeless, and people not in treatment are a group of IDUs even more likely to become HIV-infected.[25,26] Women using alcohol or any drugs may have lowered inhibitions or economic pressure to support their habits, two risk factors for unsafe, unplanned sexual activity. Also, women at risk for AIDS based on their own and their partners' IDU are unlikely to use condoms during sexual intercourse.[27]

Although approximately 14% to 30% of HIV positive pregnant women will transmit the virus perinatally,[28-30] the impact of this knowledge on pregnant women is debatable. The decision to become pregnant or to prevent pregnancy can be influenced by cultural norms and expectations as well as by a perceived risk of AIDS or other disease to oneself or one's child. Among a group of HIV positive intravenous drug-using women, half chose to continue their pregnancies despite knowing that they were

HIV positive.[31] The best predictors of the decision to continue or terminate the pregnancy were cultural and emotional factors including whether the pregnancy was planned, the woman's initial feelings about the pregnancy, family pressure, and religious beliefs.

Without regular medical visits, homeless people may be unaware of their own risk for HIV infection. Homeless people receive inadequate and sporadic health care, due to factors such as lack of financial coverage, distrust of the health care system, and lack of knowledge concerning the importance of ongoing care. When comprehensive physical examinations were performed on homeless persons in Baltimore, the women were found to have an average of 9.2 medical problems, and only 30% could identify a usual source of health care.[21] A study of access to health care among Los Angeles homeless individuals reported that only 13% of subjects had a particular doctor at a regular site.[32] Many homeless people with HIV infection do not seek medical help until they become seriously ill, despite the fact that quality care of HIV infection requires continuity and early treatment. In the United States, health care and social services have traditionally been designed to respond to crisis situations rather than to rehabilitate individuals with chronic problems.[33,34] Physician reimbursement is greater for treatment of an acute illness than for preventive education. In addition to the already homeless individuals who then become HIV-infected, other people with AIDS are at high risk for becoming homeless because of their inability to work, high medical bills, and covert discrimination by landlords or shelter staffs.[35]

Taken together, the studies on homelessness and HIV infection suggest that homeless women are a unique group with characteristic concerns and needs. This research study was designed to compile a standardized data base about sheltered homeless women to aid physicians, social service providers, and health educators in

targeting their services appropriately. The specific goals of this study were to: (1) characterize sheltered homeless women in San Francisco, including their demographic characteristics, health status and care, drug and alcohol use, and history of sexual abuse; (2) assess homeless women's knowledge, attitudes, and behaviors regarding HIV/AIDS; (3) categorize women according to current risk for HIV infection; and (4) identify predictors of high risk behavior.

METHODS

Study Subjects

One hundred twenty women were interviewed in July and August of 1990 at three shelters for the homeless in San Francisco, representing the three largest concentrations of homeless women in the city. Eligible subjects were Spanish and English speaking women aged 18 and over who were staying overnight at one of the shelters at the time of the interviews. Exclusion criteria were inability to give informed consent or to complete the interview, or being a transsexual genetic male.

The first twelve (10%) study subjects were volunteers. After appreciating that this strategy could select for women who were more intelligent, outgoing, or trusting, we converted to systematic random sampling. The interviewers counted every 'n' bed numbers or seats in the shelters' common areas to obtain a sample of approximately three subjects per site per visit and asked those women to participate. To ensure anonymity, only verbal consent was obtained. The UCSF Committee on Human Research approved the verbal consent procedure based on the sensitive nature of many of the interview questions pertaining to HIV status, illicit drug use, and sexual behaviors. Each subject was reimbursed ten dollars for completing the interview.

Interviews

Three female interviewers conducted structured interviews lasting approximately 45-60 minutes. Each interviewer worked primarily at one shelter to avoid duplication of subjects. Topics included demographic data (age, ethnicity, education, marital status, and whether the subject was living with her children), employment history, amount and sources of income, reasons for homelessness, duration of homelessness, physical and mental health history, perceived health status, source and financing of medical care, alcohol and drug use, sexual behavior (numbers of past and current partners, partners' known HIV-risk factors, condom use, prostitution, and history of sexual abuse), and use of social and other services (e.g., drug or alcohol treatment programs). A series of questions assessed the subjects' knowledge and attitudes concerning HIV/AIDS. A 17-item test of HIV knowledge consisted of true/false and multiple choice items regarding viral transmission, disease outcome, and misconceptions (see Table 3).

Analysis

Statistical significance of dichotomous variables was assessed using odds ratios, prevalence ratios, and the Chi-square statistic. Subjects were categorized according to current HIV risk behavior. High risk was defined as IDU, multiple sexual partners, or a high risk partner (bisexual, HIV-positive, or IDU) in the past three months, or sexual intercourse for money or drugs in the past year. All other women were categorized as low current risk. Statistical significance of continuous variables was assessed using the student's t-test and analysis of variance. We used multiple logistic regression as implemented in PROC CATMOD of the Statistical Analysis System[36] for the multivariate analysis. Adjusted estimates of the odds ratios were calculated for current risk for HIV infection by taking the antilog of the beta coefficients (e^B) from logistic regression, and corresponding 95% confidence interval estimates were calculated.

RESULTS

Study Subjects

Approximately two-thirds of the women who were approached agreed to participate in the study. At shelter #2, it was possible to interview all willing residents. Overall, the study population was 58% African-American, 33% white, 4% Hispanic, and 5% other. The mean age was 36 years (range 19-62, S.D. 10.1). Two thirds had completed high school and one quarter had attended some college. Twelve percent were currently married and 46% were separated or divorced. Slightly less than half the women were born in California and 34% had lived in San Francisco less than one year.

Eighty-five percent reported having ever worked full time. The most commonly cited reasons for current unemployment were quitting the last job (46%), substance abuse (25%), and moving (25%). The largest source of income was public assistance for 74% of women, although 9% identified either panhandling, prostitution, or selling drugs as their single largest income source. Less than half (41%) had spent most nights over the past three months in a shelter, with other common sites being a temporary hotel (17%), with family or friends (13%), and her own apartment (10%). The most frequently reported reasons for homelessness included family problems (48%), substance abuse (33%), and medical problems (28%). Only 5% of women stated that their families were homeless when they were children and 80% were from families whose main income was derived from employment.

Table 1 contains a description and comparison of the women living at each of the three homeless shelters. Statistically significant differences between sites included: women at shelter #1 were more likely to have scored high on the test of HIV knowledge; women at shelter #2 were younger, were more likely to have a total

monthly income over $500, and were the only women who currently had children living with them; and women at shelter #3 were more likely to have lived in San Francisco for more than one year. Due to these differences between shelters, all multivariate analyses controlled for the influence of shelter residence. Women at the three shelters were similar with regard to education, ethnicity, lifetime length of homelessness, having a regular doctor, history of hospitalization for a mental health problem, and history of participation in a drug or alcohol treatment program. Because the twelve volunteers did not differ significantly from non-volunteers in terms of age, education, ethnicity, income, lifetime length of homelessness, time living in San Francisco, history of overnight treatment in a mental health institution, having a regular doctor, or HIV knowledge score, volunteers and non-volunteers were both included in the study population.

Health care

Almost half the women (48%) self-rated their health as good or excellent, but 60% believed their health to be worse than that of their peers. Overall, 47% reported having at least one major current medical problem (e.g., arthritis, asthma, or hypertension), and 32% stated that their health kept them from working. Approximately half the women (48%) stated that they had ever had an HIV test, although only two reported a known positive result. Forty-two percent of women had some form of health insurance; 92% of those insured had Medicaid and 8% had Medicare. One fourth of the women had no regular source of health care and half identified a free clinic or the county emergency room as their regular source of care. Almost half of all women had been pregnant by age 18. Overall, 84% had ever been pregnant and 21% of those reported greater than five lifetime pregnancies. However, only 5% of women had given birth to five or more children.

Current cigarette use was reported by 74% of women, two thirds of whom began smoking before age 18. Ninety-two percent were currently using alcohol, and 20% considered themselves alcoholics. Questions regarding lifetime use of various drugs revealed that the most commonly used substances were marijuana (66%), crack (52%), cocaine (50%), barbiturates (42%), stimulants (37%), hallucinogens (25%), and narcotics (22%). Twenty-nine percent reported having ever injected drugs. Thirty-three percent reported past hospitalization for a mental health problem and 23% reported having attempted suicide. Twenty-six percent of women felt that they had no one close to them that they talked to regularly and 30% could identify only one such person. Eighteen percent of women stated that, when faced with a problem, they did not talk to anyone. Among the women who did consult another person with a problem, the most frequently named individuals were a husband or boyfriend (24%), followed by a social worker (21%); 7% named their children.

Service Utilization

The social and rehabilitative services most frequently used by women in the past included social workers (67%), housing placement (41%), and women's support groups (33%). When offered a list of services and asked "Would you use this service now if it were available," the most commonly cited items among women who had not previously used them were housing placement (80%), legal aid (68%), educational programs (66%), and job training (66%). Only 8% of women had ever used child care; many explained anecdotally that they would not trust anyone with their children. Among women who had never used each of the following types of substance abuse programs, some women admitted that they would participate if such programs were available to them now, including narcotics anonymous (19%), "drug treatment" (16%), methadone maintenance (10%), alcoholics anonymous (10%), and alcohol detoxification (9%).

Sexual Abuse

Response rates ranged from 97% to 98% for questions regarding sexual abuse (the remaining women declined to respond). Fifty percent of women reported having been sexually abused before age 18 and 44% reported sexual abuse since age 18. Fifteen percent of women reported being sexually abused while homeless. Over 60% of women responded to questions regarding the identity of the abusers. The reported child abusers were father/stepfather/mother's boyfriend in 24% of cases and other relatives in 46%. In contrast, among women abused as adults, all family members (excluding partner) comprised only 7% of abusers. For these women, strangers were 53% of abusers, friends 22%, and partners 9%. Just over half of the adult victims reported having had medical examinations immediately after the abuse and approximately one third of all women victimized during their lifetimes reported having ever talked to a counselor about the experience.

Table 2 illustrates the relationship of history of childhood sexual abuse to various outcomes. Women reporting childhood sexual abuse were significantly more likely to: not have attended college; have lower perceived health status; have increased lifetime use of crack, cocaine, and stimulants; score higher on a test of HIV knowledge; and have a history of at least one sexually transmitted disease (STD). These women were also more likely to report that medical or family problems were reasons for their homelessness, to have ever injected drugs, and to have used barbiturates and LSD, although these items did not reach statistical significance. No differences were found in terms of ethnicity, institution, other sexual behaviors including age at first pregnancy, mental health, or social connectedness.

HIV Knowledge

HIV knowledge scores on each of the 17 items are shown in Table 3. Overall scores were high, with the 58% of women who scored above 90% being categorized as having a "high HIV knowledge" score. On a series of true/false questions assessing knowledge of HIV infection and AIDS, nearly all (96%) women answered correctly concerning the existence of a blood test to detect HIV infection. Nearly all women also recognized the three major modes of transmission: via sexual intercourse (95%), perinatally (93%), and via needle use (93%). Eighty-three percent correctly identified that condom use can lower the risk of HIV transmission during sexual intercourse, and 97% agreed that a person is likely to get AIDS from sexual intercourse with a person with AIDS without using a condom. However, there were misperceptions about other modes of transmission. Fifty-six percent thought the virus could be transmitted by donating blood, 38% by mosquitos, and 15% by shaking hands.

A high score on our test of HIV knowledge had a statistically significant association with a history of participation in a drug or alcohol treatment program ($p = .01$) and with disagreement with the statement "There's nothing I can do about whether or not I get AIDS" ($p = .003$). There was borderline statistical significance suggesting that non-African-American, non-white women were more likely to score low on the HIV knowledge test ($p < .05$). However, there were only twelve women in this group and they were ethnically heterogeneous. There were no significantly significant differences in HIV knowledge scores in terms of age, educational level, or perceived risk of HIV infection.

HIV Attitudes

Subjects were presented with eleven different practical issues and asked to rate each item according to how often they worried about it. The items most frequently

cited as concerns "often" or "all the time" were money (81%), having somewhere to sleep (65%), their health (54%), and having enough food (49%), with AIDS being a major worry for only 40% of women. However, when presented with a list of statements only about AIDS, 82% of women disagreed with the statement "I have so many other things in my life to worry about that AIDS just isn't important." The mean score for the AIDS attitude questions combined (4.2 out of a maximum of 5.0) indicates that women believe that AIDS is a serious problem and that AIDS education is worthwhile. Although most women agreed with statements that they would like themselves and their partners to learn more about AIDS, one-fourth agreed that "most people worry more than they need to about AIDS." Only two women, both of whom knew that they were HIV positive, felt that their risk of contracting AIDS was greater than 50%. Half the women believed that they knew someone who was HIV positive or had AIDS, and an additional 9% were not sure.

HIV-Related Behaviors

Subjects were categorized according to current HIV risk behavior based on IDU and sexual behaviors. High risk was defined as IDU, sexual intercourse with multiple partners, sexual intercourse with a high risk partner, or sexual intercourse for money or drugs. Despite good knowledge of HIV, the women admitted to multiple high risk behaviors. Forty-five percent of women were categorized as currently at high risk for HIV infection. Thirty-four percent of women had never used condoms and only 24% reported consistent condom use during vaginal intercourse. Twenty-nine percent had a history of injecting drugs, although only 6% reported IDU within the past three months. All 35 women with a history of IDU had shared needles with multiple people. Thirty-three percent of women admitted to prior sexual intercourse with a high risk partner (bisexual, IDU, HIV-positive) and 28% had exchanged sex for money or drugs in the past year. Forty-seven percent of women stated that they had a steady sexual partner,

although 36% of those had been with that partner for no more than one month and 67% had been with that partner for no more than one year. The percentage of respondents reporting that they *always* ask a new sexual partner before having sex for the first time about his HIV risk factors was 42% for condom use, 40% for a history of STDs, 33% for current IDU, 32% for other sexual partners, 27% for lifetime IDU, and 24% for a diagnosis of being HIV-positive or having AIDS.

The relationship of current risk for HIV infection to demographic variables is shown in Table 4. Women at increased current risk were more likely to: be younger, have been homeless more than one year, have a history of participation in a drug or alcohol treatment program, cite drug problems as a reason for their homelessness, score higher on a test of HIV knowledge, and have slightly higher perceived risk of acquiring AIDS. There was no significant association between high current risk and ethnicity, education, history of sexual abuse, overnight treatment in a mental health institution, or having a regular doctor. Logistic regression analysis showed that living without dependent children differentiated high risk women from all others (OR = 4.9, 95% CI = 1.5, 15.4) after controlling for age, ethnicity, institution, history of hospitalization for a mental health problem, history of suicide attempt, history of participation in a drug or alcohol treatment program, and HIV knowledge score. Logistic regression also showed that high risk women were more likely to be younger (OR = 1.9, 95% CI = 1.2, 2.8) after controlling for ethnicity, education, institution, history of hospitalization for a mental health problem, history of suicide attempt, history of participation in a drug or alcohol treatment program, living without dependent children, and HIV knowledge score.

DISCUSSION

Overall, the ethnic breakdown of our study population was 33% white, 58% African-American and 9% other. African-Americans were overrepresented in our sample relative to a comparison population of all California adults, of which 72% are white and 7% are black.[37] Only 12% of our sample were married, and 46% were separated or divorced. In contrast, 54% of all California women are married and only 9% are separated or divorced.[38] The educational level of the homeless women we interviewed was fairly high; the 66% high school completion rate is identical to a prior study of impoverished California adults and comparable to all California adults.[38,39] Many of the women we surveyed were long-term residents of San Francisco; 32% had lived in the county one to four years and 47% had lived there greater than five years. These findings approach the characteristics of participants in a study of San Jose impoverished adults, with 17% having lived in the area one to four years and 78% having lived there greater than five years.[39] Our demographic data demonstrates that the sheltered homeless women in our sample are not only educated but also employable, with 85% having worked full-time in the past. Ninety-five percent of the homeless women in our study were not raised in homeless families. A previous study showed that housed poor women were more likely to have been raised on welfare than homeless women.[7] The authors hypothesized that women raised on welfare are more knowledgeable about benefits available to obtain food and shelter.

On our 17-item test of HIV knowledge, our study population scored highest on items identifying the three major modes of transmission of the virus, the facts that we considered most important for disease prevention. The high HIV knowledge level observed in our sample is comparable to that of other population groups. In a 1989 survey of 40,609 United States adults, 83% identified sexual intercourse as a means of HIV transmission, 81% identified perinatal transmission, and 95% identified

intravenous drug use,[40] compared with 95%, 93% and 93%, respectively, in our homeless sample. In a study of female sex partners of IDUs, over 97% identified the three major modes of transmission.[41] Another national survey in 1990 demonstrated that awareness of the HIV antibody test was lower among African-Americans and Hispanics than white adults.[42] In contrast, 96% of the women in our study were aware of the blood test to detect the AIDS virus, including 99% of African-Americans. The misperceptions about viral spread via insects or casual contact evidenced in our study are also similar to the knowledge level among the general population.[42]

Forty-five percent of study subjects were categorized as high risk for HIV infection based on their current sexual practices and IDU. Injection drug use is common among the homeless and has been identified as a potential cause of persistent homelessness.[43] However, homeless women are at risk not only because of their own IDU but also because of their sexual behaviors and the behaviors of their sex partners. Poor and homeless men have even higher rates of high risk behaviors, including IDU and bisexual intercourse, than their female counterparts.[21,44] Despite the prevalent high-risk behaviors in this population, the rates of perceived HIV risk are similar to a comparison population of US women aged 15-44.[45] Among the national sample, 4% believed they had a strong chance of infection and 77% perceived their risk to be low or zero (compared to 2% and 69%, respectively, among our sample).

Our findings suggest that, among homeless women, those at high risk for HIV infection were more likely to: be younger, have a longer history of homelessness, report a history of substance abuse treatment, cite substance abuse as a reason for their homelessness, have greater knowledge concerning HIV, and have a somewhat greater perceived risk of HIV infection. Only 6% of our sample reported IDU within the past 3 months; the remainder of the high risk group reported high risk sexual activity. These

findings are consistent with a national trend from 1985 through 1992 among women with AIDS toward a decreasing proportion of IDUs (56% to 45%) and an increasing proportion of heterosexually-acquired infections (19% to 39%).[16,46] Unprotected sex among poor and minority women is common, particularly among women in a currently monogamous relationship with a high risk partner.[47] In addition, the monogamous relationships among this unsettled population are often very brief, as evidenced by the high number of women in our study stating that they had been sexually active with their steady partners for only weeks or months. Women who view each relationship, however brief, as a monogamous commitment, may be less likely to view themselves as having multiple partners and therefore less likely to understand the implications for HIV risk.[27] Within and outside of these relationships, poor and homeless women may feel that sexual intercourse is their only means to raise money for shelter and food, two major concerns cited by women in our study.

Our findings demonstrate that AIDS knowledge does not necessarily correlate with a reduction in high risk behaviors. The women in our study who had the best HIV knowledge were more likely to be in the high risk group based on current behavior. Because these women were also more likely to have participated in substance abuse treatment programs, it is possible that they learned about HIV infection in these formal settings. Although many other authors have examined knowledge and behavior change regarding HIV infection among subsets of the population, data on the homeless is scant. In a descriptive study of homeless pregnant women in New York City, sixteen of twenty were unable to suggest methods of HIV risk reduction.[48] A larger study of African-American and Latina women showed that the majority answered correctly when asked about different methods of HIV transmission.[49] In Massachusetts, two thirds of IDUs and 95% of adults continuing to have unprotected sex were aware that their behaviors could transmit HIV.[50] A study of culturally diverse women

demonstrated that women in all ethnic groups continued to have unprotected sex with their main partners independent of AIDS knowledge.[47] Taken together, these studies suggest that the reasons for persistent risky behaviors must be identified so that HIV prevention programs for homeless women can supplement health education information with appropriate techniques to facilitate behavioral change.

One model of risk reduction has proposed that individuals must have knowledge of HIV transmission, motivation to reduce personal risk, and the specific behavioral skills to implement change.[51] Women who perceive themselves at risk for AIDS and worry about AIDS are more likely to report behavioral change.[52-55] The low perceived risk in our sample combined with the great concern for food, shelter and money could diminish the women's motivation to change their behaviors. Poor women in particular may need to continue high risk sexual activity to obtain money, shelter, or drugs. Substance abuse also directly impairs judgment and lowers inhibitions, thereby encouraging unsafe sex.[56,57] Women who don't use drugs but either knowingly or unknowingly associate with users are also at risk because male IDUs often prefer to have sex with non drug-using women, who are perceived as more attractive and less risky.[58]

The use of condoms to lower disease risk has been studied among many populations. Low self-esteem and low self-empowerment among poor and minority women prevent successful negotiations for history-taking and condom use with male partners.[27,59] Although these women perform well on tests of specific facts regarding AIDS, they may not have the interpersonal skills or practical insight to apply the information to real-life situations. Sexual communication skills are critical to consistent condom use.[60] Many women at risk state that they do not use condoms because they or their partners feel that the enjoyment of sex is diminished.[60,61] In the Hispanic culture,

condom use is viewed as the man's decision, and women who advocate condom use are often perceived as loose or distrusting.[54] In an unpredictable community where relationships are often tenuous, homeless women may feel hesitant to jeopardize their partner's attention by requiring condom use.[61]

Our health care data reveal that about half the women considered their health to be fair or poor, and three-quarters had no regular doctor, excluding free clinics or emergency rooms. The prevalence and severity of substance abuse problems were illustrated in the high rate of admitted alcoholism (20%) and in the frequent identification of substance abuse as a reason for current unemployment (25%) and homelessness (33%). Previous research has suggested that substance abuse constitutes the most common health disorder among the homeless.[21] Similarly high rates of mental health disorders in our sample are suggested by the prevalence of reported hospitalization for mental health problems (33%) and attempted suicide (23%). Although we did not pursue specific psychiatric diagnoses in our sample, others estimate that over one third of homeless women suffer from major mental illness.[22,62] Furthermore, 10% to 20% carry dual diagnoses of mental illness and substance abuse disorders.[62]

Victims of these mental health and substance abuse disorders who need welfare aid and social services do not reliably receive benefits because our system does not consistently view mental health disorders and addiction as disabilities similar to medical illness.[1] The multiple disorders and stresses plaguing homeless women and families necessitate a coordinated health care plan to ensure completeness and continuity of care. Providers experienced in homeless health care are best able to recognize other special problems of the homeless, including high rates of trauma, infestations, exposure related problems, respiratory disease, and poor health habits such

as cigarette smoking.[34,43] Our findings also demonstrate the instability and social isolation homeless women face; health workers can serve as a consistent source of interest and advice as well as medical care.

The patterns of service utilization and desired services among our sample are somewhat disparate. Services already accessed by women consist predominantly of supportive services such as social workers and support groups, although the women desire practical help with education, legal problems, and job skills. Although homeless women have been shown to be more likely than men to have used social services,[63,64] our findings indicate that women continue to have multiple unmet needs in addition to social support. Anecdotal evidence from our interviews suggests that homeless women have additional concerns that can prevent them from taking full advantage of existing service opportunities. The women who commented that they would not be comfortable using any type of child care may have felt unable to trust another person with their children or may have worried about the risk of child protective services involvement because of the mother's illicit behaviors. The acceptability of child care and other services will influence their successful utilization by the poor women who need them. Ultimately, working poor mothers must arrange and fund child care, necessitating a somewhat flexible and higher-paying job.

To obtain social service aid and employment, poor women must overcome discrimination and understand complex financial and legal systems. The prevalent stereotype that mothers on welfare do not want to work and prefer to have many children to increase their benefits did not hold for our sample. Only 5% of women had given birth to five or more children, whereas 66% desired job training and 66% desired an educational program. Unemployed women searching for jobs face additional barriers to those encountered by men.[5] Discrimination and negative reinforcement can

decrease women's motivation to apply for and maintain employment. Homeless women may perceive more individualized assistance as more accessible or less intimidating than a large bureaucratic agency. For instance, among sheltered homeless mothers in Massachusetts, two thirds who had used large housing or social service agencies found them to be "not helpful," but they were more likely to view homeless shelters as helpful.[65] Of the various solutions for the homeless problem that policy makers have proposed, including the provision of shelter alone, income transfer, or a comprehensive program of job and life training, our data indicate the need for the coordinated provision of aid and training.[66] Although housing placement was a highly coveted service among our sample, the women also expressed eagerness for practical training and advising.

The high prevalence of both childhood and adult sexual abuse reported by the women in our study highlights the chaos and victimization they encounter throughout their lives. Because we did not define sexual abuse for our study participants, women may have interpreted the meaning differently in relation to their own experiences. However, the large number of women who reported sexual abuse is nevertheless striking. Previously reported rates of rape among homeless women are as high as 27% to 43%, while rates of childhood sexual abuse range from 11% to 28%.[15,67,68] Compared with housed families, homeless mothers report higher rates of current spousal and child abuse as well as more frequent physical and sexual abuse in their childhood families.[15,68,69] In our study, the women abused in childhood reported poorer perceived health status in adulthood than non-abused women. However, it cannot be conclusively stated that childhood sexual abuse led to poorer adult well-being or homelessness, because the families in which incest occurs often have other traumatic relationships or events. Furthermore, homeless and poor adults in general have high rates of both physical and mental health problems.[23,43] Further research is needed to

elucidate any causal relationship between childhood sexual abuse and adult health status. It has been suggested that female adult survivors of childhood sexual abuse are at increased risk of HIV infection due to factors such as their greater likelihood of prostitution and pregnancy before age 18, although these findings did not hold for our sample.[15]

The fact that only 15% of women had been abused while homeless indicates that the negative effects of prior abuse may continue to influence victims long after the experience. We are unable to comment on the risk factors for adult sexual abuse or abuse while homeless because we did not obtain data on time of adult abuse in relation to time spent homeless, thus we do not know whether the abuse is a cause or effect of other life events. The first significant finding for health care workers is clearly the high rate of childhood sexual abuse among the women in our sample, two to three times that found in previous studies, and the high rate of adult sexual abuse. Secondly, although only one third of the women had ever discussed their history of abuse with professionals, their willingness to disclose their experiences during these interviews implies that greater outreach by health care providers might help women to discuss this important issue. Physicians who elicit a history of abuse are in an excellent position to recommend counselling at a sexual abuse center, thereby improving the quality of care delivered without necessarily impinging on the time allotted for other health care issues.

Methodologic Concerns

The validity of epidemiologic data obtained through interviews has been examined in the study of different population groups. In any interview study, there is the risk that subjects will be hesitant to reveal personal behaviors. We used anonymous consent to encourage honest responses. In general, accurate reporting is facilitated by privacy and direct questioning.[70] These findings would suggest that our anonymous

consent procedure and highly specific questions regarding abuse at different ages may have facilitated more accurate admissions. However, researchers also assume that subjects are more likely to underreport than overreport their sexual behaviors in any type of survey format.[71] Thus, any inaccuracy in our subjects' responses is likely to underestimate the true prevalence of sexual abuse, sexual activity, and substance abuse, thereby underestimating the actual risk for HIV transmission.

In AIDS behavioral research, it is critical to use techniques that sample the at-risk population with minimal error.[72] Although the optimal methodologic techniques for assessing AIDS-related issues have not been determined, many studies have addressed methodologic concerns with similar populations. It has been shown repeatedly that women are more likely than men to respond to surveys regarding their behaviors.[73,74] Furthermore, healthy women interviewed about distant events have been shown to respond consistently one year after the initial interviews.[75] The reliability of interview data has been upheld in studies focusing on sensitive topics such as sexual behaviors, substance use, and sexual abuse. The relative merits of in-person interviews versus self-administered questionnaires for obtaining personal information are controversial, although the use of questionnaires assumes a certain educational level and cultural homogeneity not always existent among a population like the homeless.[72] In-person interviews have been shown to yield higher response rates than mailed written surveys among women attending a clinic for sexually transmitted diseases, perhaps because those interviewed in person were not able to review the sensitive questions before agreeing to participate.[76] Self-reported sexual behaviors have been reproducibly reported in both questionnaires and interviews, with subjects slightly more likely to report certain sexual behaviors in interviews.[74] Thus the face-to face anonymous interview appears to be a useful compromise for surveying the homeless

population, given the lack of stable addresses and variable education levels that would likely make written questionnaires inadequate to sample a representative group.

Limitations and Advantages of This Study

This study has several other potential limitations. Because only sheltered homeless women were interviewed, these results may not be generalizable to all homeless women or to housed poor women. Among homeless IDUs, shelter residence has been associated with increased rates of HIV seropositivity, perhaps because of the close proximity of many individuals vulnerable to high risk behaviors.[44] Compared to housed poor mothers, homeless mothers are more likely to have a history of childhood sexual abuse as well as to have current substance abuse and psychiatric problems.[7] Although our three shelter populations were not identical, the differences highlight the diversity of homeless women. Our study was designed to identify predictors of high risk behaviors for HIV infection. It is possible that women did not know that they had had sexual partners with HIV risk factors, particularly because well under one half of women reported consistently questioning potential sex partners about risk factors. They often justified this omission by commenting that they would know without asking if the man were injecting drugs or had AIDS. Although we classified current risk based on behaviors over the past three months, we felt that prostitution for money or drugs over the past year also qualified as high risk. Finally, we cannot comment upon actual viral infection rates because HIV antibody tests were not performed.

In contrast, advantages of our study include the large sample of homeless women relative to other studies and the breadth of information gathered. We are able to identify predictors of HIV risk based on extensive demographic data, sexual abuse information, substance abuse reports, and sexual histories. The focus on sheltered homeless women allows educators using this information to target risk reduction

programs to an accessible population, particularly because homeless women are more likely to reside in shelters than homeless men.[1]

Our data suggest that female homelessness has multiple causes, including family problems, substance abuse, medical problems, and a difficult economic climate. Women who are already homeless face multiple physical, mental, and psychosocial problems that limit their ability to make changes to overcome their homelessness. These factors may lead women to begin or continue unsafe sexual behaviors or drug use despite their understanding of HIV transmission. The concerns that women in our study reportedly worry about most frequently are the need for money and shelter, with worry about AIDS ranking sixth of eleven items; the daily pressures to find shelter and food supersede the abstract risk of future disease. The complex etiology of homelessness illustrates a need for improved health and social services for disenfranchized women. Family homelessness stems from both external factors, such as lack of housing and benefits, and psychosocial factors such as family breakdown and isolation.[65] Furthermore, substance abuse may contribute to the persistence of poverty, or it may serve as a maladaptive coping mechanism for women who lack sufficient social supports.

In addition to personal vulnerabilities, economic depression contributes to poverty, high risk behaviors, and homelessness. Shelters provide a temporary solution to the problem of homelessness, but, as our data illustrates, shelter residents still face many barriers in their efforts to overcome poverty and become self-sufficient. A commitment to improving the homeless problem requires long-term solutions such as the provision of public housing that ensures privacy and security, appropriately targeted job training, and a national standard for welfare.[1] The inconsistency and variability of local services perpetuate an underclass unable to afford the expensive housing currently

available and unable to find employment without a stable address or reliable employment record. Although the indigent are usually able to obtain medical care at public hospitals, the existing treatment options for substance abuse and mental health disorders are inadequate to include the large numbers of potential participants, such as the women in our study who expressed immediate desire for various drug rehabilitation programs.

Public health services at the national and local level have achieved one goal: that of educating high risk individuals about HIV infection. However, greater knowledge does not necessarily produce behavioral change. An integrated program that provides assistance to homeless women must address their immediate financial and substance abuse problems before AIDS prevention will become a priority. After their daily needs have been met, they can consider behavior modification to protect themselves from the risk of HIV infection. As researchers identify the risk factors that place poor and minority women at risk for HIV infection, the paucity of controlled studies of effective mechanisms of risk reduction becomes more apparent. Further research is needed to elucidate the most effective way to impart the necessary skills to women of different backgrounds and cultures. Homeless and poor women need specific economic aids as well as individualized counseling to develop skills so that they can appreciate their own vulnerabilities to HIV, negotiate with potential sexual partners, and end their substance abuse to minimize their risk of AIDS.

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TABLE 1 Characteristics of Homeless Women Who Participated in Study at Three Shelters for the Homeless in San Francisco, California in July-August, 1990

Characteristic	Shelter #1	Shelter #2	Shelter #3	p value
Number of women	46 (38.3%)	32 (26.7%)	42 (35.0%)	
Age				
mean (S.D.)	37.0 (11.1)	29.2 (6.4)	39.9 (8.9)	
< 30 years old	32.6%	65.6%	19.0%	0.001
30-45 years old	45.6%	31.2%	50.0%	
> 45 years old	21.7%	3.1%	31.0%	
Education				
< high school	39.1%	37.5%	26.2%	0.41
high school grad	32.6%	46.9%	45.2%	
some college/college grad	28.3%	15.6%	28.6%	
Ethnicity				
white, non-Hispanic	41.3%	18.8%	33.3%	0.13
African-American	54.4%	62.5%	57.1%	
other	4.4%	18.8%	9.5%	
Total monthly income				
$0-300	21.7%	21.9%	38.1%	0.003
$301-500	45.6%	12.5%	31.0%	
$501-1500	32.6%	65.6%	31.0%	
Lifetime homelessness				
(mean, in months)	30.7	16.0	35.9	0.06
Time lived in San Francisco				
≤ 1 year	52.2%	50.0%	19.1%	0.003
> 1 year	47.8%	50.0%	81.0%	
Have a regular doctor	36.7%	45.0%	42.1%	0.82

TABLE 1 Characteristics of Homeless Women Who Participated in Study at Three Shelters for the Homeless in San Francisco, California in July-August, 1990, Continued

Characteristic	Shelter #1	Shelter #2	Shelter #3	p value
Has spent night in mental health institution	34.8%	8.8%	40.5%	0.13
Living with one's children	0	80.0%	0	<0.00
History of participation in drug or alcohol treatment program	23.9%	34.4%	40.5%	0.24
HIV knowledge score				
low	26.1%	46.9%	54.8%	0.02
high	73.9%	53.1%	45.2%	

TABLE 2 Outcomes Significantly Associated with Childhood Sexual Abuse Among Homeless Women.

Outcome	Prevalence Ratio	95% confidence interval	p value
Less education (no college vs. some college)	1.3	(1.1, 1.6)	0.01
Perceived health worse than peers	2.2	(1.2, 4.1)	0.01
Health keeps her from working	1.8	(1.2, 2.6)	0.006
Increased current medical problems (0 vs >0)	1.8	(1.2, 2.7)	0.003
Crack use (ever)	1.8	(1.3, 2.6)	0.001
Cocaine use (ever)	1.5	(1.1, 2.2)	0.03
Stimulant use (ever)	2.1	(1.3, 3.5)	0.002
Higher HIV knowledge score	1.5	(1.1, 2.0)	0.009
Higher number lifetime STDs (0 vs >0)	1.4	(1.1, 1.9)	0.02

TABLE 3 Percent of Study Population Providing Correct Answers to 17 HIV Knowledge Questions

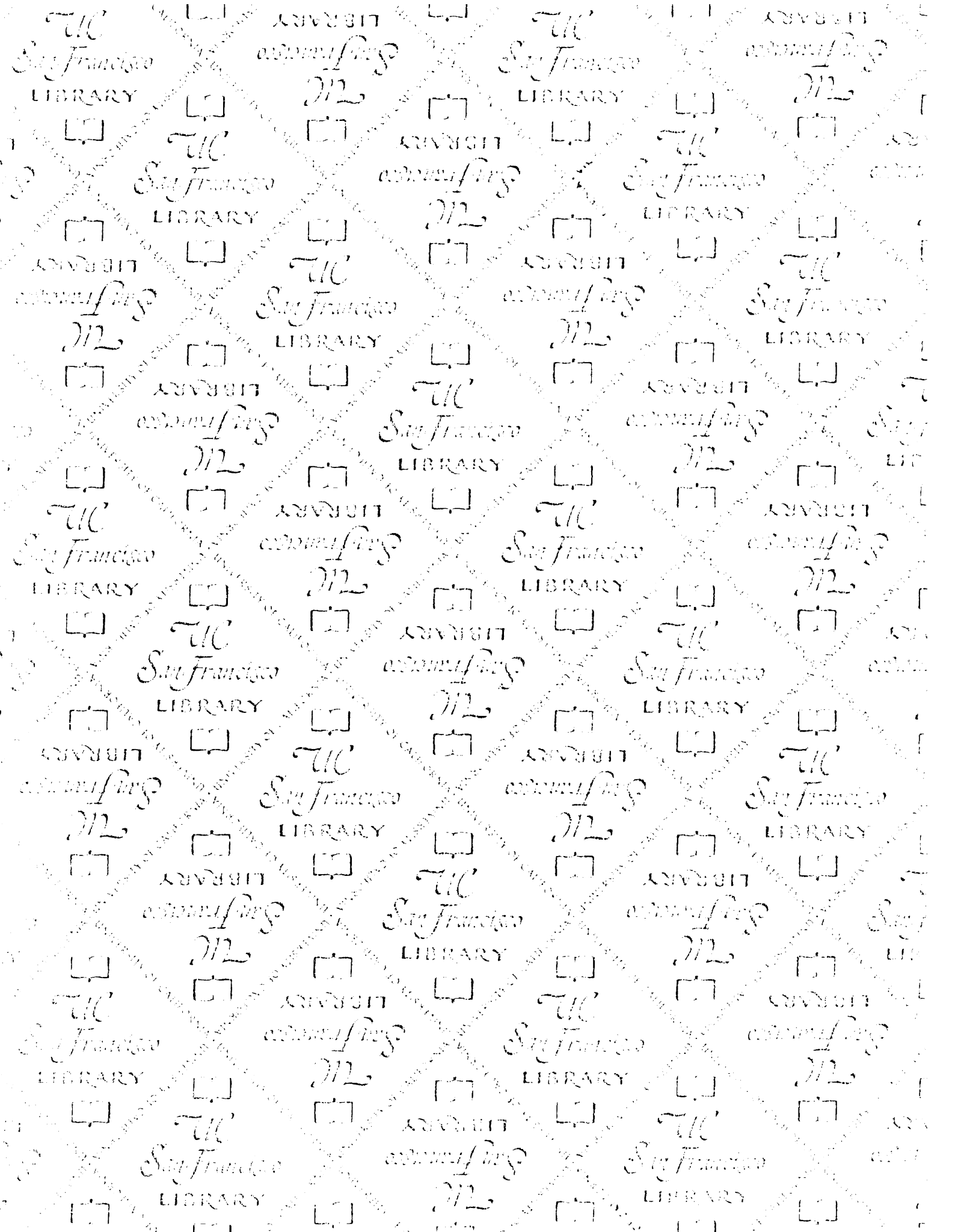
Items	% correct
A person can be infected with the AIDS virus and not have the disease AIDS	54%
A person with the AIDS virus can pass it on to someone else during sexual intercourse	95%
A pregnant woman who has the AIDS virus can give AIDS to her baby	93%
People with AIDS often lose weight	89%
Using a condom or rubber during sex can lower the risk of getting AIDS	83%
People with AIDS usually die	88%
You can get AIDS by sharing a needle with someone who has AIDS	93%
Babies with AIDS will die young	80%
There is a blood test to see if a person has the AIDS virus	96%
There is a vaccine or shot available that can protect a person from the AIDS virus	65%
You can get AIDS from donating blood	44%
You can get AIDS from mosquitoes	62%
If caught early, there is a cure for AIDS	67%
How likely is it that a person will get infected with the AIDS virus from:	
Shaking hands with or touching someone who has AIDS	92%
Working with or going to school with someone with AIDS	86%
Sharing plates, forks, or glasses with someone who has AIDS	63%
Having sex with a person who has AIDS and who doesn't use a condom	97%

TABLE 4 Characteristics of Homeless Women Categorized as High and Low Current Risk for HIV Infection Based on Behaviors within the Past Three Months

Characteristic	Low	High	p value
Number of women	66 (55.0%)	54 (45.0%)	
Age			
< 30 years	28.8%	46.3%	0.005
30-45 years	40.9%	46.3%	
> 45 years	30.3%	7.4%	
Education			
< high school	30.3%	48.5%	0.17
high school grad	48.5%	31.5%	
some college/college grad	21.2%	29.6%	
Ethnicity			
white, non-Hispanic	34.8%	29.6%	0.49
African -American	53.0%	63.0%	
other	12.1%	7.4%	
Lifetime homelessness			
≤1 year	60.6%	37.0%	0.01
> 1 year	39.5%	63.0%	
Living with children	25.8%	13.0%	0.08
Reported reasons for homelessness			
drug problem	16.7%	52.8%	<0.00
psychiatric problem	15.2%	28.3%	0.08
History of participation in drug or alcohol treatment program	19.7%	48.2%	0.001
History of suicide attempt	13.6%	35.2%	0.005

TABLE 4 Characteristics of Homeless Women Categorized as High and Low Current Risk for HIV Infection Based on Behaviors within the Past Three Months, Continued

Characteristic	Low	High	p value
HIV knowledge score			
low	54.6%	25.9%	0.002
high	45.4%	74.1%	
Perceived risk of HIV ≥ 50%	12.1%	53.7%	<0.00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