Perceptions of Personal Risk of HIV Infection: A Comparison of Male and Female Prison Inmates

Billy Long, Ph.D.
Ferrrum College
3 Roberts Hall
School of Social Sciences
Ferrum, VA 24088
United States of America

ABSTRACT

Two-hundred ninety eight male and 155 female inmates were surveyed measuring knowledge of the Acquired Immune Deficiency Syndrome virus, symptoms, and understanding of prevention measures. The device also was adapted to measure their perceptions of personal risk of HIV infection as well as their future behavioural intentions in the areas of IV drug use and risky sex. This article reports on the inmates' perceptions of personal risk of infection. Men and women are compared. It was found that male and female inmates are similar in terms of perceptions of risk outside of prison but women are significantly more fearful than men while incarcerated. Implications are discussed.

Key words: AIDS, perceptions of risk, inmates, prison

1. Past Research

Celentano et al. (1990) conducted a study using Maryland inmates measuring knowledge of HIV transmission and prevention in which they compared the responses of 210 recently incarcerated male inmates to a sample from the general population. Data were collected via the AIDS Knowledge and Attitudes Questionnaire (AKAQ). The primary objective of this device is to measure knowledge levels as well as attitudes about AIDS transmission such as perceptions of risk of HIV infection as well as prevention-related issues. Perceptions of risk was an area that yielded statistically significant differences between samples. Inmates were substantially more likely to perceive themselves as being at risk for infection when compared to the general population. Three percent of the U.S. sample perceived the risk of HIV acquisition as being either high or moderate whereas 31% of inmates fell into these categories. The authors conjectured that this reflects the fact that many inmates had a history of high risk behavior, most notably IV drug use.Zimmerman et al. (1991) conducted a similar study in Pennsylvania. One hundred eight inmates in a medium-security prison were surveyed concerning various aspects of AIDS knowledge and perceptions of risk. In addition to asking inmates to reveal their perceptions of personal risk of infection, the researchers asked them to estimate the rate of HIV infection at the institution. It is believed that if inmates exaggerate the HIV seropositivity rate that this also suggests high feelings of perceptions of personal risk.

Here, the data showed that Pennsylvania inmates were very similar to those of Maryland as it relates to the general level of perceived risk of HIV infection. Sixty-four percent of Maryland inmates and 54% of Pennsylvania inmates believed that they were at some risk for infection. The most important consideration is that both inmate groups systematically overestimated their risk of infection. Pennsylvania inmates, like their Maryland counterparts, perceived a much greater risk of infection than the general U.S. population sample (Zimmerman et al., 1991). Generally, while there is a dearth of available literature on this topic, these studies suggest that male inmates tend to exaggerate their risk of infection. While this could have negative consequences, it must be pointed out that those who have elevated perceptions of perceived risk for personal infection sometimes tend to engage in safer behaviors (Harvey et al. 2006; Campbell and Baldwin, 1991). Similarly, women inmates have shown to be higher in perceptions of risk when compared to men (Viadro and Earp, 1991; Harris and Glaser, 2006).

2. Methods

The primary research questions for this part of the project were: 1) to what extent do inmates perceive themselves to be at risk for HIV infection?; and 2) do men and women differ in their perceptions of risk of infection?

2.1 Samples

Samples of inmates were selected from two male prisons and one female prison in a northeastern state known to have higher rates of HIV when compared to prisons nationwide.

Ultimately, 298 men completed the survey while 155 women participated. Several classes of inmates had to be excluded for administrative reasons such as segregated confinement, those visiting the infirmary, and those working off prison grounds.

2.2 The Aids Knowledge and Attitudes Questionnaire (AKAQ)

The survey device used for this study was the AKAQ originally developed by the World Health Organization and modified for inmates by Celentano et al. (1990). It was further modified for this study to include specific items designed to measure inmates' perceptions of personal risk of HIV infection. To perceive risk one must possess an appreciation of the elements (e.g., HIV, modes of transmission, etc.) involved in HIV disease. Perceptions of risk can be too high, too low, or essentially accurate. An individual must understand these elements and then accurately assess the probability of those elements affecting him/her. In other words, one must accurately answer the question: what are my chances of becoming infected with the AIDS virus? Item #1 asked inmates to estimate their chances of HIV infection. They had the following choices: high, medium, low, or not at all. They also were able to indicate that they were already HIV-positive. Item #2 asked inmates to estimate their chances of infection while in prison: high, medium, low, not at all. These data were then compared to other existing data to assess the extent to which the inmates may be over or underestimating their risk of acquiring HIV. Similarly, inmates were asked to estimate the seroprevalence rate within their respective institutions. This variable also was used as an indicator of perception of risk. The options available to respondents to this question were: one inmate out of two; one inmate out of five; one inmate out of 10; one inmate out of 25; one inmate out of 50; or one inmate out of 100.

3. Results

To compare men and women for perceptions of risk, chi squares were computed for each of the three items above and treated as dependent variables with sex as the independent variable. Phi square was used as a proportionate reduction in error (PRE) measure to determine the proportion by which error in predicting respondents' answers to perceptions of risk items was reduced by knowing their sex.Based on previous research, it was believed that both men and women would exaggerate their perceptions of risk while women would exhibit the greatest fear due to their neglected status in U.S. prisons (Braithwaite et al., 2008; Stephens and Braithwaite, 2007). For example, women's prisons often have inadequate funding and the women are being exposed to AIDS education programs designed for men. Also, women are more likely to perceive environmental factors as being more hazardous to them when compared to how men perceive similar threats (Harris and Glaser, 2006).

Table 1 describes male and female inmates in terms of perceptions of risk, both in general (outside prison) and while in prison. One man (.3%) and five women (3.2%) reported already being HIV-positive. Overall, women were more likely to perceive themselves to be at high to medium risk and less likely to perceive themselves at low/no risk of infection than were men. For risk in general, 27% of the men and 32% of the women perceived themselves to be at high or medium risk while 72% of the men and only 64% of the women thought that they had a low or no chance of infection. For risk in prison, only 10% of the men but 18% of the women thought they had a high or medium risk whereas 91% of the men and only 78% of the women thought they had a low or no chance of infection. Upon initial inspection of Table 1, it appears that regardless of location, women perceive themselves as being more at risk of infection than do men.

3.1 Perceived Risk in General

Both men and women perceive themselves as being somewhat at risk for acquiring HIV in general. All the responses indicating any perceived risk (high, medium, or low) were collapsed into one category called "risk." Those who perceived no risk were placed in the "no risk" category. The hypothesis for this test was:

HA: gender differences are reflected in perceptions of risk in general

A test of independence performed on this variable yielded a nonsignificant chi-square value (see Table 2). Therefore, there are no differences between males and females that cannot be explained by sampling error.It is highly likely that gender and general perceived risk are independent in the population. In other words, one's gender does not determine one's level of perceived risk of infection in general. However, it is still noteworthy to point out that more than 25% of men and 33% of women perceive their risk of getting HIV as being either high or medium. This probably reflects the fact that many prison inmates had engaged in high-risk behaviors prior to their incarceration.

3.2 Perceived Risk in Prison

While perceptions of personal risk of infection in prison were lower than those for general risk for both samples, the discrepancy was more substantial among the men. Women still perceive higher levels of personal risk in prison. As Table 3 indicates, 27% of the men and 46% of the women viewed themselves to be at some risk, while 73% of the men and 54% of the women perceived no risk. Again, a higher proportion of the women consider themselves to be at risk.As seen in Table 3, women inmates perceive their chances of getting HIV in prison as being much higher than do males. Response categories were collapsed as in the previous variable and a test of independence was conducted for both sexes. The hypothesis for this test was:

HA: gender differences are reflected in perceptions of personal risk in prison
The resulting chi-square value of 15.9 was significant ($p = .0001$). Almost one-half of the women said they perceive themselves to be at risk in prison whereas only about one-fourth of the men responded this way. This is more of a discrepancy than would be expected if sex and perceived risk in prison were independent.In sum, men and women perceive about the same general amount of risk of infection on the outside (although women do exhibit greater perception of "high" risk) whereas women perceive more risk while in prison. This heightened sense of risk may be the result of several factors. First, with reference to HIV prevalence estimates in prison, women were more likely to overestimate the infection rate at their facility (see Table 4). Women exaggerated the infection rate at their facility (about 3.2% of female inmates were HIV-positive); this overestimation could result in their perceiving themselves to be at greater risk of infection while incarcerated.

Second, actual HIV infection rates in women's prisons, while not nearly as high as estimated by the women, are higher than in men's prisons (Braithwaite et al., 2008; Kantor, 2006). The mere presence of others who are HIV-positive-could heighten one's perceptions of personal risk.

Third, the gender differences in perceptions of risk in prison could be the result of misinformation about unlikely routes of transmitting HIV. During the project it became apparent that certain areas of concern to the women were not addressed by the survey device. Scores of the women, for example, feared infection through contaminated menstrual fluid. Many others expressed fear of infection through lesbian contacts. Misunderstandings such as these could explain why women are more likely than men to fear HIV infection while incarcerated.

Finally, not only are women more apt to believe that a given environmental threat is a danger to them, they also are more likely to feel as though they have little or no control over their own lives. Valdiserri et al. (1988), for example, suggest that women inmates are likely to have an external locus of control which leads them to feelas though they have little control over their own lives. An external locus of control causes people to believe that outside forces determine what happens in their lives, in this case becoming HIV-positive. This may result in increased perceptions of risk in prison; the women feel that they can do little to prevent becoming infected.

4. Summary and Discussion

No significant differences were found between men and women in their general perceptions of personal risk. However, women inmates indicated greater fear of getting HIV in prison. A primary reason for this disparity may be that women inmates perceive a very high rate of infection within their institutions whereas the men gave lower estimates. Since one-third of the women believe that between 20-50% of their fellow inmates are HIV-positive, it is not surprising that they perceive their risk of infection in prison to be higher. However, if the self-reported rate of HIV infection (3.2% indicated that they were HIV-positive) is even remotely accurate compared to the unknown actual rate, then it seems that their estimates are too high. These exaggerations are at least partly due to the fact that women inmates had a high rate of participation in IV drug use and prostitution before incarceration. The women also might be exaggerating their risk in prison because of knowledge deficits concerning female-specific issues such as HIV transmission involving menstrual fluid, etc.

The current study suggests that perceptions of risk among inmates is exaggerated somewhat. This is consistent with past research. For example, Celentano et al. (1990), Campbell and Baldwin (1991) and Viadro and Earp (1991) all found similar results in this area. This is generally viewed as undesirable because it can lead to irrational fears about HIV and the possibility of contracting it. On the other hand, Zimmerman et al. (1991) argue that some perception of risk represent a healthy anxiety and is necessary before positive behavioral change can take place. Using the Weinstein (1988) model, they assert that inmates must recognize their own susceptibility to the virus before they can become motivated to alter risky behaviors.

There seems to be a delicate balance between a healthy amount of perceived risk (used to motivate positive behavioral change) and an excessive amount of perceived risk (a possible cause of irrational fear, depression, and even prison violence). Therefore, it is important to determine inmates' level of perceived risk of infection. Prison-based AIDS education programs also must be tailored toward reducing inmates' level of perceived risk when it is exaggerated. This is particularly true of the women who need to be educated concerning female-specific information, particularly issues involving unlikely routes of HIV transmission. It also would be beneficial to provide both men and women with the necessary tools for reducing HIV infection in prison. A harm reduction AIDS prevention kit could include condoms for men, dental dams for women, as well as bleach or alcohol for cleaning syringes.

5. References

Braithwaite, R., Treadwell, H., and Arriola, K. (2008). Health disparities and incarcerated women: A population ignored. *American Journal of Public Health*, 98, 173-175.

Campbell, A., and Baldwin, W. (1991).The response of American women to the threat of AIDS and other sexually transmitted diseases.*Journal of AIDS*, 4, 1133-1140.

Celentano, D., Brewer, D., Sonnega, J., and Vlahov, D. (1990). Maryland inmates' knowledge of HIV transmission and prevention: A comparison with the U.S. general population. *Journal of Prison and Jail Health*, 9, 45-54.

Harris, C. and Glaser, D. (2006). Gender differences in risk assessment: Why do women take fewer risks than men? *Judgment and Decision Making*, 1(1), 48-63.

Harvey, S., Beckman, L., Gerend, M., Thorburn, S., Posner, S., Huszti, H., andGalavotti, C. (2006). A conceptual model of women's condom use intentions: Integrating intrapersonal and relationship factors. *AIDS Care*,18, 698-709.

Kantor, E. (2006). HIV Transmission and prevention in prisons. HIV In Site. [Online]. Available: http://hivinsite.ucsf.edu/InSite?page=kb-07-04-13. 23 Jul 2011.

Stephens, T., and Braithwaite, R. (2007).Correlates of HIV/AIDS problem behaviors and incarceration status among inmates in Georgia.*American Journal of Men's Health*, 1(3), 167-172.

Valdiserri, E., Hartl, A., and Chambliss, C. (1988). Practices reported by incarcerated drug abusers to risk of AIDS. *Hospital and Community Psychiatry*, 39, 966-972.

Viadro, C., and Earp, J. (1991). AIDS education and incarcerated women: A neglected opportunity. *Women and Health*, 17, 105-117.

Weinstein, N. (1988). The precaution adoption process.*Health Psychology*, 7, 355-386.

Zimmerman, S., Martin, R., and Vlahov, D. (1991).AIDS knowledge and risk perceptions among Pennsylvania prisoners.*Journal of Criminal Justice*, 19, 239-256.

Table 1: Comparisons of Perceptions of Personal Risk of HIV Infection

	Risk In General		**Risk in Prison**	
	Males	**Females**	**Males**	**Females**
	N (%)	N (%)	N (%)	N (%)
High	22 (7.4)	20 (12.9)	14 (4.7)	12 (7.7)
Medium	58 (19.5)	30 (19.4)	14 (4.7)	16 (10.3)
Low	143 (48)	56 (36.1)	53 (17.8)	41 (26.5)
No Chance	71 (23.8)	44 (28.4)	215 (72.1)	80 (51.6)
HIV+	1 (.3)	5 (3.2)	1(.3)	5 (3.2)
	295 (100)	155 (100)	297 (100)	154 (100)

Table 2: Chi Square Test of Perceptions of Personal Risk in General By Gender

	Gender		
	Male	**Female**	**Total**
No Perceived Risk	71	44	115
	24.1%	29.3%	25.9%
Some Perceived Risk	223	106	329
	75.9%	70.7%	74.1%
	294	150	444
	(66.2%)	33.8%	(100%)

Chi Square = 1.39 Significance = .23

Table 3: Chi Square Test for Perceptions of Personal Risk in Prison by Gender

	Gender		
	Male	**Female**	**Total**
No Perceived Risk	215	80	295
	72.6%	53.7%	66.3%
Some Perceived Risk	81	69	150
	27.4%	46.3%	33.7%
	296	149	445
	(66.5%)	33.5%	(100%)

Chi Square = 15.9 Significance = .0001
Phi Square = .05

Table 4: Chi Square Estimates of How Many Inmates Have AIDS By Sex

	Sex		
	Males	**Females**	**Total**
HIV Estimates			
1 in 2	14 (4.8%)	23 (14.8%)	37 (8.2%)
1 in 5	18 (6.1%)	33 (21.3%)	51 (11.4%)
1 in 10	41 (13.9%)	36 (23.2%)	77 (17.1%)
1 in 25	65 (22.1%)	32 (20.6%)	97 (21.6%)
1 in 50	82 (27.9%)	16 (10.3%)	98 (21.8%)
1 in 100	74 (25.2%)	15 (9.7%)	89 (19.8%)
	294 (65.5%)	155 (34.5%)	449 (100%)

Chi Square = 64.9 Significance = .0000
Somer's D with HIV Estimates Dependent = -.43