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Differences in HIV vaccine acceptability between genders

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Abstract

The development of safe and efficacious preventive HIV vaccines offers the best long-term hope of controlling the AIDS pandemic. Nevertheless, suboptimal uptake of safe and efficacious vaccines that already exist suggest that HIV vaccine acceptability cannot be assumed, particularly among communities most vulnerable to HIV. The present study aimed to identify barriers and motivators to future HIV vaccine acceptability among low socioeconomic, ethnically diverse men and women in Los Angeles County. Participants completed a cross-sectional survey assessing their attitudes and beliefs regarding future HIV vaccines. Hypothetical HIV vaccine scenarios were administered to determine HIV vaccine acceptability. Two-sided t-tests were performed, stratified by gender, to examine the association between vaccine acceptability and potential barriers and motivators. Barriers to HIV vaccine acceptability differed between men and women. For women, barriers to HIV vaccine acceptability were related to their intimate relationships ($p < 0.05$), negative experiences with health care providers ($p < 0.05$) and anticipated difficulties procuring insurance ($p < 0.01$). Men were concerned that the vaccine would weaken the immune system ($p < 0.005$) or would affect their HIV test results ($p < 0.05$). Motivators for women included the ability to conceive a child without worrying about contracting HIV ($p < 0.10$) and support from their spouse/significant other for being vaccinated ($p < 0.10$). Motivators for men included feeling safer with sex partners ($p < 0.05$) and social influence from friends to get vaccinated ($p < 0.005$). Family support for HIV immunization was a motivator for both men and women ($p < 0.10$). Gender-specific interventions may increase vaccine acceptability among men and women at elevated risk for HIV infection. Among women, interventions need to focus on addressing barriers due to gendered power dynamics in relationships and discrimination in health care. Among men, education that addresses fears and misconceptions about adverse effects of HIV vaccination on health and the importance of vaccination as one component of integrated HIV prevention may increase vaccine acceptability.

Keywords

HIV vaccine; barriers; gender; motivators; acceptability

Introduction

The development of safe and efficacious preventive HIV vaccines offers the best long-term hope of controlling the AIDS pandemic. Nevertheless, considerable morbidity and mortality due to existing vaccine preventable diseases strongly suggest that acceptability of HIV vaccines

cannot be merely presumed (Newman et al., 2006). Every year, more than 600,000 people die from measles, and approximately 1.5 million people die from influenza and pneumonia worldwide (WHO, 2002, 2003a, 2003b).

A number of studies have aimed to identify factors that explain suboptimal vaccination rates. For example, younger age, lower socioeconomic status, and African-American or Hispanic race/ethnicity are associated with lower vaccination rates for influenza (Andrew, McNeil, Merry, & Rockwood, 2004; Hirdes et al., 2006; Straits-Troster et al., 2006). However, research on gender differences in vaccination rates for pneumonia and influenza has yielded inconsistent findings (King et al., 2006; Miller, Kourbatova, Goodman, & Ray, 2005; Nowalk, Zimmerman, Tabbarah, Raymund & Jewell, 2006; Schwartz et al., 2006).

HIV vaccination may evoke issues beyond those for influenza and pneumonia; for one, HIV vaccines may be encumbered by considerable social stigma (Newman, Duan, Rudy, Roberts, & Swendeman, 2004). Consequently, vaccination rates for hepatitis B may offer important insights. Men that have been tested for HIV previously, have never been married, have a source of primary care, or have received a pneumococcal vaccination were more likely to be vaccinated for hepatitis B. Women, on the other hand, were more likely to have been vaccinated for hepatitis B only if they had been previously vaccinated for pneumococcal or influenza (Jain et al., 2004). Similarly, correlates of future herpes vaccination may differ by gender: these include higher perceived risk for infection and a prior history of STDs among men; and younger age and greater vaccine safety concern among women (Auslander et al., 2005).

Limited investigations of the acceptability of future HIV vaccines have yielded inconsistent findings as to the possible role of gender. Qualitative investigations suggest gender-specific concerns may affect HIV vaccine acceptability: women raised unique safety concerns about reproductive side effects, risks to the fetus and breastfeeding, and motivators based on wanting to safely conceive a child, as well as concerns about power dynamics in relationships with men as an obstacle to accessing HIV vaccines (Newman et al., 2004; Rudy et al., 2005). Men indicated motivation for HIV vaccine acceptability based on the ability to increase sexual risk behaviors (Newman et al., 2004). A crosssectional survey similarly indicated that women were more likely to be concerned about vaccine safety than men, suggesting an important gender difference in HIV vaccine acceptability (Crosby, Holtgrave, Bryant, & Frew, 2004). However, survey investigations among college students indicated no gender differences in acceptability of future HIV vaccines (Liau & Zimet, 2000; Zimet, Liau, & Fortenberry, 1997). The present study aimed to identify barriers and motivators to future HIV vaccine acceptability among low socioeconomic, ethnically diverse men and women in Los Angeles County, those likely to be targeted by initial HIV vaccine dissemination efforts.

Methods

Nine sites in Los Angeles County – 3 needle exchange programs, 3 gay and lesbian centers, and 3 Latino primary care clinics – were selected using purposive venue-based sampling. The study methods are described in detail in a previous article (Newman et al., 2006). The study protocol and materials were approved by the Institutional Review Boards at the University of California, Los Angeles (UCLA), University of Toronto, and University of Rochester.

Conjoint analysis, a method using multi-attribute scenarios to identify participant preferences, was used to assess acceptability of HIV vaccines. Participants were shown eight hypothetical vaccines, each presented on a separate laminated card that varied across seven dichotomous attributes. Attributes included: vaccine effectiveness (95% effective versus 50% effective), duration of protection (lifetime versus 10 years), type of protection (multiple types versus one type), number of doses required for vaccination (1 versus 3), route of administration (oral versus

injection), side effects (none versus minor), and cost (\$10 versus \$50). Participants were asked to rate the eight hypothetical vaccines by indicating their likelihood of accepting each vaccine on a five-point Likert scale, from highly likely to highly unlikely. Vaccine acceptability was then transformed to a 100-point scale.

Men and women were asked to indicate to what extent they agreed or disagreed with statements regarding potential barriers and motivators to HIV vaccine acceptability in health care, social, familial, and individual domains. Two-sided *t*-tests were performed, stratified on gender, to examine the association between vaccine acceptability and potential barriers and motivators. The mean HIV vaccine acceptability among those agreeing with each statement was compared to the mean of those disagreeing with the statement to indicate the impact on acceptability.

Results

Demographics

Most of the 126 participants were men (59%; $n = 85$) with a mean age of 38 years. Forty percent of the men were either African American (19%) or Latino (22%), and two-thirds of the women were either Latina (48%) or African American (21%). The majority of men were gay (57%) or bisexual (9%); a third of the women were lesbian (26%) or bisexual (8%). One-third of the women and men had no health insurance. Men and women differed in sexual orientation, race/ethnicity, and income but were not significantly different in age, education, and health insurance status.

Acceptability

The mean acceptability of an HIV vaccine among men was 61, on a 100-point scale – between ‘neither likely nor unlikely’ and ‘somewhat likely’. Among women, mean acceptability was 56, which was not significantly different ($p = 0.21$) from men.

Barriers

A number of significant barriers to future HIV vaccine acceptability were found in stratified analyses. Perceived barriers to HIV vaccine acceptability differed between men and women. Among women, concern that the vaccine would cause difficulty in getting health insurance ($p < 0.01$), fear of how their sexual partners might react to the woman being vaccinated for HIV ($p < 0.05$), and having experienced previous discrimination from health care providers were significant barriers to future HIV vaccine acceptability. In particular, women who experienced healthcare discrimination in the form of hostility or a lack of respect ($p < 0.05$), who reported being given less attention ($p < 0.05$) or having been refused service ($p < 0.01$) were 14–25 points lower in their vaccine acceptability than women that did not experience discrimination (Table 1). These barriers were significantly associated with HIV vaccine acceptability among women after controlling for sexual orientation or ethnicity in a multiple linear regression. Further analyses revealed that being concerned with difficulties in getting health insurance was particularly salient among White and Hispanic women, and was associated with false-positive HIV tests, fear of contracting HIV from the vaccine, and concerns about confidentiality. These barriers were not significantly associated with vaccine acceptability among men.

Barriers to HIV vaccine acceptability among men centered on concerns that the vaccine might adversely affect their health or HIV test results. Men who believed the vaccine would weaken the immune system ($p < 0.005$) or would affect HIV test results ($p < 0.05$) were less willing to be vaccinated than men who did not have these concerns. These barriers remained significantly associated with vaccine acceptability among men, after controlling for sexual orientation or ethnicity in a multiple linear regression.

Motivators

Both men and women indicated that if family members wanted them to be vaccinated against HIV, they would be more likely to do so ($p < 0.10$). Among women, feeling safer with sex partners was marginally significant ($p < 0.10$); among men, feeling safer with sex partners ($p < 0.05$) or friends wanting them to be vaccinated ($p < 0.005$) significantly increased HIV vaccine acceptability, with social support being particularly significant among gay males. Motivators were not affected by including ethnicity or sexual orientation in the linear regression models. Several other marginally significant motivators for acceptability were found among women. Women who felt their spouse/significant other wanted them to be vaccinated ($p < 0.10$) or who wanted to conceive a child without worrying about contracting HIV ($p < 0.10$) were more likely to accept vaccination than women that did not share these motivators.

Discussion

This investigation of barriers and motivators to HIV vaccine acceptability among vulnerable adults suggests that different factors affect men's and women's willingness to be vaccinated. For women, barriers to HIV vaccine acceptability are related to their intimate relationships, negative experiences with health care providers, and anticipated difficulties procuring insurance due to false-positive HIV tests and concerns about confidentiality. In contrast, barriers to HIV vaccine acceptability among men reflect concerns about how the vaccine might adversely affect their health and HIV testing.

Importantly, different correlates of HIV vaccine acceptability by gender suggest the need for targeted, gender-specific interventions to ensure the success of future HIV vaccines in controlling the epidemic. Women, in particular, lack HIV prevention technologies under their control; the singular most powerful tool for decades, the male condom, is ultimately under the control of men. Women's stated concerns about barriers to HIV vaccine uptake due to relationships with male partners suggest that even as HIV vaccines may be largely gender neutral on a biomedical level, and in particular do not require negotiation with a male partner before each sexual encounter, barriers to women's access to HIV vaccines may be imposed due to gendered power dynamics and sexism (Rudy et al., 2005). It is essential that HIV vaccine dissemination efforts address potential barriers to women's access to HIV vaccines. In addition to social marketing tailored to women, social marketing efforts for heterosexual men might address that having both themselves and their female partner vaccinated yields optimal protection against HIV infection. The present findings also suggest that HIV vaccine uptake may be facilitated by cultural- and gender-appropriate health care services that do not discriminate against women, and particularly women of color, who accounted for most of the women in this study.

Men and women agreed on the importance of their social support system in their likelihood of accepting HIV vaccination; however they differed on other motivations. Additionally, men indicated greater influence of peers while women indicated greater influence of their spouse/significant other in vaccine uptake. Differing approaches to marketing HIV vaccines by gender are warranted, particularly in targeting demographics most vulnerable to HIV infection.

This study has several limitations. Respondents were recruited using venue-based sampling in Los Angeles, which may limit the generalizability of the findings. Nevertheless, we recruited a highly ethnically and sexually diverse sample from venues that are likely to serve as important points of dissemination for future HIV vaccines, which mitigates limitations to generalizability. Additionally, as this was a descriptive, hypothesis-generating study, it was not powered to analyze pre-determined hypotheses. However, this is the first study to quantify gender-specific barriers and motivators to HIV vaccine acceptability among communities at elevated risk for HIV infection; the findings strongly suggest the need to further investigate and address gender

differences in HIV vaccine acceptability and access. Although the reported gender differences were significant after controlling for sexual orientation and ethnicity, further research should assess how these demographics might affect barriers and motivators to vaccine acceptability.

Future HIV vaccine uptake is not guaranteed among communities most vulnerable to HIV infection. Results from this study suggest that gender-specific interventions may increase vaccine acceptability among men and women at elevated risk for HIV infection. Among women, interventions need to focus on addressing barriers due to gendered power dynamics in relationships and discrimination in health care. As a whole, this suggests that among women, in particular, HIV vaccine dissemination efforts may be impoverished to the extent they remain fixated on individual-level barriers and motivators rather than recognizing that HIV vaccine uptake takes place in a social and structural context. Among men, education that addresses fears and misconceptions about adverse effects of HIV vaccination on health and the importance of vaccination as one component of integrated HIV prevention may increase vaccine acceptability and effectiveness. Interventions that build on existing social support systems may facilitate HIV vaccine acceptability among both men and women from communities most vulnerable to HIV infection.

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Table 1
Differences in HIV vaccine acceptability (mean) by barriers and motivators among women and men

	HIV vaccine acceptability				
	Women			Men	
	Agree	Disagree	Difference	Agree	Disagree
Barriers					
Affect ability to get health insurance	43.3	60.9	17.7*	60.1	61.6
How sexual partners react	48.1	62.3	14.2*	62.4	59.7
Providers have exhibited hostility or a lack of respect	43.5*	58.7	15.3*	62.3	60.6
Providers given less attention	45.2	59.1	13.9*	65.1	59.8
Providers refused to serve	33.3	58.3	24.9*	57.2	62.0
Weaken immune system to fight off HIV infection	55.3	55.0	0.3	57.4	74.8
Will have no effect on HIV test results	61.6	51.8	9.9	55.4	68.0
Motivators					
My spouse/primary partner would want me to get vaccinated for HIV	59.8	47.1	12.6^	63.4	55.0
My friends would want me to get vaccinated for HIV	57.6	50.0	7.6	65.5	51.6
My family would want me to get vaccinated for HIV	45.5	58.4	12.9^	63.9	54.9
Would feel safer with partners if I were vaccinated	58.9	47.4	11.5^	65.2	54.1
Have a baby without worrying about getting HIV	61.2	48.7	12.5^	—	—

* $p < 0.05$ for the two sample t -tests

^ < 0.10 .