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Impact of HIV-Related Stigma on Health Behaviors and Psychological Adjustment Among HIV-Positive Men and Women

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Abstract

HIV-related stigmatization remains a potent stressor for HIV-positive people. This study examined the relationships among stigma-related experiences and depression, medication adherence, serostatus disclosure, and sexual risk among 221 HIV-positive men and women. In bivariate analyses that controlled for background characteristics, stigma was associated with depressive symptoms, receiving recent psychiatric care, and greater HIV-related symptoms. Stigma was also associated with poorer adherence and more frequent serostatus disclosure to people other than sexual partners, but showed no association to sexual risk behavior. In a multivariate analysis that controlled for all correlates, depression, poor adherence, and serostatus disclosure remained as independent correlates of stigma-related experiences. Findings confirm that stigma is associated with psychological adjustment and adherence difficulties and is experienced more commonly among people who disclose their HIV status to a broad range of social contacts. Stigma should be addressed in stress management, health promotion, and medication adherence interventions for HIV-positive people.

Keywords

Stigma; HIV; sexual behavior; adherence; depression; disclosure

Introduction

HIV remains a highly stigmatized illness in the United States and throughout the world. Although overt expressions of HIV-related stigma have declined in the past decade, nearly one in four Americans remain fearful of having direct contact with an HIV-positive person, and nearly one in three Americans reported that they would actively avoid interacting with a person they knew to be HIV-positive (Herek, Capitano, & Widaman, 2002). Social discomfort, prejudice, and discrimination are experienced in response to a variety of medical and psychiatric illnesses (Angermeyer, Beck, Dietrich, & Holzinger, 2004; Rosman, 2004).

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However, stigmatizing attitudes and behaviors directed towards HIV-positive persons can be especially severe. HIV is highly stigmatized because of its historic association with subgroups of men and women who already experience marginalization within society, including gay men and injection drug users (Herek & Capitanio, 1999). Misinformation and fear also contribute to the persistence of HIV-related stigma. Forty percent of adults in a U.S. probability sample perceived some risk of HIV transmission through coughing, sneezing, or sharing a drinking glass, and those who were misinformed about transmission risks were also more likely to agree that persons with HIV “got what they deserved” (CDC, 2000).

Stigma directed towards HIV-positive people may perpetuate the epidemic in several ways. First, fear of being stigmatized leads some to avoid HIV testing (Chesney & Smith, 1999; Eisenman, Cunningham, Zierler, Nakazono, & Shapiro, 2003; Fortenberry et al., 2002; Stall et al., 1996). Lack of knowledge about one’s serostatus may in turn lead to inadvertent transmission of the virus and delays in the initiation of treatment. Second, among those who have been tested and are HIV-positive, stigma constitutes a chronic stressor that may contribute to coping difficulties, inadequate self-care, and difficulties with safer sex negotiation and condom use.

Mental health may be jeopardized due to stigma (Major & O’Brien, 2005). Seropositive men and women are often shunned by family, friends, and intimate partners, and overt acts of discrimination in employment, health-care, and housing-related settings are not uncommon (Gostin & Webber, 1998). Further, findings from a U.S. probability sample indicate that an estimated 21% of women and 12% of MSM living with HIV have experienced physical violence since learning of their diagnosis (Zierler et al., 2000). Collectively, these stigma-related experiences may contribute to stress and adjustment difficulties among persons living with HIV (Clark, Lindner, Armistead, & Austin, 2003; Heckman et al., 2004; Lee, Kochman, & Sikkema, 2002). Indeed, findings from a two-city sample of HIV-positive men and women point to an association between internalized stigma and self-reported symptoms of depression, anxiety, and hopelessness (Lee et al., 2002).

Stigma may also interfere with health behavior adaptation and medical regimen adherence (Chesney & Smith, 1999), although few empirical studies have addressed this possibility. Experiences of social rejection, disapproval, and discrimination related to HIV may heighten a person’s sense of shame regarding their illness and serve to lessen their motivation to maintain optimal health. Further, because HIV-positive men and women may respond to stigma by concealing their illness from others, concern about the consequences of inadvertent illness disclosure could interfere directly with self-care efforts. For example, lapses in adherence often occur when there is concern that an acquaintance may witness pill-taking or find pill bottles, leading to unwanted questions about a person’s health and, potentially, an unexpected “outing” as being HIV-positive (Weiser et al., 2003).

Safer sexual practices may also be undermined by stigma-related experiences (Preston et al., 2004). Fear of rejection and intimate partner violence – exacerbated by past experiences of stigmatization – may lead some to hide their illness from sexual partners (Zierler et al., 2000). Similar concerns may inhibit condom use negotiation because discussions about the need for safer sex often lead to questions about a partner’s serostatus. Although a few studies suggest an association between stigma and disclosure (Clark et al., 2003; van der Straten, Vernon, Knight, Gomez, & Padian, 1998), the association of stigma to condom use and negotiation has not yet been well characterized in the literature.

Several studies have begun to outline the effects of stigma on adjustment and health, and conceptual models of adjustment to HIV disease (Heckman, 2003; Schmitz & Crystal, 2000) increasingly recognize the importance of stigma. However, no study has investigated the

relationship of stigma-related experiences across a broad spectrum of health behavior and coping domains among HIV-positive men and women. Therefore, in this study, we examined the role of stigma in relation to (a) current health status, (b) mental health, (c) medication adherence, and (d) sexual risk behavior, among 221 HIV-positive men and women receiving care at an infectious disease clinic. We first document the prevalence of stigma-related experiences and characterize the bivariate association of stigma-related experiences to demographic and health history variables. Next, we report results from multiple regression analyses that characterize the association of stigma to current health status, health behaviors, and mental health outcomes. We hypothesized that stigma-related experiences would be associated with poorer overall health, higher rates of depressive symptoms, decreased medication adherence, lower rates of serostatus disclosure, and higher rates of sexual risk behavior.

Methods

Participants

Consecutive outpatients from a university-based Infectious Disease Clinic in central New York State were recruited on designated study days during a 16 month period beginning in July, 2001. A patient was eligible for the study if she or he was 18 years of age or older, HIV-positive, English speaking, and capable of providing informed consent based on medical and research staff observations.

A detailed overview of sample characteristics is provided in Table I. A total of 314 patients met eligibility criteria and were invited to participate. Among eligible participants, 76% consented to participate ($N = 240$). A subset of consenting participants failed to return for a scheduled interview appointment or had to leave the clinic prior to finishing their survey, yielding a final study N of 221 (44% female). Of these, 46% self-identified as White, 42% African-American, and 12% "other." The mean age of study participants was 40.4 ($SD = 7.9$), with 77% percent of participants falling between the ages of 30–49 years old. Most participants were unemployed (67%) and impoverished (68% reporting incomes of less than \$1000 per month). Thirty-eight percent had less than a high school diploma, 37% completed high school, and 20% had completed some college. Aggregate data from the entire clinic census (including non-participants) indicate that 38% of clinic patients were African-American, a majority (78%) were between the ages of 30 – 49 years old, and 35% were female. Thus, the study sample includes a somewhat higher proportion of female patients, but is otherwise similar to the demographic profile of the clinic as a whole. Chart data indicated that 36% of participants had an undetectable viral load at their most recent clinic visit and 42% had experienced an AIDS-defining illness at the time of the interview. The average time since HIV diagnosis was 7.9 years ($SD = 4.7$). Among men in the sample, 65% self-identified as having previous sexual experiences with other men (not tabled). A majority of women (93%) identified as being exclusively heterosexual.

Procedure

A clinic nurse informed patients about the study, and obtained verbal consent from the patient regarding his or her willingness to be introduced to a research assistant (RA). Patients who provided verbal consent were introduced to the RA, who informed the patient of the study goals and procedures. Patients were told that they would be asked to respond to questions about sexual activity, mental health, and substance use, and were informed that they would receive \$10 for participation. Interested patients provided written consent.

Most participants ($n = 186$) responded to a self-administered questionnaire. To reduce survey administration difficulties related to reading difficulties (Kalichman & Rompa, 2000), data

collection for low-literacy patients (those reading below the 9th grade level, $n = 35$) was completed using either an audio computer-assisted self-interview ($n = 21$; ACASI) or a face-to-face interview with an RA ($n = 14$). Interview administration was used in instances where the computer was unavailable (i.e., the assessment room was already being used).

Measures

Data were obtained both by self-report and chart abstraction. The self-report battery included measures designed to assess demographics, medical history, safer sex attitudes, mental health, HIV-related stigma, sexual behavior, medication adherence, and substance use. Medical charts were reviewed for information concerning patients' current health status and attendance at clinic appointments (e.g., viral load for the most recent clinic visit, occurrence of AIDS defining illnesses).

Demographic information—Descriptive information, including age, gender, employment status, ethnicity, education, and income were assessed using standardized questions.

HIV-related symptoms—HIV-related symptoms were assessed using a validated self-report measure that includes both physical and cognitive symptoms associated with HIV disease (Justice et al., 2001). This questionnaire included a list of 20 common symptoms, and requires the patient to rate the degree to which each symptom has been bothersome to them within the last month on a 5-point Likert scale. An HIV symptoms score was computed based on participants' mean response across the 20 items.

Stigma-related experiences—This measure assessed the frequency with which specific stigma-related experiences occurred since being diagnosed with HIV. Five items drawn from previous work (Heckman, 2003; Heckman, Somlai, Kalichman, Franzoi, & Kelly, 1998) assessed the occurrence of negativity and discrimination related to being HIV-positive, including the experience of being mistreated due to being HIV-positive (e.g., "How often have you been treated badly by people because of your HIV/AIDS illness?") and the experience of social avoidance by other because of HIV (e.g., "How often do others avoid you after they learn of your HIV/AIDS status?"). Responses were rated on a 4-point frequency scale ('Never' to 'Often'). A scale score was computed by averaging scores across the five items. The scale demonstrated excellent internal consistency in the current sample ($\alpha = .89$).

Depressive symptoms—Depressive symptoms were assessed using the 20-item Center for Epidemiological Studies Depression Scale (CES-D; Radloff, 1977). The CES-D has been used extensively in prior research with HIV-positive men and women (e.g., Ickovics et al., 2001; Moskowitz, 2003; Murphy et al., 2001). For the present study, a summary score on the CES-D was computed by summing the values across the 20 item measure. Coefficient alpha for the CES-D was .92.

Psychiatric care—History of psychiatric treatment in the past year was assessed via a single self-report item that asked "Have you received treatment (medication or therapy) for depression, stress, or other psychological difficulties in the past year?"

Medication adherence—Medication adherence was assessed using four-items adapted from previously validated measures (Catz, Kelly, Bogart, Benotsch, & McAuliffe, 2000; Chesney et al., 2000). Adherence difficulties were assessed based on a seven day recall period, consistent with other published reports (e.g., Heckman, Catz, Heckman, Miller, & Kalichman, 2004; Wilson, Tchetgen, & Spiegelman, 2001). Prior research confirms that a seven day assessment interval provides a valid estimate of adherence that correlates with electronic (MEMS) monitoring data and is predictive of viral load (Arnsten et al., 2001). Participants

indicated the frequency of (a) missed doses, (b) late doses, and (c) ignoring special instructions using a 6-point frequency scale ('more than once a day' to 'never during the past week'). In addition, participants indicated when the last time was that they skipped taking *any* of their HIV medication using a 6-point frequency scale ('within the past week' to 'never'). To reduce socially desirable responding, the instructions included text that normalized the fact that imperfect adherence was common and emphasized the importance of candid reporting. A summary adherence score was computed by averaging responses across the four items. The measure showed good reliability in the present sample ($\alpha = .80$).

Missed clinic appointments—A measure of missed clinic appointments for the past year served as a second indicator of treatment adherence. Using chart data, a dichotomously coded variable was created to indicate whether participants had perfect attendance or missed one or more appointments in the previous year. Consistent attendance at medical appointments is essential for patients to fully benefit from the increasingly efficacious treatments available to them (Catz, McClure, Jones, & Brantley, 1999).

HIV serostatus disclosure—Fourteen items assessed the extent to which participants disclosed their HIV status, including disclosure to family, friends, sexual partners, neighbors, and health care providers. For each item, participants were asked "To what extent have you told the following people about your HIV status?" Respondents rated each item on a three-point scale by indicating whether they had told "none of them," "some of them," or "all of them." In the present study, a global disclosure index was computed by averaging responses across the 14 items. In addition, a disclosure to sexual partners index was computed by averaging responses to two items assessing disclosure to steady and non-steady partners.

Sexual risk behavior—Sexual activity and condom use with steady and non-steady partners were assessed for behavior that occurred in the past three months using measures adapted from prior research (Vanable, Ostrow, McKirnan, Taywaditep & Hope, 2000). The term "steady partner" was defined for participants as "someone you are emotionally close to and have sex with regularly." Non-steady partners were defined as "someone other than a steady partner" with whom the participant had had sex. Sexual risk behavior indices consisted of dichotomous indicators of any unprotected sex (vaginal or anal sex), and unprotected sex with an HIV-negative partner or partner of unknown serostatus during the previous three months.

Overview of analyses—First, descriptive analyses characterize the frequency with which participants reported a range of stigma-related experiences. For descriptive purposes, items were coded as "agreed" if responses were 3 (sometimes) or 4 (often). Second, *t*-tests and chi-square analyses identify health history and demographic variables associated with stigma-related experiences. Third, a series of multiple regression analyses characterize the association of stigma history with current health status, health behaviors, and mental health functioning. To control for differences in the occurrences of stigma-related experiences related to demographic and health history differences (e.g., length of time since HIV diagnosis), background characteristics found to be associated with stigma history were entered in Step 1 of each regression analysis as covariates, followed by relevant criterion variables in Step 2. Finally, health status, health behavior, and psychological functioning variables identified as correlates of stigma history were entered simultaneously in a multiple regression analysis to characterize their independent contributions in predicting stigma history. Analyses of sexual risk behavior and serostatus disclosure to sexual partners excluded a subset of participants ($n = 25$) who were sexually inactive since learning that they were HIV-positive. Likewise, analyses involving medication adherence excluded participants who were not currently taking HAART ($n=42$).

Results

Prevalence and Demographic Correlates of Stigma-Related Experiences

Stigma-related experiences were reported by a significant minority of participants in this diverse sample of HIV-positive men and women (see Table II), with agreement rates ranging from 19% to 41% across individual scale items. For example, 41% agreed that people often behaved negatively around them once they learned of their HIV status and 29% reported that people often avoid contact with them because they are HIV-positive. Stigma-related experiences were positively associated with time elapsed since HIV diagnosis ($r = .25, p < .01$) and occurred more frequently among participants who were currently unemployed, $t(219) = 3.06, p < .01$ and those reporting lower personal income ($r = -.14, p < .05$). The occurrence of stigma-related experiences did not vary as a function of age, sexual orientation, gender, ethnicity, or education (all $ps > .15$).

Association of Stigma-Related Experiences to Current Health Status, Health Behaviors, and Psychological Adjustment

Primary study hypotheses concerning the association of stigma-related experiences to current health functioning, health behavior, and psychological adjustment were tested in a series of multiple regression analyses. Given the study's focus on the relation of stigma to *current* health status, health behaviors, and psychological adjustment, elapsed time since HIV diagnosis was included as a covariate to control for potential confounding effects related to differences in the length of time that participants have been living with HIV. Based on univariate findings, income and employment status were also included as covariates. Thus, years since HIV diagnosis, current income, and employment status were entered as covariates in Step 1 of each regression analysis as covariates, followed by relevant criterion variables in Step 2. Findings from Step 2 of each analysis are presented in Table III and summarized below.

Current health status—As hypothesized, HIV-related symptom severity emerged as a significant correlate of stigma-related experiences (see Table III). That is, patients reporting greater HIV-related symptomatology also reported more frequent stigma-related experiences. Current viral load was not associated with stigma-related experiences.

Psychological adjustment—The hypothesized association of stigma to psychological adjustment was found for both indices of adjustment. As shown in Table III, mean scores on the CES-D were strongly related to stigmatization, indicating that participants reporting frequent stigma-related experiences were more likely to endorse items consistent with experiencing depressed mood. Similarly, psychiatric treatment in the previous year was positively associated with more frequent stigma-related experiences.

Treatment adherence—The association of treatment adherence variables and stigma are summarized in Table III. Consistent with the hypothesis that stigma would be associated with more frequent lapses in treatment adherence, self-reported HAART adherence for the previous week emerged as a robust predictor of stigma-related experiences. Similarly, clinic attendance was significantly associated with stigma, indicating that patients who missed one or more clinic appointments in the previous year were more likely to report stigmatizing experiences.

Additional analyses were conducted to determine whether the association of missed clinic appointments to stigma was influenced by patient's current health status. Compared to patients with perfect attendance, those who missed one or more appointments in the previous year reported greater HIV-related symptomatology, $t(218) = 3.49, p < .01$, but did not differ in terms of their current viral load, $\chi^2(1, N = 221) = .16 ns$. With HIV-related symptoms and viral

load included as additional covariates in the regression model, the association of missed clinic appointments to stigma was diminished, ($\beta = .11$, $\Delta R^2 = .01$, $p < .10$).

Sexual risk behavior and serostatus disclosure—Contrary to expectation, rates of unprotected sex (overall) and rates of unprotected sex with a partner who is HIV-negative or of unknown serostatus were not associated with stigma-related experiences. Likewise, serostatus disclosure to sexual partners was not associated with frequency report of stigmatization. Contrary to our hypothesis, stigma-related experiences were positively associated with scores on the global disclosure index that included disclosure to friends, family, co-workers, and other social contacts. That is, stigmatization was associated with higher overall rates of serostatus disclosure.

Multivariate Correlates of Stigma-Related Experiences

A final multiple regression analysis was conducted to characterize the independent associations of current health status, health behavior, and psychological adjustment variables to the occurrence of stigma-related experiences. Because medication adherence was included in the model, this analysis excluded a subset of patients who were not currently taking HAART ($N = 179$). The analysis controlled for background covariates by entering years since HIV diagnosis, current income, and employment status at Step 1, followed by inclusion of core study variables identified as bivariate correlates of stigma-related experiences in Step 2. The overall regression model was significant ($R^2 = .26$, $p < .01$). After controlling for relevant background variables, depressive symptoms ($\beta = .26$, $p < .01$), medication adherence ($\beta = -.20$, $p < .01$), and serostatus disclosure (global index, $\beta = .15$, $p < .05$) remained as correlates of stigma-related experiences. Current HIV-related symptoms, psychiatric treatment status, and clinic attendance were not associated with stigma in the multivariate model (all $ps > .49$).

Discussion

This study examined the impact of stigma-related experiences across a broad spectrum of health behavior and coping domains among HIV-positive men and women. Although a number of studies document that uninfected populations harbor stigmatizing views about persons living with HIV, this study advances the literature by characterizing the degree to which HIV-positive patients report experiencing stigma in their daily lives and by confirming that stigma contributes broadly to treatment adherence difficulties, psychological adjustment, and decisions about HIV serostatus disclosure. A substantial minority of participants reported that people behave negatively (42%), avoid being near them (29%), and exclude them from social events (20%), because of their HIV status. Although there are qualitative differences in the experience of living with HIV between men versus women (Hader et al., 2001; Zierler et al., 1997), we found no gender differences in reporting of stigma, nor were there ethnic or age differences. Time since diagnosis was positively associated with having experienced stigmatization, as was lower personal income and employment status. Stigmatization was not associated with current viral load, but was associated with greater subjective reports of HIV-related symptoms. Such differences suggest that negativity, discomfort, and discrimination directed towards persons living with HIV may become more frequent as overt signs of illness emerge.

Results confirm that stigma contributes to psychological adjustment difficulties among HIV-positive men and women. In the multivariate analysis, current depressive symptoms emerged as a strong correlate of stigma frequency. Stigma was also associated with an increased likelihood of receiving psychiatric care in the previous year (bivariate analysis only). Although the cross-sectional design of this study precludes causal interpretations, it is reasonable to hypothesize that HIV-related stigma heightens vulnerability to depressed mood and other forms

of distress rather than vice-versa. A link between stigma and poor psychological adjustment is consistent with recent empirical reports (Clark et al., 2003; Heckman et al., 2004; Lee et al., 2002) and conceptual models of adjustment to HIV disease (Heckman, 2003; Schmitz & Crystal, 2000). By increasing patients' vulnerability to depression, stigma may also effect longer term health outcomes, as depressive symptoms may further compromise immune functioning (Leonard, 2000) and contribute to more rapid progression to AIDS and mortality (Ickovics et al., 2001). Prospective studies can clarify the relationship between stigma and psychological functioning and explore the potential impact of recurrent stigmatization on disease progression.

Findings also confirm an association between stigma-related experiences and health behavior adaptation. Lapses in adherence to HAART regimens were associated with more frequent stigmatization in both the bivariate and multivariate models. Similarly, the bivariate analysis showed that patients who missed one or more HIV clinic appointments in the previous year were also more likely to report stigma-related experiences. However, the relationship between missed clinic appointments and stigma was diminished when the analysis included current health status indices as covariates. The mechanisms linking stigma to poor treatment adherence are not known. It may be that people who have experienced mistreatment in the past are less enthusiastic about seeking regular medical care, filling their prescriptions, and taking their medications because of concern about being inadvertently "outed" as HIV-positive. Alternatively, the relationship between stigma-related experiences and poor adherence may be explained by the association of stigma to decreased illness-related social support and mental health functioning. Indeed, a number of empirical reports (Catz et al., 2000; Gonzales et al., 1999) point to an association of decreased social support and depressed mood to adherence difficulties, and exploratory analyses with the present data set point to a bivariate association of CES-D scores to medication adherence ($r = -.19, p < .05$). Thus, the association of stigma to adherence difficulties may be mediated by accompanying changes in depressed mood and social support. This hypothesis should be explored in future prospective studies.

Although the present study points to a cross-sectional association of stigma to both psychological adjustment and treatment adherence, we found no evidence of an association between stigma-related experiences and sexual risk behavior. Likewise, there was no association between stigma-related experiences and serostatus disclosure to sexual partners. Interestingly, findings from the global measure of serostatus disclosure showed that disclosure to people other than sexual partners was *more* rather than less common among participants reporting frequent stigma-related experiences. Although contrary to our original hypothesis, a plausible explanation is simply that frequent disclosure of HIV serostatus increases the likelihood that a person will eventually experience mistreatment and discrimination by allowing a broader range of people to be aware of a person's serostatus. Thus, avoiding serostatus disclosure may limit illness-related social support (Mansergh, Marks, & Simoni, 1995; Simoni et al., 1995), but may also lessen the likelihood that an HIV-positive person experiences overt acts of discrimination. Past experiences of discrimination may well reduce *future* disclosure of HIV status, an effect that is not detectable in the cross-sectional analyses presented in the present study. A prospective study would help to clarify what is likely a bidirectional relationship between disclosure decisions and stigmatization.

Strengths of this study include the fact that we report on the impact of stigma across a broad spectrum of health-related domains, using psychometrically reliable and valid measures, the inclusion of both men and women, and the use of a behaviorally-oriented index of stigma-related experiences. Study limitations include the use of a cross-sectional design, sampling from a single outpatient clinic, reliance upon self-report, and our use of face-to-face interviews for a subset of low-literacy participants. In addition, our sample included a large percentage of patients with fairly advanced HIV disease. Findings may not generalize to HIV+ men and

women with more recent HIV diagnoses. Future research should establish the generalizability of findings to other domestic and international samples of HIV-positive men and women and employ prospective studies that seek to clarify the mechanisms linking stigma to poor adherence, depressed mood, and decisions regarding serostatus disclosure.

Interventions to reduce the negative impact of stigma on the lives of persons living with HIV should be pursued on several fronts. First, risk reduction, adherence, and coping interventions should address HIV-positive patients' concerns about stigmatization. At a minimum, interventions should provide a supportive environment for discussing the ways in which stigma interferes with mood management, medication adherence, and sexual partner communication. Although a more daunting challenge, a second focus for intervention research is the advancement of effective strategies for reducing stigmatization at the societal level. Several small-scale interventions have been shown to be effective in reducing negativity directed towards persons living with HIV (Brown et al., 2003), but many gaps remain in determining the most effective means of producing lasting change. Finally, as research continues to illuminate the social and cultural context for HIV-related stigma, public health policy, legislative initiatives, and mass media content related to HIV disease should be guided by the goal of reducing or eliminating HIV-related stigma. In the short term, this research serves to remind medical, mental health, and social service professionals that, for many HIV patients, stigma remains a barrier to adjustment and positive health outcomes.

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Table I
 Sample Characteristics and Summary Statistics for Stigma, Adherence, Sexual Health, and Psychological Adjustment Variables ($N = 221$)

Characteristic	<i>n</i>	%	<i>M</i>	<i>SD</i>
<u>Demographic variables</u>				
Age (years)			40.4	7.9
Education (years)			11.7	2.2
Gender				
Male	124	56%		
Female	97	44%		
Ethnicity				
White	101	46%		
African-American	93	42%		
Other	27	12%		
Currently unemployed	148	67%		
Income below \$1,000 per month	150	68%		
<u>Stigma</u>				
Frequency of stigma-related experiences (1 – 4)			1.9	.85
<u>Health status variables</u>				
HIV-related Symptoms (past month)			1.4	.79
Years since HIV diagnosis			7.9	4.7
AIDS Diagnosis	92	42%		
Hospitalized for HIV-related illness	64	29%		
Undetectable viral load (last clinic visit)	79	36%		
<u>Psychological adjustment variables</u>				
Depressive symptoms, CES-D (0 – 30)			19.5	12.8
Psychiatric treatment (past year)	99	45%		
<u>Treatment adherence variables</u>				
Medication adherence, past week (1 – 6)			4.6	1.3
Missed ≥ 1 clinic appointment, past year	48	22%		
<u>Sexual risk behavior and serostatus disclosure variables</u>				
Unprotected anal/vaginal sex, 3 months	73	33%		
Unprotected anal/vaginal sex with HIV-negative, or unknown serostatus partner	36	16%		
Disclosure of HIV status to sexual partners (0 – 2)			1.6	.68
Disclosure of HIV status, global index (0 – 2)			1.2	.52

Table II
Prevalence of Stigma-Related Experiences among HIV-Positive Men and Women¹

Questionnaire Item	<i>n</i>	% Agreement
<i>How often...</i>		
...do people behave negatively toward you once they learned that you had HIV?	89	41
... have you been treated badly by people because of your HIV/AIDS illness?	65	30
...do others avoid you after they learn of your HIV/AIDS status?	64	29
...are you treated unfairly by others when they learn of your HIV/AIDS status?	63	29
...are you not invited to social events because of your HIV/AIDS status?	42	19

¹ Note: Items were coded as “Agreed” if responses were 3 (*sometimes*) or 4 (*often*).

Table III
Regression Models of the Relationship of Stigma-Related Experiences to Health Behavior Adaptation and Psychological Adjustment Variables ^a

Predictor Variable	β	ΔR^2	Cumulative R^2
<u>Current Health Status</u>			
Viral load (detectable versus undetectable)	-.07	.01	.10
HIV-Related Symptoms	.29	.08	.17**
<u>Psychological Adjustment</u>			
CES-D (depression)	.38	.13	.22**
Psychiatric treatment, past year	.18	.03	.12**
<u>Treatment Adherence</u>			
HAART adherence, past week ^b	-.24	.06	.16**
Clinic Attendance ^c	.17	.03	.12*
<u>Safer Sex and Disclosure Variables</u>			
Unprotected anal/vaginal sex, 3 months (%)	.07	.01	.10
Unprotected anal/vaginal sex, HIV- negative or unknown serostatus partner	.07	.01	.08
Disclosure to sexual partners	.10	.01	.09
Disclosure, global index	.14	.02	.11*

^a Notes: Table summarizes the results from Step 2 of each regression analysis, with income, employment status, and time since HIV diagnosis entered at Step 1, followed by each relevant predictor variable at Step 2.

^b The sample size was reduced ($n = 179$) for the medication adherence analysis because a subset of participants were not taking antiretroviral medications at the time of data collection. Higher scores on the adherence measure indicate better adherence.

^c Clinic Attendance is a dichotomous indicator of treatment adherence (100% attendance vs. < 100% attendance).

**
 $p < .01$;

*
 $p < .05$