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Body Image Disturbance and Health Behaviors among Sexual Minority Men Living with HIV

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Abstract

Objective—Body image disturbance is a common experience for sexual minority men living with HIV, and is associated with poor self-care behaviors. However, to date, no known cohesive theoretical model has been advanced to understand the possible antecedents and outcomes of body image disturbance in this population. Thus, the goal of the current study was to test a biopsychosocial model of body image and self-care behaviors among sexual minority men living with HIV.

Methods—Participants were 106 gay and bisexual men living with HIV who completed a battery of self-report measures including assessment of body image disturbance, depression, lipodystrophy, appearance orientation, condom use self-efficacy, antiretroviral therapy (ART) adherence, and HIV sexual transmission risk behaviors. Bayesian estimation was employed to assess model fit and direct and indirect pathways within the model.

Results—The data fit the model well, with all theorized pathways being significant. Lipodystrophy severity and appearance orientation were associated with elevated body image disturbance. In turn, body image disturbance was related to poorer ART adherence and increased HIV sexual transmission risk behaviors, through the mechanisms of elevated depressive symptoms and poor condom use self-efficacy.

Conclusions—Elevated body image disturbance among sexual minority men living with HIV is associated with important biopsychosocial variables, which in turn are related to poorer ART adherence and increased HIV sexual transmission risk behaviors. Integrative psychosocial interventions addressing co-occurring body image disturbance, depression, and HIV self-care behaviors may be a fruitful area of future clinical practice and research.

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Keywords

HIV/AIDS; Body image; ART adherence; HIV sexual transmission risk behaviors

Body image disturbance is a common experience for many sexual minority (i.e., gay and bisexual) men living with HIV (Sharma et al., 2007). Not only do elevated levels of body image disturbance, in and of itself, confer significant distress, but it has also been associated with arguably the two most important health behaviors for individuals living with HIV—antiretroviral therapy (ART) adherence and sexual health (Blashill & Vander Wal, 2009; Wilton, 2009). The pathways in which body image disturbance impacts ART adherence and sexual health are less clear; however, preliminary data suggest depression may serve as a mediator between body image disturbance and poor ART adherence (Blashill, Gordon, & Safren, in press). Additionally, some studies have noted that body image disturbance negatively impacts one's confidence in using condoms (e.g., Gillen, Lefkowitz, & Shearer, 2006), a known risk factor for engaging in HIV sexual risk behaviors (O'Leary et al., 2005).

Both biological and sociocultural factors likely influence the degree to which sexual minority men living with HIV experience body image disturbance. Lipodystrophy, a condition defined by lipoatrophy and/or lipohypertrophy, is prevalent among individuals living with HIV, (Caron-Debarle, Lagathu, Boccara, Vigouroux, & Capeau, 2010) and is also known to increase body image disturbance (Sharma et al., 2007). Socioculturally, appearance investment, or an orientation that values the often unrealistic Western societal ideals of beauty and body shape (e.g., lean muscularity), leads to, and perpetuates, body image disturbance (Cafri, Yamamiya, Brannick, & Thompson, 2005).

Pathways to and from body image disturbance among sexual minority men living with HIV are varied and complex. However, to date, no known study has examined these outcomes simultaneously in a model with proposed antecedents to body image disturbance. Thus, the current study aimed to present and test a biopsychosocial model of body image disturbance and self-care behaviors amongst this population (see Figure 1). It was hypothesized that investment in appearance and lipodystrophy severity would predict elevated body image disturbance, which in turn would predict poorer ART adherence (through depressive symptoms) and increased HIV sexual transmission risk behaviors (through poorer condom use self-efficacy).

Method

Participants and Procedures

Participants were 106 sexual minority men living with HIV (see Table 1 for sample characteristics). Recruitment was conducted at the Massachusetts General Hospital Infectious Disease Clinic, and Fenway Health, a community health center. Inclusion criteria included: 1) HIV-infected, 2) engaged in anal sex with men in the prior 12 months, 3) male gender, 4) age 18 to 65, and 5) prescribed ART for the past two months or longer. Participants completed electronic questionnaires in private areas, and received \$25 for their

time and effort. The Massachusetts General Hospital and Fenway Health Institutional Review Boards approved all study procedures.

Measures

Body Image Disturbance—Participants completed the Assessment of Body Change and Distress questionnaire–Short Form (ABCD-SF; Blashill, Wilson, Baker, Mayer, & Safren, in press). The ABCD-SF includes 10 items that assess distress and psychosocial impairment related to body disturbance, rated on a five-point scale ranging from 1 “none of the time” to 5 “all of the time” over the previous four weeks. This instrument was validated with a sample of sexual minority men living with HIV. Higher scores indicate increased body image disturbance. For the current sample, internal consistency was $\alpha = .84$.

Appearance Investment—Each participant completed the 12-item Appearance Orientation subscale of the Multidimensional Body-Self Relations Questionnaire (MBSRQ; Brown, Cash, & Mikulka, 1990). This measure assesses appearance investment on a 5-point scale, with responses ranging from 1 “Definitely Disagree” to 5 “Definitely Agree.” Higher scores denote greater investment in appearance. For the current sample, internal consistency was $\alpha = .72$.

Lipodystrophy—The ABCD-SF captures self-reported presence of lipodystrophy with six items: three assessing lipoatrophy and three assessing lipohypertrophy. These individual items are responded to via a binary 0 “No” or 1 “Yes” option, with “Yes” responses indicating the presence of a symptom of lipodystrophy. These six items were then summed to create a total lipodystrophy severity variable, with a possible range of 0 to 6 (higher scores denoting a greater number of symptoms). For the current sample, internal consistency was $KR-20 = .74$.

Depression—The Center for Epidemiological Studies – Depression scale, (CES-D; Radloff, 1977) a self-report, 20-item measure, assessed depressed mood in the previous week on a four-point scale ranging from 0 “rarely or none of the time (less than 1 day)” to 3 “most or all of the time (5–7 days).” Higher scores on the scale indicate increased depressive symptoms. For the current sample, internal consistency was $\alpha = .93$.

ART Adherence—Participant adherence to HIV medication was measured by the following item: “Thinking about the past 4 weeks, on average, how would you rate your ability to take all your HIV antiretroviral medications as your doctor prescribed?” Responses ranged from 1 “very poor” to 6 “excellent.” This item has been shown to be a valid indicator of ART adherence (Feldman et al., 2013; Lu et al., 2008).

HIV Sexual Transmission Risk Behavior—HIV sexual transmission risk behavior was assessed via a computerized version of standard self-reported sexual activity questions. Participants were asked the number of times, in the past three months, they had unprotected and protected insertive and receptive anal sex with male partners and if applicable, vaginal sex with female partners. Participants also indicated the sero-status (i.e., HIV status) of their sexual partners as either seropositive, seronegative, or sero-status unknown. Sero-discordant

unprotected anal intercourse (SDUAI) was defined by the sum of insertive/receptive anal intercourse acts with HIV-uninfected/unknown status male partners in the previous three months.

Condom Use Self-Efficacy—Participants also completed five items adopted from the Condom Use Self-Efficacy Scale (CUSES; Wulfert & Wan, 1995). Items assessed beliefs about the ability to effectively negotiate condom use, with responses on five-point scale ranging from 1 “Strongly Disagree” to 5 “Strongly Agree.” High scores denote greater self-efficacy in the use of condoms. For the current sample, internal consistency was $\alpha = .84$.

Body Mass Index—Height was measured via use of a stadiometer and weight was assessed with an electronic scale. Body mass index was calculated with the following formula: $(703 * \text{weight in pounds}) / (\text{height in inches} * \text{height in inches})$.

Statistical Analyses

Path parameters and overall model fit was assessed via Bayesian estimation (AMOS 18). See Muthén and Asparouhov (2012) for a thorough review of Bayesian approaches of testing structural models. In Bayesian analysis, two estimates of model adequacy are salient, convergence and model fit. Convergence is assessed via the convergence statistic (C.S.), and values 1.002 or lower are desirable. Model fit is assessed with one index, the posterior predictive p value (PPP), with values of .5 indicating excellent fit. Finally, κ^2 , an index of effect size, was calculated for each indirect effect. It is bounded between 0 and 1, and interpreted as small, medium, and large effect sizes as .01, .09, and .25 (Preacher & Kelley, 2011).

Results

The model (controlling for age and BMI) easily converged, with a C.S. of 1.0018, yielded an excellent fit to the data (PPP = .50), and each specified pathway in the model was significant (see Figure 1). Elevated severity of lipodystrophy ($B = .12$, $SE = .001$, 95% CI : .04, .20) and appearance investment ($B = .42$, $SE = .006$, 95% CI : .16, .69) was significantly associated with elevated body image disturbance. In turn, elevated body image disturbance was significantly associated with increased depressive symptoms ($B = .45$, $SE = .003$, 95% CI : .32, .57) and lowered condom use self-efficacy ($B = -.37$, $SE = .005$, 95% CI : -.60, -.14). Subsequently, depressive symptoms were significantly associated with poorer ART adherence ($B = -.57$, $SE = .004$, 95% CI : -.90, -.29), and lowered condom use self-efficacy was associated with increased HIV sexual transmission risk behaviors ($B = -1.9$, $SE = .023$, 95% CI : -3.1, -.58). Indirect effects revealed a significant pathway of elevated body image disturbance to poorer ART adherence through increased depressive symptoms ($B = -.26$, $SE = .002$, 95% CI : -.41, -.12, $\kappa^2 = .15$), and body disturbance to increased HIV sexual transmission risk behaviors through poorer condom use self-efficacy ($B = .68$, $SE = .014$, 95% CI : .14, 1.4, $\kappa^2 = .073$).

Discussion

The model tested in this study fit the data well, and each hypothesized pathway emerged significantly. Specifically, biological (lipodystrophy) and sociocultural (appearance investment) variables were associated with elevated body image disturbance. Body image disturbance predicted psychological variables (increased depressive symptoms and lowered condom use self-efficacy). In turn, these mediators were associated with poor HIV self-care behaviors.

Limitations include the cross-sectional design, which precludes causal inferences. However, theoretically, it seems plausible that both lipodystrophy and appearance investment are more likely to be antecedents than consequences of body image disturbance. Similarly, it is difficult to imagine ART non-adherence or HIV sexual transmission risk behaviors causing body image concerns. The directionality of the association of body image disturbance to depressive symptoms is less clear, and it is possible non-recursive relationships exist. Testing this model within a longitudinal design would aid in understanding the temporal ordering of effects, although only an experimental design can properly address casual relations. Lastly, future studies would also benefit from including objective measures of ART adherence.

The results from the current study have the potential to inform clinical practice. Traditional behavioral interventions addressing ART adherence or HIV sexual risk reduction typically yield modest effects (Blashill, Perry, & Safren, 2011). One possible explanation for these modest effects is the lack of addressing the psychosocial context of HIV self-care behaviors. Some researchers have begun to address this issue by creating integrative interventions (e.g., cognitive behavioral therapy for ART adherence and depression--CBT-AD; Safren et al., 2012). These integrative interventions have the potential to impact both HIV self-care behaviors and psychosocial distress; however, there are no known interventions that address body image disturbance among individuals living with HIV. Results from the current study highlight the pathways of body image disturbance to ART non-adherence and HIV sexual transmission risk behaviors, and suggests that integrative interventions addressing these co-occurring problems may too be promising.

Supplementary Material

Refer to Web version on PubMed Central for supplementary material.

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Table 1

Sample Characteristics

Variable	<i>M (SD)</i>
Appearance Investment	3.6 (.55)
Lipodystrophy	2.0 (1.8)
Body Image Disturbance	2.2 (.78)
Condom use Self-Efficacy	3.6 (.94)
Depressive Symptoms	1.0 (.61)
HIV Sexual Transmission Risk Behaviors	3.0 (6.3)
ART Adherence	5.4 (.94)
Age	47.5 (7.8)
Years taking HIV medications	10.1 (6.8)
Years since HIV diagnosis	13.1 (8.2)
BMI	27.1 (4.6)
<i>Median (IQR)</i>	
CD4	672 (382)
Viral Load _{log10}	1.86 (0)
Education level	<i>N</i>
High school or lower	25 (24%)
Some college/college	60 (56%)
> college	21 (20%)
Ethnicity/Race	
Hispanic/Latino	13 (12%)
White	77 (73%)
Black/African American	24 (23%)
Native American	3 (3%)
Other	4 (4%)
Asian	1 (1%)

Note. *M* = mean, *SD* = standard deviation, *IQR* = interquartile range, *N* = number of participants, Appearance Investment = Appearance Orientation subscale of Multidimensional Body-Self Relations Questionnaire (range 1–5); Lipodystrophy = Lipodystrophy severity index from Assessment of Body Change Distress Questionnaire—Short Form (range 0–6); Body Image Disturbance = Assessment of Body Change Distress Questionnaire—Short Form (range 1–5); Condom Use Self-Efficacy = Items adapted from the Condom Use Self-Efficacy Scale (range 1–5); Depressive Symptoms = Center for Epidemiological Studies Depression scale (range 0–3); ART adherence = self-report ART adherence (range 1–6). HIV Sexual Transmission Risk Behaviors = sum of insertive/receptive anal intercourse acts with HIV-uninfected/unknown status male partners in the previous three months.