Depression and Social Isolation Mediate Effect of HIV Stigma on Women’s ART Adherence

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METHODS

Study Sample

Women living with HIV enrolled in the Women’s Interagency HIV Study (WIHS) for whom data on medication adherence was collected at their last study visit between April 2013 and March 2014. Data were collected from 9 WIHS sites in California, New York, D.C., Illinois, Georgia, North Carolina, Florida, Alabama and Mississippi.

Measures

Adherence: self-report of how often participants took their HIV medication as prescribed over the past 6 months, dichotomized at 95% or higher versus lower than 95%

Internalized HIV-related stigma: the negative self-image subscale of the revised HIV Stigma Scale8

Depressive symptoms: the 20-item Center for Epidemiological Studies Depression (CES-D) scale

Social support: a shortened 15-item version of the MOS Social Support Survey9

Loneliness: a three-item version of the R-UCLA Loneliness Scale10

Data Analyses

We used descriptive statistics to examine the study sample characteristics

We conducted logistic regression analysis to determine predictors of ART adherence

Internalized stigma was the primary independent variable, and covariates included race, age, time on ART, drug use, income, and education

Sensitivity analyses were conducted using medical adherence as a continuous dependent variable

We performed mediation analyses using Process11 to test whether the association between internalized HIV stigma and adherence is explained by social isolation and depressive symptoms.

All analyses were performed in SPSS (version 22).

RESULTS

Table 1. Descriptive statistics for the study sample (n=1168)

<table>
<thead>
<tr>
<th>Variable</th>
<th>n (%)</th>
<th>Mean (SD)</th>
<th>Possible Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Race</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Non-Hispanic White</td>
<td>139 (11.8)</td>
<td>37.3 (5.9)</td>
<td>8.0 - 40.0</td>
</tr>
<tr>
<td>Non-Hispanic Black</td>
<td>788 (67.5)</td>
<td>41.0 (6.3)</td>
<td>8.0 - 40.0</td>
</tr>
<tr>
<td>Hispanic</td>
<td>200 (17.1)</td>
<td></td>
<td>8.0 - 40.0</td>
</tr>
<tr>
<td>Other</td>
<td>40 (3.5)</td>
<td></td>
<td>-</td>
</tr>
<tr>
<td>Non-injected drug use</td>
<td>256 (22.0)</td>
<td>0.0 (1.0)</td>
<td>0.0 - 1.0</td>
</tr>
<tr>
<td>Injected drug use</td>
<td>10 (0.9)</td>
<td></td>
<td>-</td>
</tr>
<tr>
<td>Adherence (&lt;95%)</td>
<td>201 (17.2)</td>
<td>0.0 (0.59)</td>
<td>0.0 - 1.0</td>
</tr>
</tbody>
</table>

Initial logistic regression models revealed that internalized stigma was a significant predictor of sub-optimal adherence (AOR = 0.757, p = .042, CI [0.578,0.990])

Predictors of better adherence included non-Hispanic white race/ethnicity, older age, less years on ART, and nonuse of non-injection drugs.

When an interaction term between internalized stigma and race was added, the interaction term was also significant (AOR = 3.378, p = .026, CI [1.155,9.880]).

When logistic regression was conducted by race, the association between internalized stigma and adherence was significant for those in racial and ethnic minority groups (AOR = 0.689, p = .009, CI [0.521,0.911]) but not for non-Hispanic whites (AOR = 2.156, p = .198, CI [0.867,6.725]).

Depressive symptoms, loneliness, and low perceived social support mediated the association between internalized stigma and sub-optimal adherence in the white sample, as well as in the subsample of minority participants.

In serial mediation models, internalized stigma predicted less perceived social support (or higher loneliness), which in turn predicted more depressive symptoms, which in turn predicted sub-optimal medication adherence.

REFERENCES


DISCUSSION

The findings suggest that potential predictors of adherence may operate differently by race. This finding may contribute to our understanding of different rates of adherence and health outcomes by race among women living with HIV.

The current study findings also suggest that interconnected psychosocial mechanisms affect ART adherence.

An understanding of these interconnected factors affecting HIV medication adherence provides insight into what conditions/situations can potentially be targeted through interventions.

Improvements in adherence may require multi-faceted interventions addressing both mental health and interpersonal factors, especially for minority women.

Further research can utilize these findings to develop, evaluate, and investigate such interventions.

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Figure 1. Serial mediation model in the association between internalized HIV stigma and sub-optimal medication adherence for racial/ethnic minority groups (i.e., non-whites) n=1029


Note. Associations are presented as path coefficients (unstandardized).

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