The Critical Influence of Daily Experiences of Internalized HIV Stigma on Medication Non-Adherence for HIV-Positive Gay and Bisexual Men

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Types of HIV Stigma

- Stigma = an attribute that is *socially* devalued or discredited
- HIV stigma can come in many varieties
  - Enacted – for example, experiencing discrimination or being treated unfairly
  - Anticipated – for example, fears regarding disclosure or rejection sensitivity
  - Internalized – for example, shame or negative self-image
Measuring Stigma

- Despite its recognized importance, domestic research on HIV stigma is lacking
- One of its three forms is often examined in isolation
- HIV stigma is often examined in relation to behavioral and biological outcomes as a *trait*, but it might fluctuate over time
Aim

- Examine the association between individual-level (i.e., dispositional) and situational-level (i.e., fluctuating) HIV stigma and HIV medication non-adherence
  - Do we see associations for individual-level, situational-level, or both?
  - Do we see associations for anticipated/social stigma! Internalized stigma, or both?
Method
day2day: A mobile health study

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Recruitment Director: Ruben Jimenez

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Participants & Procedures

- HIV-positive gay and bisexual men in NYC
  - Recent drug use (2+ days of club drug use in 30 days)
  - Recent transmission risk behavior (1+ act of CAS with a negative/unknown partner – excluding MPs on PrEP)
  - Prescribed ART
  - Daily access to the internet via smartphone

- Multicomponent study
  - Online CASI measure from home
  - Computerized timeline follow-back (TLFB)
  - Neurocognitive testing
  - 21-day twice-daily EMA
    - Optional Substudy: 2 extra EMA surveys, 10 days of twice-daily cortisol, in-office blood draw
  - Brief follow-up CASI
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Demographics ($n = 52$)

- **Race or ethnicity**
  - Black
  - Latino
  - White
  - Other

- **Sexual identity**
  - Gay
  - Bi

- **Employment**
  - Unemployed
  - Employed

- **Education**
  - Less than BA/BS
  - BA/BS or higher

- **Relationship Status**
  - Single
  - Partnered

- **Undetectable VL**
  - No
  - Yes
EMA Completion ($N = 52$)

- $M = 28.9$ surveys, $Mdn = 33.0$
- 727 events for these analyses
EMA Measures – HIV Stigma

- Adapted from several published measures (HIV Stigma Scale, HIV/AIDS Stress Scale, Impact of HIV on Self-Concept Scale)

- Anticipated/Social HIV Stigma (4 items)
  
  • “I’ve wanted to hide my status,” “I’ve been worried people would judge me if they knew my status”

  • 1 = not at all, 4 = completely

- Internalized HIV Stigma (5 items)

  • “I’ve been feeling guilty because of my HIV status,” “I’ve been feeling emotionally upset or overwhelmed by my status”

  • 1 = not at all, 4 = completely

- Disaggregated into situational (person-centered scores) and individual (grand-mean centered) averages
EMA Measures - Adherence

- ARV non-adherence for each day was assessed in the evening for each drug and dosing time and aggregated into any missed ARVs that day

<table>
<thead>
<tr>
<th>Did you take...</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Med 1 AM</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Med 2 AM</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Med 3 AM</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Med 4 AM</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Med 1 PM</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Med 2 PM</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Med 3 PM</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Med 4 PM</td>
<td>1</td>
<td>0</td>
</tr>
</tbody>
</table>
Statistical Analyses

- Logistic mixed model
- AR(1) covariance structure for repeated measures
- Random intercept estimated
- Model adjusted for:
  - Level 2: Black race, years living with HIV, age, relationship status
  - Level 1: Day of EMA cycle
Results: How is HIV Stigma associated with daily non-adherence?
Anticipated/Social HIV Stigma

Internalized HIV Stigma

Between-Person

Within-Person
# Stigma and Adherence

<table>
<thead>
<tr>
<th></th>
<th>Medication Non-Adherence</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>B</td>
</tr>
<tr>
<td><strong>Level 2: Individual Level</strong></td>
<td></td>
</tr>
<tr>
<td>Anticipated HIV Stigma</td>
<td>-1.80</td>
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<tr>
<td>Internalized HIV Stigma</td>
<td>2.86</td>
</tr>
<tr>
<td><strong>Level 1: Situational Level</strong></td>
<td></td>
</tr>
<tr>
<td>Anticipated HIV Stigma</td>
<td>-0.60</td>
</tr>
<tr>
<td>Internalized HIV Stigma</td>
<td>1.07*</td>
</tr>
</tbody>
</table>

*Note: Number of events = 727*
Discussion
Summary of findings

- Variation in both anticipated/social and internalized HIV stigma is primarily between rather than within persons over the course of 21 days (20% is due to situational fluctuation).
- Despite this, situational variability in internalized HIV stigma is the only significant predictor of ART non-adherence.
  - Each 1-unit increase above a person's average level was associated with a 7% increase in the odds of non-adherence that day.
- Individual-level internalized HIV stigma as well as individual- and situational-level anticipated/social stigma were not associated.
Limitations

- Small convenience sample of drug-using GBM who engaged in TRB
- Less power to detect between-person than within-person effects (though limited power for both)
- Unable to distinguish directionality (could internalized stigma result from non-adherence?)
- Did not consider the role of other forms of stigma
Implications & Conclusions

- Internalized stigma appears to be a critical variable to consider in models of adherence for HIV+ individuals
  - More research is needed to refine the measurement of daily stigma and distinguish situational fluctuations from more individual-level dispositions/tendencies

- HIV stigma represents a key target for intervention
  - Given the situational fluctuations are associated with adherence, a mobile stress management intervention for just-in-time delivery may be warranted
Acknowledgements

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Thank you!

For further questions or a copy of these slides, please email me:

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