Associations between frequent mental distress, perceived HIV stigma, and food insecurity among low-income HIV/AIDS patients: Implications for HIV care programs

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Presenter Disclosures

Marianna Wetherill, PhD

(1) The following personal financial relationships with commercial interests relevant to this presentation existed during the past 12 months:

Consultant

• Tulsa CARES, a social services organization delivering food and other forms of assistance to people with HIV/AIDS
Background

• Poor mental health, HIV stigma, and food insecurity are associated with HIV/AIDS risk behaviors and negative health outcomes, such as medication non-adherence.
• These conditions may cluster to produce patterns of social risk.
• No published studies have simultaneously explored the co-occurrence of frequent mental distress, perceived stigma, and food insecurity in resource-rich settings.
HIV Treatment Cascade, United States

In the U.S., 1.2 million people are living with HIV.
Of those:

- Diagnosed: 86%
- Engaged in Care: 40%
- Prescribed ART: 37%
- Virally Suppressed: 30%

90/90/90 Goal by 2020 (UNAIDS)

Source: CDC National HIV Surveillance System and Medical Monitoring Project, 2011
Select Psychosocial Factors Affecting Engagement in Care

• Mental Health\textsuperscript{1-4}

• Stigma Compounded\textsuperscript{5,6}

• Food Insecurity\textsuperscript{7,8}

BACKGROUND

Conceptual Framework

Poor Mental Health
- Anxiety
- Depression
- Drug / Alcohol Use

Poor Adherence
- HIV treatment non-adherence
- Missed medical appointments
- Treatment interruptions

Perceived and Experienced Stigma
- Social isolation
- Poor self-esteem
- Social stress theory
- Modified labeling theory

Food Insecurity
- Nutrient deficiencies
- Medication side effects
- Reduced medication absorption

The UNIVERSITY of OKLAHOMA
Health Sciences Center
College of Public Health
HIV/AIDS in Oklahoma

Tulsa, Oklahoma
Oklahoma HIV Care Continuum, 2009-2013

- Diagnosed: 1448 (100%)
- Ever Linked: 1222 (84%)
- Linked by 12 mo.: 1138 (79%)
- Linked by 6 mo.: 1062 (73%)
- Engaged: 837 (58%)
- Virally Suppressed: 703 (49%)

Oklahoma State Department of Health, 2015
Research Questions

Among those receiving treatment for HIV/AIDS through Oklahoma’s Ryan White system of care:

1. To estimate the proportion with self-reported food insecurity, frequent mental distress, and poor medication adherence,

2. To describe the distribution of perceived HIV stigma, and

3. To identify the associations between food insecurity, frequent mental distress, perceived HIV stigma, and medication adherence.
Study Design

- Cross-sectional
- Participants (n = 164)
  - Recruited at Ryan White service providers ("in-care")
  - Receiving both HIV/AIDS case management and medical care
- $5 Wal-Mart gift card compensation
Survey Instrument

- Demographics
  - age, gender, occupation, education, income, household size
- Laboratory measures: CD4 and viral load; HIV/AIDS diagnosis date(s) provided from patient chart
- U.S. Adult Food Security Survey Module (10 item)
- Modified version of the Berger HIV Stigma Scale©
  - Enacted Stigma (formerly Personalized Stigma)
  - Disclosure Concerns
  - Negative Self–image
  - Concern With Public Attitudes
- Medication Adherence (Self-Reported)
- Physical and mental health (Self-Reported) – BRFSS
- Food assistance program use

Bunn, Solomon, Miller, Forehand (2007)
Lu et al (2008)
Analyses

- **Descriptive statistics, bivariate correlations, Chi square, t-tests, and Mantel-Haenszel odds ratios**
- **Logistic regression**
  - Frequent mental distress and food insecurity (IVs) and adherence (DV)
- **Two-way ANOVA**
  - Frequent mental distress and food insecurity (IVs) and stigma (DV)
- **Conducted using SPSS 20.0**
Demographics

Survey Participants ($N = 164$)

<table>
<thead>
<tr>
<th></th>
<th>Number</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Age</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>13-24 years</td>
<td>2</td>
<td>1.2%</td>
</tr>
<tr>
<td>25-44 years</td>
<td>64</td>
<td>39.0%</td>
</tr>
<tr>
<td>45-64 years</td>
<td>95</td>
<td>58.0%</td>
</tr>
<tr>
<td>65+ years</td>
<td>3</td>
<td>1.8%</td>
</tr>
<tr>
<td><strong>Gender</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>128</td>
<td>78.1%</td>
</tr>
<tr>
<td>Female</td>
<td>34</td>
<td>20.7%</td>
</tr>
<tr>
<td>Transgender</td>
<td>2</td>
<td>1.2%</td>
</tr>
<tr>
<td><strong>Ethnicity</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hispanic</td>
<td>11</td>
<td>6.7%</td>
</tr>
<tr>
<td>Non-Hispanic</td>
<td>153</td>
<td>93.3%</td>
</tr>
<tr>
<td><strong>Race (Non-Hispanic)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>American Indian/Alaskan Native</td>
<td>16</td>
<td>9.8%</td>
</tr>
<tr>
<td>Asian</td>
<td>2</td>
<td>1.2%</td>
</tr>
<tr>
<td>Black / African American</td>
<td>33</td>
<td>20.1%</td>
</tr>
<tr>
<td>Native Hawaiian /Other P.I.</td>
<td>1</td>
<td>0.6%</td>
</tr>
<tr>
<td>White</td>
<td>86</td>
<td>52.4%</td>
</tr>
<tr>
<td>Other</td>
<td>1</td>
<td>0.6%</td>
</tr>
<tr>
<td>More than one race</td>
<td>14</td>
<td>8.5%</td>
</tr>
</tbody>
</table>

$M = 45.8$ (21-69), $SD = 9.79$

Slightly older than the Oklahoma Ryan White population

Representative of Oklahoma’s Ryan White population according to gender, race, ethnicity
### RESULTS

## Demographics

<table>
<thead>
<tr>
<th>Survey Participants (N = 164)</th>
<th>Number</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Ryan White Service Area</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Eastern Oklahoma</td>
<td>134</td>
<td>81.7%</td>
</tr>
<tr>
<td>Western Oklahoma</td>
<td>30</td>
<td>18.3%</td>
</tr>
<tr>
<td><strong>Education</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>≤ 8th grade</td>
<td>5</td>
<td>3.0%</td>
</tr>
<tr>
<td>Grade 9-11</td>
<td>17</td>
<td>10.4%</td>
</tr>
<tr>
<td>High school or GED</td>
<td>40</td>
<td>24.4%</td>
</tr>
<tr>
<td>Vo-Tech or skilled labor degree</td>
<td>18</td>
<td>11.0%</td>
</tr>
<tr>
<td>Some college</td>
<td>57</td>
<td>34.8%</td>
</tr>
<tr>
<td>Associate or bachelor degree</td>
<td>25</td>
<td>15.2%</td>
</tr>
<tr>
<td>Master or doctoral degree</td>
<td>2</td>
<td>1.2%</td>
</tr>
<tr>
<td><strong>Income Level</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0-100% FPL</td>
<td>94</td>
<td>57.7%</td>
</tr>
<tr>
<td>&gt;100% FPL</td>
<td>69</td>
<td>42.3%</td>
</tr>
<tr>
<td><strong>HIV/AIDS Status</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Years since diagnosis</td>
<td>M = 11.6 (0.25-32.5), SD = 8.04</td>
<td></td>
</tr>
<tr>
<td>HIV only</td>
<td>72</td>
<td>43.9%</td>
</tr>
<tr>
<td>HIV with AIDS</td>
<td>92</td>
<td>56.1%</td>
</tr>
<tr>
<td>Viral Load ≤ 199 copies/mL</td>
<td>129</td>
<td>78.7%</td>
</tr>
<tr>
<td>CD4 count cells/µL</td>
<td>M = 580.4, SD = 351.34</td>
<td></td>
</tr>
</tbody>
</table>

Greater representation of the Eastern Oklahoma Ryan White population

More likely to have an AIDS diagnosis compared to Oklahoma Ryan White population

Representative by income
Frequent Mental Distress

(14 or more bad mental health days in the past month)

Average Bad Mental Health Days,
State Average: 4.3 days

Average Bad Mental Health Days,
Study Sample: 14.4 days
Results

Food Security Status

USDA Classifications for Food Security
Food Insecurity among Very Low Income Participants

Prevalence of food insecurity among different low-income populations.
Patients with FMD had 3.5 times the odds of being food insecure, OR = 3.5, 95% CI [1.7, 7.4]
RESULTS

Medication Adherence

- Excellent (100%): 58%
- Very Good (80%): 22%
- Good (60%): 11%
- Fair (40%): 4%
- Poor (20%): 2%
- Very Poor (0%): 3%

$n = 158$
Factors Associated with Poor Adherence

- Participants with poor adherence were disproportionately affected by:
  - Food insecurity, $X^2 (1, n=158) = 6.99, p = .008$
  - Frequent mental distress, $X^2 (1, n=158) = 10.33, p = .001$
  - These conditions were not independently related:
    - People with frequent mental distress were also more likely to experience food insecurity, OR = 3.5, 95% CI = 1.7, 7.4
Factors Associated with Poor Adherence

- When the influence of food insecurity and frequent mental distress (FMD) on adherence was explored simultaneously,
  - FMD remained a significant predictor of poor adherence, $p = .013$, while the effect of food insecurity dropped just out of significance, $p = .059$.
  - This suggests that part of the adherence relationship for food insecurity and FMD is shared.
# RESULTS

## Adherence, Food Security, and FMD: Stigma Differences

<table>
<thead>
<tr>
<th>Stigma (Theoretical Low-High)</th>
<th>Adherent (n=126)</th>
<th>Non-Adherent (n=31)</th>
<th>Food Secure (n=54)</th>
<th>Food Insecure (n=109)</th>
<th>FMD Absent (n=96)</th>
<th>FMD Present (n=67)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Total Stigma (32-128)</strong></td>
<td>82.0</td>
<td>89.0</td>
<td>76.5</td>
<td>87.2**</td>
<td>80.2</td>
<td><strong>88.6</strong>*</td>
</tr>
<tr>
<td><strong>Disclosure Stigma (8-32)</strong></td>
<td>23.3</td>
<td>23.8</td>
<td>22.1</td>
<td>24.1*</td>
<td>22.9</td>
<td>24.2</td>
</tr>
<tr>
<td><strong>Self-Image Stigma (7-28)</strong></td>
<td>15.9</td>
<td>18.0*</td>
<td>14.8</td>
<td>16.9**</td>
<td>15.1</td>
<td><strong>17.7</strong></td>
</tr>
<tr>
<td><strong>Public Attitudes Stigma (6-24)</strong></td>
<td>16.7</td>
<td>18.2</td>
<td>15.8</td>
<td>17.7**</td>
<td>16.5</td>
<td><strong>17.9</strong></td>
</tr>
<tr>
<td><strong>Enacted Stigma (11-44)</strong></td>
<td>26.2</td>
<td>28.9</td>
<td>23.9</td>
<td><strong>28.5</strong></td>
<td>25.7</td>
<td><strong>28.8</strong></td>
</tr>
</tbody>
</table>

* *p < .05   ** *p < .01
Stigma Analyses

• When testing for an interaction effect of frequent mental distress and food insecurity on perceived HIV stigma, only the main effect of food security remained significant, \( F(1,159) = 10.332, p = .002 \).

• Total stigma scores were greater for food insecure persons (M = 87.2) than for those who are food secure (M = 76.5).

• Additional analyses using MANOVA identified disclosure, public attitudes, and enacted stigma as being influenced by food security status.
Theoretical Framework: Clustered Patterns of Social Risk

- Poor Mental Health
  - Frequent Mental Distress
  - $r = .256$

- Poor Adherence
  - HIV treatment non-adherence
  - $r = .148$ (NS)
  - $r = .200$

- Food Insecurity
  - Food Situation Worsens after HIV Diagnosis;
  - Low or Very Low Food Security Status
  - $r = .266$

- Perceived and Experienced Stigma
  - Disclosure
  - Self-Image
  - Public Attitudes
  - Enacted
  - $r = .245$
Considerations

• For any chronic illness that requires medication adherence, food insecurity and frequent mental distress are possible risk factors for poor adherence.

• Specific to HIV, the element of perceived stigma may worsen food insecurity, and possibly mental distress, for reasons such as limited perceived social support or fear of HIV discovery by others when seeking food assistance.
Implications for Food & Nutrition Care Providers

• Providers working with food insecure populations should screen for frequent mental distress and link clients to mental health professionals.

• Improving food security through structural interventions (housing, employment) rather than giving food episodically may help reduce frequent mental distress and improve adherence over the long-term.
Implications for Medical and Social Service Providers

• Often identified as a barrier to linkage, FMD was also common for patients currently linked and engaged in care.

• FMD was associated with higher levels of perceived HIV stigma, poor adherence, and food insecurity.

• Therefore, HIV medical and social service providers should implement routine mental health and food security screening strategies consistent with IOM recommendations, which may improve treatment cascade outcomes.
Implications for Medical and Social Service Providers

• Our findings reinforce the benefit and necessity of treating the whole person.

• Integrating mental health and nutrition services into primary care delivery may improve engagement and retention in care.

• **Ryan White utilization**
  
  – 60% outpatient ambulatory medical care
  – 14% mental health services
  – 11% food bank assistance

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11. 2010-2012 Ryan White Services Data Report, HRSA HIV/AIDS Bureau
Future Research

• Social support is an important potential facilitator for engagement in care by improving:
  – Mental health
  – Food security (food access)
  – Social isolation/stigma\(^\text{12}\)
    • Disclosure is a coping mechanism
    • Relationships as motivators to facilitate and remain engaged
  – Appointment attendance

• The irony is that HIV disclosure is often a prerequisite for social support, thus those who stand to benefit from social support the most are the least likely to disclose.

• The role of social support and social integration on patient engagement should be explored further.
  – Social support results in decreased perceived stigma and depression.\(^\text{13,14}\)

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\(^{12}\)McDoom et al, 2015


\(^{14}\)Vyavaharker, M., et al. (2009)
Research Team & Community Partners

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References


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Richey, L. et al. (2014). From diagnosis to engagement in HIV care: assessment and predictors of linkage and retention in care among patients diagnosed by emergency department based testing in an urban public hospital. *AIDS Patient Care and STDs, 28* (6)


