Understanding Disparities in Antiretroviral Therapy Adherence and Sustained Viral Suppression among U.S. Black/African American, Hispanic/Latino, and White Men Who Have Sex with Men

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Introduction
Background

- Racial/ethnic disparities among MSM in new HIV diagnoses (2019)
  - Black MSM: 37%
  - Hispanic/Latino MSM: 32%
  - White MSM: 25%

- Racial/ethnic disparities among MSM for ART adherence (2018)
  - Black MSM: 48%
  - Hispanic/Latino MSM: 59%
  - White MSM: 64%

Background

- Social Determinants of Health (SDH)
  - Poverty
  - Food insecurity
  - Health insurance coverage
  - Education
  - Health literacy
  - Unstable housing/homelessness
  - Transportation
  - Incarceration
Objective

- To examine which SDH factors—along with behavioral and clinical characteristics—may explain racial/ethnic disparities in antiretroviral therapy (ART) adherence and sustained viral suppression among Black, Hispanic/Latino, and White MSM with diagnosed HIV
Methods
CDC Medical Monitoring Project (MMP)

• **MMP Overview**
  • Annual, cross-sectional interview and medical record abstraction
    • 2-stage sample design
      • 16 U.S. states, Puerto Rico, & 6 jurisdictions
      • Adults with diagnosed HIV
  • Produces nationally representative estimates of behavioral and clinical characteristics among adults with diagnosed HIV
  • Data are weighted for probabilities of selection, adjusted for non-response, and post-stratified to population totals

• **Analysis Sample**
  • 2015-2019 annual data
  • Black/African American, Hispanic/Latino, and White MSM
  • N=9,117
Outcomes

- ART Adherence
  - Self-reported 100% dose adherence in the past 30 days

- Sustained viral suppression
  - All viral load measurements documented in the medical record as undetectable or <200 copies/mL during past 12 months
Covariates

- **SDH factors**
  - Federal poverty level
  - Food insecurity*
  - Health insurance/coverage*
  - Gap in health coverage*
  - Educational attainment
  - Health literacy
  - Homelessness*
  - Transportation assistance*
  - Incarceration*

- **Behavioral and clinical characteristics**
  - Age at interview
  - ER visit*
  - History of sexual/physical intimate partner violence
  - Injection or noninjection drug use*
  - Binge drinking†
  - Symptoms of depression‡
  - Symptoms of anxiety‡
  - Time since diagnosis
  - HIV care engagement*
  - Any unmet need for ancillary services*§
  - Stigma

*Past 12 months; †past 30 days; ‡past 2 weeks
§HIV case management services, medicine through the AIDS Drug Assistance Program, ART support services, patient navigation services, HIV peer support, dental care, mental health services, drug or alcohol counseling/treatment, SNAP or WIC, transportation assistance, meal or food services, or shelter/housing services
Statistical Analysis

- Racial/ethnic differences in SDH factors and behavioral/clinical characteristics
  - Weighted prevalence and prevalence differences (PDs) with 95% CIs
- Associations between covariates and treatment outcomes
  - Weighted prevalence with 95% CIs
- Reduced differences in treatment outcomes when controlling for SDH factors and behavioral/clinical characteristics using forward stepwise selection
  - Adjusted PDs with 95% CIs for Black or Hispanic/Latino MSM compared to White MSM
Prevalence of Treatment Outcomes

ART Adherence

- Black MSM: 36%
- Hispanic/Latino MSM: 43%
- White MSM: 53%

Sustained Viral Suppression

- Black MSM: 56%
- Hispanic/Latino MSM: 68%
- White MSM: 70%
# Black & White MSM Comparisons

<table>
<thead>
<tr>
<th></th>
<th>Prevalence difference (95% CI)</th>
<th>Adjusted prevalence difference (95% CI)</th>
<th>Adjusted for</th>
<th>Percent change in PD</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>ART adherence</strong></td>
<td>-17 (-20, -13)</td>
<td>-10 (-13, -6)</td>
<td>Age at interview + any unmet service need + food insecurity + federal poverty level + education + homelessness + gap in health coverage</td>
<td>-41%</td>
</tr>
<tr>
<td><strong>Sustained viral suppression</strong></td>
<td>-14 (-16, -11)</td>
<td>-6 (-9, -3)</td>
<td>ART adherence + age at interview + gap in health coverage + HIV care engagement + federal poverty level + food insecurity + any unmet service need + homelessness + education</td>
<td>-56%</td>
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### Hispanic/Latino & White MSM Comparisons

<table>
<thead>
<tr>
<th></th>
<th>Prevalence difference (95% CI)</th>
<th>Adjusted prevalence difference (95% CI)</th>
<th>Adjusted for</th>
<th>Percent change in PD</th>
</tr>
</thead>
<tbody>
<tr>
<td>ART adherence</td>
<td>-10 (-13, -7)</td>
<td>-4 (-7, -1)</td>
<td>Age at interview + federal poverty level + any unmet service need + binge drinking + health literacy</td>
<td>-62%</td>
</tr>
<tr>
<td>Sustained viral suppression</td>
<td>-2 (-6, 2)</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
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</tbody>
</table>
Discussion
Summary

- Treatment outcomes varied by racial/ethnic groups among MSM
  - ART adherence was lower among Black and Hispanic/Latino MSM compared with White MSM
  - Sustained viral suppression was lower in Black MSM than in Hispanic/Latino or White MSM

- Adjusting for SDH and other characteristics reduced the magnitude of disparities
  - Any unmet service need
  - Poverty
  - Gap in health coverage
  - Food insecurity
  - Homelessness
  - Education
Discussion

- Multilevel approaches to addressing SDH in HIV care and treatment are needed:
  - Provider
    - Understanding and helping to address barriers to treatment & adherence
    - Anti-stigma & anti-discrimination training
  - Community
    - Integrating housing services and ancillary services with HIV care
    - Mobile treatment clinics
  - Policy
    - Health insurance expansion
    - Increased minimum wage
Limitations

- Interview data are self-reported
  - Recall bias
  - Social desirability
- Racial/ethnic disparities remained
  - Other factors that we were unable to account for
Conclusion

- Addressing SDH would greatly reduce the disparities in ART adherence and sustained viral suppression among Black, Hispanic/Latino, and White MSM
  - Would substantially improve health equity among MSM with HIV
- Understanding which other factors contribute to the remaining disparities by racial/ethnic groups among MSM is important
  - Addressing systemic racism as a fundamental cause of health disparities could further reduce racial/ethnic disparities in treatment outcomes
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Thank You!

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The findings and conclusions in this report are those of the authors and do not necessarily represent the official position of the Centers for Disease Control and Prevention.