ADHERENCE TRAJECTORIES AMONG AFRICAN AMERICANS LIVING WITH HIV

Laura M. Bogart,[1] Glenn J. Wagner,[1] Bonnie Ghosh-Dastidar,[1] David J. Klein,[1] Matt G. Mutchler,[2,3] & Bryce McDavitt[2,4]

[1]RAND Corporation; [2]AIDS Project Los Angeles; [3]California State University-Dominguez Hills; [4]University of Southern California

1

Background: HIV Disparities

- African Americans living with HIV show lower antiretroviral treatment (ART) adherence than do Whites living with HIV, contributing to disparities in viral suppression and survival

- Culturally relevant factors, psychosocial factors, and structural factors have been associated with non-adherence among African Americans in prior research
  - Cultural factors: stigma, medical mistrust (due to experienced and historical discrimination)
  - Psychosocial factors: mental health (depression), substance use
  - Structural factors: poverty

Bogart et al. 2010a, 2010b, 2016; Dale et al. 2016; Earnshaw et al. 2013;
Simoni et al. 2012; Wagner et al., 2012

2

The Present Study

- Research has not fully examined how cultural, psychosocial and structural factors together may contribute to different trajectories of non-adherence over time

- Glass et al. (2009) Swiss Cohort Study: four trajectories of self-reported adherence (good, worsening, improving, poor)
  - Worse adherence: younger age, basic education, changed living conditions, started IDU, increased alcohol use, depression, longer time with HIV, lipodystrophy, and changing care provider
  - Improved adherence: simplified regimen, changed ART class, less time on ART, starting comedication (for opportunistic infections, CVD, HCV, cancer)

The Present Study

- To understand potential reasons for disparities, we explored whether there were distinct adherence trajectories (or, patterns) among African Americans living with HIV,

- To explore whether these different trajectories had distinct cultural, psychosocial and structural correlates

Methods: Participants

- Combination of two longitudinal (6-month) datasets of HIV-positive African American adults recruited in community settings in Los Angles, CA (8/10-3/15)
  - Project Mednet: 246 participants
    - Longitudinal study of social networks
  - Project Rise: 108 participants
    - Control group from adherence intervention study
- Duplicate participants (n = 33) omitted from Rise
- Participants missing electronic adherence data at any timepoint omitted (n = 82)
- Final n = 239

Methods: Measures

- Electronically monitored adherence with the Medication Event Monitoring System (MEMS)
  - Mednet: 2, 4, and 6 months post-baseline
  - Rise: 1.5, 4.5, and 6 months post-baseline
  - Calculated past 2-week adherence (% of doses taken) at each time-point
  - Adjustment for use of cap (e.g., pocketed doses)

Methods: Measures

- Baseline audio computer-assisted self-interviews:
  - Cultural/Psychosocial:
    - Internalized stigma, medical mistrust, perceived ART efficacy, healthcare satisfaction rating, depression severity, problem alcohol use, stimulant substance use, sex while high
  - Structural/Socio-demographic/Medical
    - Age, sexual orientation, time since diagnosis, prior incarceration (past 3 months), income, stable housing

Methods:
Group-based Trajectory Analysis

- Proc Traj (a SAS procedure developed at Carnegie Mellon) was used to identify clusters of individuals with similar progressions of adherence over time

  – Developmental trajectories estimated from longitudinal data based on a semiparametric, group-based modeling strategy, and then membership probabilities estimated in each group for every participant

Jones & Nagin, 2007

Methods:
Regression Analysis

- Bivariate and multivariate multinomial regression models predicted trajectory membership with cultural, psychosocial, structural, socio-demographic, and medical factors
  - Comparisons between pairs of trajectories for each predictor
- Final multivariate model: stepwise procedures

Jones & Nagin, 2007

Results: Participants

|	M (SD) or %
Age (years)	47.7 (10.0)
Female	25.1%
MSM	65.3%
Low Income (<$10,000 annually)	66.1%
Stable Housing	74.1%
Time since diagnosis (years)	14.4 (8.0)
Incarceration (last 3 mos.)	7.6%

Results:
Group-Based Trajectory Analysis

The analysis yielded three groups:

	N	Adherence (% of doses taken)		
		Time 1 M (SD)	Time 2 M (SD)	Time 3 M (SD)
Low-Decreasing	61	23.2 (23.8)	26.8 (26.4)	16.3 (20.5)
Moderately Low-Stable	83	63.5 (24.8)	60.2 (24.7)	58.4 (23.9)
High-Stable	95	92.6 (9.9)	92.4 (10.4)	89.9 (13.7)

Jones & Nagin, 2007

Adherence Trajectories
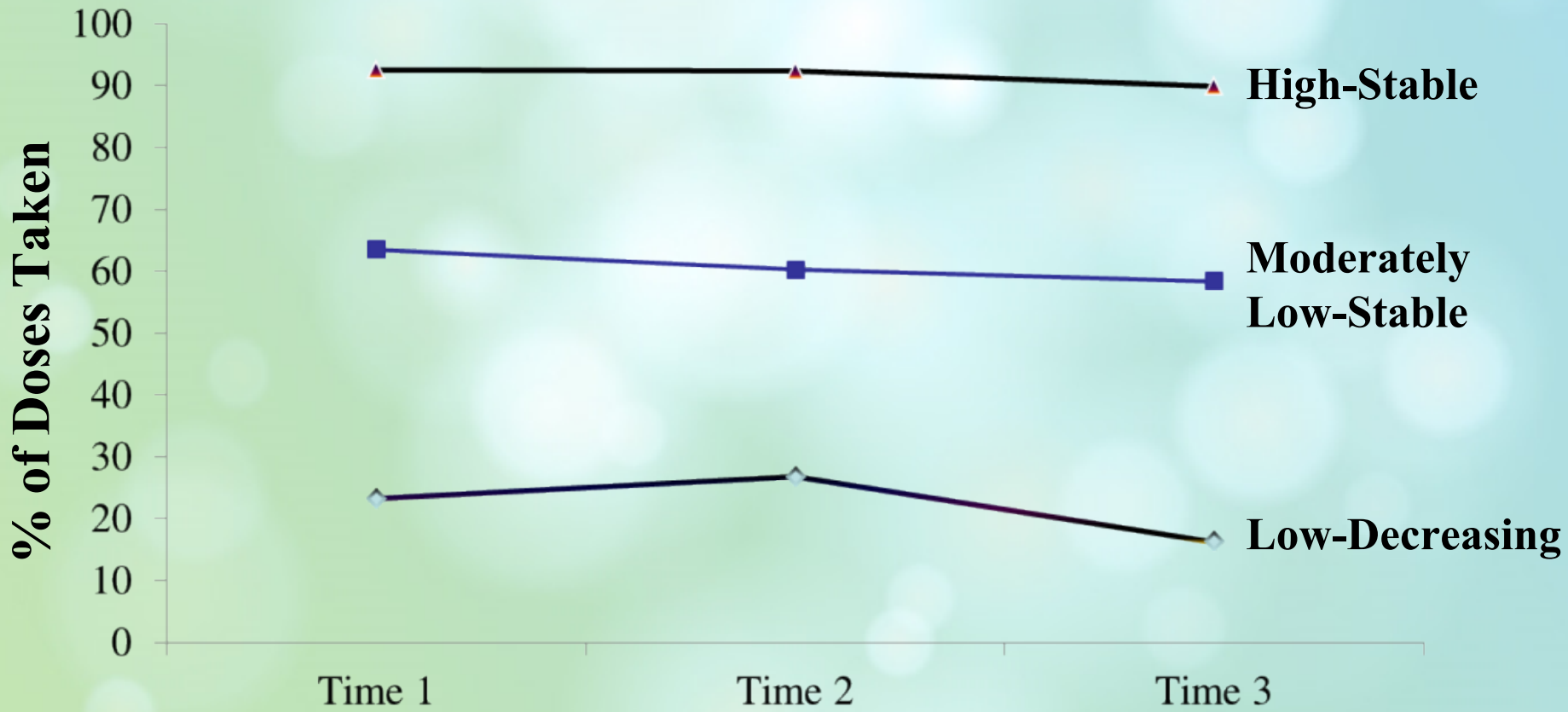
Bivariate Results

Variable	Low vs. High OR (95% CI)	Middle vs. High OR (95% CI)	Low vs. Middle OR (95% CI)
Structural/Socio-Demographic			
Age	0.95 (0.92 – 0.98)**	0.98 (0.95 – 1.01)	0.97 (0.94 – 1.00)+
Recent Jail	2.72 (0.85 – 8.74)+	1.13 (0.32 – 4.05)	2.40 (0.74 – 7.80)
Psychosocial/Cultural			
Stimulant Use	1.87 (0.82 – 4.24)	2.44 (1.16 – 5.13)*	0.77 (0.36 – 1.63)
Sex while high	2.80 (1.18 – 6.63)*	2.80 (1.26 – 6.24)*	1.00 (0.46 – 2.15)
Med mistrust (race)	1.17 (0.71 – 1.92)	1.56 (0.98 – 2.48)+	0.75 (0.45 – 1.25)
ART efficacy	0.65 (0.36 – 1.17)	0.54 (0.32 – 0.92)*	1.20 (0.69 – 2.09)
Care rating	0.90 (0.73 – 1.12)	0.76 (0.63 – 0.92)**	1.19 (0.99 – 1.44)+

Note: Only variables with significant/marginal results shown; all bivariates controlled for dataset (Rise vs. Mednet)

+p<.10; *p<.05; **p<.01; ***p<.001

Final Multivariate Model

Variable	Low vs. High OR (95% CI)	Middle vs. High OR (95% CI)	Low vs. Middle OR (95% CI)
Structural/Socio-Demographic			
Age	0.95 (0.92 – 0.98)**	0.98 (0.95 – 1.01)	0.97 (0.94 – 1.00)+
Psychosocial/Cultural			
Stimulant Use	1.82 (0.79 – 4.22)	2.57 (1.20 – 5.49)*	0.71 (0.33 – 1.54)
ART efficacy	0.60 (0.33 – 1.10)	0.55 (0.32 – 0.96)*	1.09 (0.61 – 1.94)
Care rating	0.94 (0.76 – 1.17)	0.77 (0.64 – 0.93)**	1.22 (1.00 – 1.49)*

Note: Model controlled for dataset used

+p<.10; *p<.05; **p<.01

Summary

- Older participants were more likely to be in the moderately low or high adherence group

- Participants with lower perceived ART efficacy, who rated their healthcare as worse, and who used stimulant drugs, were more likely to be in the moderately low (vs. high) adherence group

- Participants with higher healthcare ratings were more likely to be in the low (vs. middle) group

15

Limitations

- Small sample size for trajectory analysis
- Data points combined over two different studies and 5 years (although methods and research staff were consistent)
- Trajectories were generally flat, so analysis may not add insights above prior research using simpler regression models to predict continuous adherence outcomes

Discussion

- Psychosocial and culturally relevant factors including substance use and medical mistrust were associated with moderately low adherence trajectories, above effects of structural/socio-demographic factors
  - Unknown why few predictors were associated with very low adherence trajectory
    - Possible power issue or unmeasured structural variables (e.g., neighborhood factors) that are high barriers to access to care
- Future work could involve replication with a larger sample size, as well as additional predictors or domains

Acknowledgments

- Community Partners
  - Brian Risley, Kieta Mutepfa
  - APLA Treatment Education Community Advisory Board
- Project Staff
  - Sean Lawrence, Nikki Rachal, Kelsey Nogg
- Funding
  - R01MD003964 , R01 MD006058, R01 NR017334, P30MH058107