

The Impact of Psychological Factors on ART Adherence is Mediated by Poverty in Older Adults Living With HIV



Peter Mazonson¹, Maile Karris², Emily Huang¹, Jeff Berko¹, Frank Spinelli³, Andrew Zolopa^{3,4}

(1) Mazonson & Santas, Inc., Larkspur, CA., (2) UC San Diego Medical Center, San Diego, CA., (3) ViiV Healthcare, Raleigh, NC., (4) Stanford University, Stanford, CA

INTRODUCTION

Despite decades of work evaluating multiple interventions to improve ART adherence, viral load suppression in the U.S. remains far below Ending the HIV Epidemic goals. Previous research demonstrates that income and other factors, including social well-being (SWB), resilience, and exercise are correlated with ART adherence. However, it is unclear how these factors interact with income to impact adherence in older adults living with HIV (OALWH).

METHODS

Self-reported outcome measures from the Aging with Dignity, Health, Optimism, and Community (ADHOC) cohort were collected from November 2017 to June 2019. Adherence was measured using the Brief Adherence Self-Report Questionnaire, depression using the Patient Health Questionnaire-2, Social Well-Being using the Functional Assessment of HIV Infection, and resilience using the Connor-Davidson Resilience Scale. Face-valid questions provided data on household income, race, sexual orientation, # of ART pills daily, and exercise. Linear regressions assessed the associations between these variables and adherence. Mediation analysis using bootstrapping assessed the significance of the mediation effects of income on these variables. B-values where the 95% CI did not include zero signified statistically significant causal mediation effects of income on adherence and the variable

of interest. For the regression analysis, p-values < 0.05 were significant.

RESULTS

For 1,039 ADHOC participants, average age was 59 years, 86% were male, 69% were White, and mean adherence was 96.2% (SD=11.2). In bivariate analyses, depression, SWB, exercise, resilience, White race, # ART pills daily, and sexual orientation were each significantly correlated with both ART adherence and income (Table 1). Interestingly, depression, SWB, resilience, and exercise became non-significant predictors of adherence after adjusting for the effects of income (Table 2). Mediation analysis with bootstrapping demonstrated significant causal mediation effects of income on depression and adherence (B=-0.14, 95% CI (-0.25 – -0.04)), SWB and adherence (B=0.03, 95% CI (0.01 – 0.05)), resilience and adherence (B=0.15, 95% CI (0.04 – 0.27)), and exercise and adherence (B=0.002, 95% CI (0.0007-0.003)).

CONCLUSIONS

In OALWH, household income mediates the relationship between ART adherence and depression, SWB, resilience, and exercise. Therefore, interventions to improve adherence must address the causal role of income and focus on providing low-income patients with economic support to help lift them out of poverty.

Table 1. Bivariable analysis showing the association of various factors with ART adherence and income.

Variable	Association with ART Adherence		Association with Income	
	χ^2	p-value	χ^2	p-value
Age	2.42	0.12	1.70	0.19
Gender	4.00	0.26	78.22	<0.01
Race/ethnicity	16.54	<0.01	102.35	<0.01
Sexual orientation	8.22	<0.01	78.12	<0.01
Relationship status	12.06	0.10	162.11	<0.01
# ART pills daily	26.33	<0.01	12.46	0.01
Depression	15.52	<0.01	29.74	<0.01
Social well-being	10.19	<0.01	18.46	<0.01
Resilience	6.04	0.01	37.16	<0.01
Exercise	20.39	<0.01	54.63	<0.01

Table 2. Regression analysis showing the role of income as a causal mediator between various factors and ART adherence.

	Association with ART Adherence			Association with ART Adherence after Adjusting for the Mediating Effect of Income		
	β	t	p-value	β	t	p-value
Depression	-0.07	-2.30	0.02	-0.05	-1.47	0.14
Social well-being	0.07	2.11	0.04	0.03	0.91	0.36
Resilience	0.09	2.85	<0.01	0.06	1.69	0.09
Exercise	0.08	2.49	0.01	0.05	1.55	0.12