

### Abstract

#### Introduction/Aims

This paper documents ARV adherence among 299 indigent, substance abusing, sexually active OPLWH and examines risk and protective factors associated with ARV adherence for this group.

#### Methods

Participants completed a standardized instrument assessing demographics, mental health status, substance use, HIV diagnosis, treatment history and access, ARV adherence and diversion, and attitudes toward health care providers. Bivariate logistic regression models were used to predict 95% ARV adherence by: demographics, mental health, recent substance abuse, sex risk behaviors, individual level HIV factors, and HIV treatment factors.

#### Results

95% adherence to ARV medications was achieved by 57.2% of participants. Protective factors for achieving 95% adherence included higher coping, more positive attitudes toward ARV medications, and greater knowledge of HIV; risk factors were past year substance dependence, recent marijuana use, sex while high, recent homelessness, and ARV diversion.

#### Conclusion

OPLWH demonstrate modest adherence and continue to engage in substance abuse and risky sexual behaviors. It is essential for providers to understand the negative impact of substance dependence and housing instability on ARV adherence.

### Introduction

- According to the CDC, 17% of all new HIV infections in the U.S. were among those 50 and older; 35% of the estimated 1.1 million people living with HIV were age 50 and up <sup>1</sup>.
- ARV adherence support targeting the specific needs of this aging population have only recently emerged <sup>2,3</sup>.
- ARV adherence is critical to attain favorable health outcomes and prevent onward disease transmission <sup>4-6</sup>.
- Despite documented recognized HIV risk behaviors and substance abuse among OPLWH, factors influencing ARV adherence are not well understood for this group <sup>7-11</sup>.
- This paper documents ARV adherence among this group of OPLWH, and examines the risk and protective factors associated with ARV adherence.

### Methods

Data for this study were drawn from a larger mixed methods project designed to examine the patterns and predictors of ARV diversion (the unlawful sale and trading of ARV medications).

Eligible participants: provided documentation of their HIV status and were currently prescribed ARV medications; were age 18 or older; and had used cocaine, crack or heroin 12 or more times in the past 90 days. This analysis includes only participants aged 45 and older.

The Global Appraisal of Individual Needs (GAIN, v. 5.4; <sup>12</sup>) was the primary study instrument. Standardized instruments were used to measure HIV diagnosis/treatment history<sup>13</sup>, ARV adherence <sup>14</sup>, attitudes toward HIV providers <sup>15</sup>, ARV medication attitudes <sup>16</sup>, HIV treatment satisfaction and access <sup>17</sup>, HIV related stigma <sup>18</sup>, and health literacy and HIV knowledge <sup>19</sup>.

Past week ARV adherence, the main outcome variable, was assessed via the ACTG Questionnaire<sup>41</sup>.

### Methods

The ARV section gathered total ARV doses prescribed and total doses missed in the past seven days. Weekly ARV were computed and divided by total doses prescribed to generate an adherence percentile score. This variable was then dichotomized into “95% or more adherent” or “less than 95% adherence.”

Descriptive statistics were calculated: demographics; mental health (depression, anxiety, substance dependence, and coping); recent (past 90 day) substance use; sexual risk behaviors; and individual level HIV-related factors (ARV diversion and adherence). Mean values were calculated for coping and HIV treatment factors including attitudes toward providers and ARV medications and treatment access, HIV related stigma and HIV knowledge.

Bivariate logistic regression models were constructed to predict 95% ARV adherence by: demographics, mental health, recent substance use, sex risk behaviors, individual level HIV factors, and HIV treatment factors. Significance level was set at  $p < .05$  for all comparisons.

### Results: Descriptives

Variable	N	%
<b>Age (mean, SD)</b>	50.99 (4.76)	
45-49	139	46.5
50-54	100	33.5
55-60	41	13.7
60-64	15	5.0
65 and older	4	1.3
<b>Race</b>		
African American	212	70.9
White	49	16.4
Hispanic	35	11.7
Other	3	1.0
<b>Gender</b>		
Male	179	59.9
Female	120	40.1
<b>Recent homelessness (past 30 days)</b>	86	28.8
<b>Mental Health</b>		
Severe Depression	158	52.8
Severe Anxiety	94	31.4
Severe Substance Dependence	162	54.2
Coping (mean, SD) Range: 0-40	21.40 (7.88)	
<b>Sexual Risk behaviors</b>		
Risky unprotected sex <sup>1</sup>	134	44.8
Sex while high	221	73.9
<b>Individual Level HIV Factors</b>		
ARV diversion	147	49.2
<b>HIV Treatment factors</b>		
95% Adherence	171	57.2
Attitude toward providers (mean, SD) Range: 24-48	44.38 (4.66)	
ARV medication attitudes (mean, SD) Range: 1-10	8.47 (1.58)	
HIV treatment access (mean, SD) Range: 9-28	24.14 (4.31)	
HIV related stigma (mean, SD) Range: 10-44	23.82 (7.89)	
HIV knowledge (mean, SD) Range: 0-12	6.81 (0.52)	

### Results: Bivariate Logistic Regression Model N=299

Variable	Odds ratio	95% CI	p
Age	0.994	0.947, 1.043	0.811
Male gender <sup>1</sup>	0.979	0.613, 1.563	0.929
African American <sup>1</sup>	0.612	0.365, 1.028	0.063
Recent homelessness <sup>1</sup>	0.544	0.328, 0.903	0.018
<b>Mental Health</b>			
Severe Depression <sup>1</sup>	0.667	0.420, 1.058	0.085
Severe Anxiety <sup>1</sup>	0.789	0.483, 1.290	0.344
Severe Substance Dependence <sup>1</sup>	0.585	0.367, 0.932	0.024
Higher coping (21 and over) <sup>1</sup>	1.884	1.185, 2.996	0.007
<b>Recent Substance Use</b>			
Alcohol <sup>1</sup>	0.492	0.199, 1.216	0.124
Marijuana <sup>1</sup>	0.613	0.385, 0.977	0.039
Cocaine <sup>1</sup>	1.181	0.739, 1.888	0.486
Crack <sup>1</sup>	0.666	0.380, 1.167	0.156
Heroin <sup>1</sup>	1.280	0.601, 2.725	0.521
<b>Sexual Risk behaviors</b>			
Risky unprotected sex <sup>1, 2</sup>	0.648	0.384, 1.095	0.105
Sex while high <sup>1</sup>	0.458	0.217, 0.969	0.041
<b>Individual Level HIV Factors</b>			
ARV diversion <sup>1</sup>	0.211	0.129, 0.346	0.000
<b>HIV Treatment factors</b>			
Attitude toward providers	0.985	0.937, 1.035	0.554
ARV medication attitudes	1.280	1.099, 1.490	0.002
HIV treatment access	1.043	0.989, 1.100	0.118
HIV related stigma	0.980	0.952, 1.009	0.170
HIV knowledge	1.341	1.103, 1.632	0.003

<sup>1</sup> Reference group is ‘no’  
<sup>2</sup> N=235

### Conclusions

Barriers to ARV adherence faced by vulnerable populations, such as substance dependence, housing instability, and income instability are also faced by adults living with HIV later in life.

Despite advanced age and lack of research attention, OPLWH continue to engage in risky behaviors and demonstrate only modest adherence.

Risk reduction interventions must be tailored to aging populations to address and treat substance dependence, mental illness, and other co-morbidities.

Practitioners must broach topics of sexual risk and adherence among this population of aging adults with HIV.

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