

**RISK AND PROTECTIVE FACTORS
ASSOCIATED WITH ARV ADHERENCE
AMONG AGING, INDIGENT,
SUBSTANCE ABUSING PEOPLE
LIVING WITH HIV**

**Maria A. Levi-Minzi, M.A., Kiyomi Tsuyuki, Ph.D.,
Hilary L. Surratt, Ph.D.**

HIV/AIDS Workgroup

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INTRODUCTION

- Growing numbers of older adults are contracting HIV.
- 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 ¹.
- HIV transmission among older adults is a critical public health concern.
- Older Americans remain sexually active and have many of the same risk factors for HIV as their younger counterparts ¹ :
 - Lack of knowledge about HIV and its transmission
 - Inconsistent condom use
 - Multiple partners



INTRODUCTION

- Older people living with HIV/AIDS (OPLWHA) also continue to engage in high risk transmission behaviors ⁴⁻⁶.
- Rates of substance use are also high among older adults with HIV compared to uninfected peers².
- Few studies have examined risky sexual behavior among chronic, substance abusing OPLWHA.
- Despite documented HIV risk behaviors and substance abuse among OPLWH, factors influencing ARV adherence are not well understood for this group ³⁻⁷.



INTRODUCTION

- Documented rates of adherence among older adults samples has ranged from 49%-89%; some studies indicate that older adults have higher levels of adherence⁸ .
- ARV adherence is critical to attain favorable health outcomes and prevent onward disease transmission ^{8,9} .
- ARV adherence support targeting the specific needs of this aging population has only recently emerged ^{10,11} .
- Few studies have examined associations between substance abuse, sexual risk behavior, and ARV adherence in actively substance abusing older populations of PLWH.



CURRENT STUDY

- This presentation documents ARV adherence among a vulnerable, indigent sample of OPLWH, and examines the risk and protective factors associated with ARV adherence.



TARGET POPULATION

- Data were drawn from a mixed methods study designed to examine the patterns and predictors of ARV diversion (the unlawful sale and trading of ARV medications) among indigent, HIV positive substance abusing individuals living within South Florida.
- We recruited a total of 503 high needs, HIV positive heroin and cocaine users.
- This analysis includes only participants aged 45 and older (N=299).



STUDY ELIGIBILITY



- Eligible participants:
 - Provided documentation of their HIV status
 - Were currently prescribed ARV medications
 - Were age 18 or older
 - Reported cocaine, crack or heroin use 12 or more times in the past 90 days
 - Diverters endorsed ARV medication diversion at least once in the past 90 days.



PROCEDURES

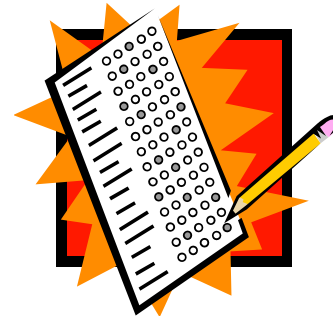


- Targeted sampling in communities with intersecting poverty and high HIV prevalence
- Participants screened over the phone for eligibility
- Participants came to our offices where they were re-screened
- Informed consent was obtained
- Trained study staff conducted computer-assisted personal interviews (CAPI) in English or Spanish
- Interview typically lasted 1 hour and clients were paid a \$30 stipend upon completion



MEASURES

- The Global Appraisal of Individual Needs (GAIN, v. 5.4; ¹²) was the primary study instrument.
- Standardized instruments were used to measure:
 - HIV diagnosis/treatment history¹³
 - ARV adherence¹⁴
 - Attitudes toward HIV providers¹⁵
 - ARV medication attitudes¹⁶
 - HIV treatment satisfaction and access¹⁷
 - HIV related stigma¹⁸
 - Health literacy¹⁹
 - HIV knowledge¹⁹



MEASURES

- Past week ARV adherence, the main outcome variable, was assessed via the ACTG Questionnaire¹⁴.
- The ARV section gathered total ARV doses prescribed and total doses missed in the past seven days.
- Weekly ARV adherence scores 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.”



ANALYSIS

- Descriptive statistics:
 - Demographics
- Potential risk and protective factors associated with HIV risk or adherence ¹⁰ :
 - **Mental health**
 - Depression
 - Anxiety
 - Substance dependence
 - Coping
 - Social support
 - **Sexual Risk behaviors**
 - Risky unprotected sex (vaginal or anal w/o condom)
 - Sex while high



ANALYSIS

- **Individual level HIV factors**
 - Recent (past 90 day) ARV diversion
 - Years positive
 - Years on ARV meds
- **HIV care factors**
 - Attitudes toward providers
 - Attitudes toward ARV medications
 - Treatment access
 - HIV related stigma
 - HIV knowledge
- Bivariate logistic regression models were constructed to predict 95% ARV adherence by: demographics, mental health variables, sex risk behaviors, individual level HIV factors, and HIV treatment factors.
- Significance level was set at $p < .05$ for all comparisons.



RESULTS: DESCRIPTIVES N=299

| Variable | N | % |
|---|---------------------|-------------|
| Age (mean, SD) | 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 |
| Race | | |
| African American | 212 | 70.9 |
| White | 49 | 16.4 |
| Hispanic | 35 | 11.7 |
| Other | 3 | 1.0 |
| Gender | | |
| Male | 179 | 59.9 |
| Female | 120 | 40.1 |
| Monthly Income: Less than \$1000¹ | 245 | 81.9 |
| Recent homelessness (past 30 days) | 86 | 28.8 |

¹N=298



RESULTS: DESCRIPTIVES N=299

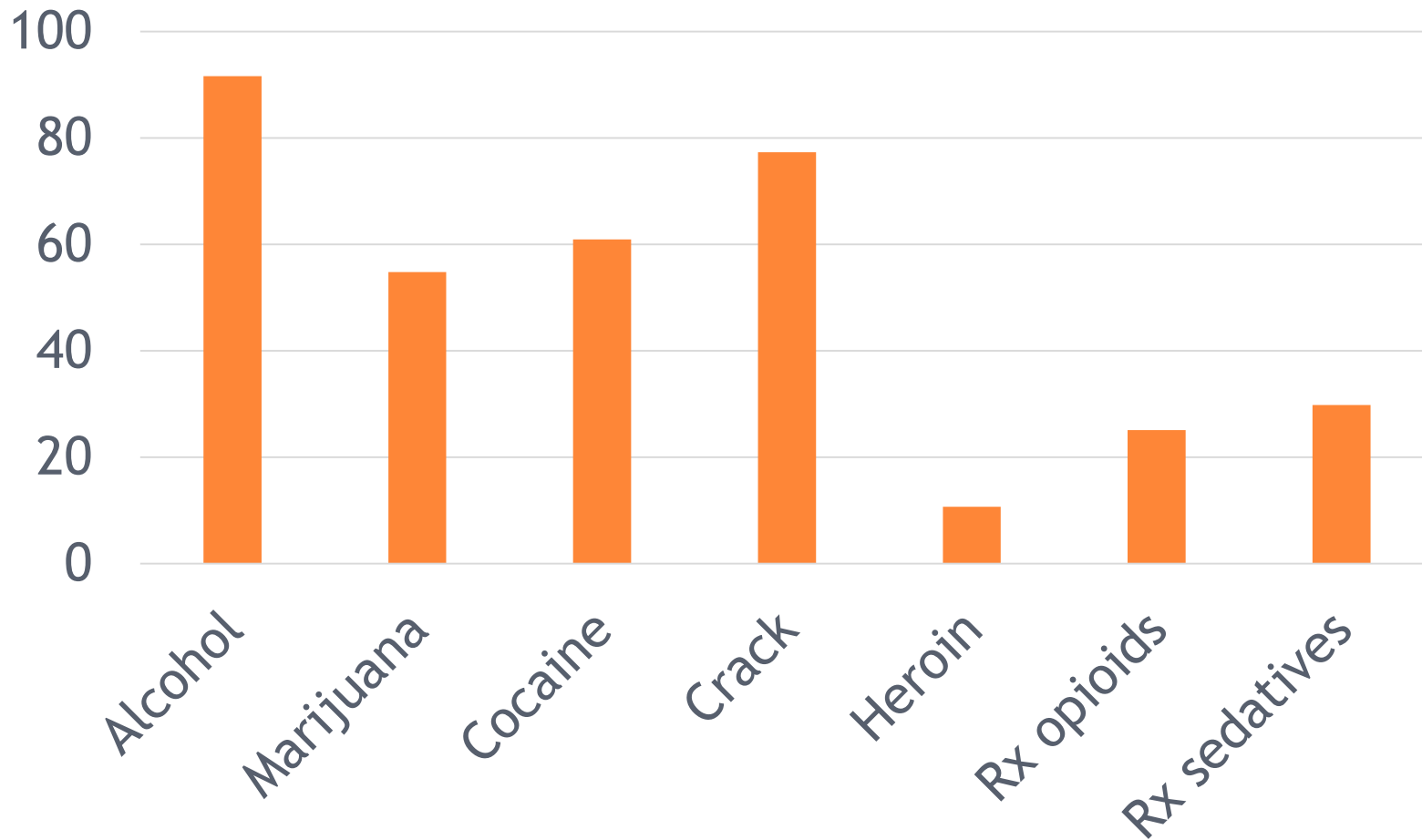
| Mental Health Variables | N | % |
|--|--------------|------|
| Severe Depression | 158 | 52.8 |
| Severe Anxiety | 94 | 31.4 |
| Severe Substance Dependence | 162 | 54.2 |
| Coping (mean, SD) Range: 0-40 | 21.40 (7.88) | |
| Social Support (mean, SD) Range: 3-15 | 10.03 (3.28) | |

| Sexual Risk behaviors | N | % |
|------------------------------------|-----|------|
| Risky unprotected sex ² | 134 | 44.8 |
| Sex while high | 221 | 73.9 |

² N=235



RESULTS: PAST 90 DAY SUBSTANCE USE




RESULTS: DESCRIPTIVES N=299

| Individual Level HIV Factors | | |
|--|--------------|------|
| ARV diversion | 147 | 49.2 |
| Years positive (mean, SD) ¹ | 14.44 (7.35) | |
| Years ARV meds (mean, SD) ³ | 10.94 (6.61) | |

¹ N=298

³ N=296

| HIV Treatment factors | | |
|--|--------------|--|
| 95% Adherence | 171 | 57.2  |
| Attitude toward providers (mean, SD) Range: 12-48 | 44.38 (4.66) | |
| ARV medication attitudes (mean, SD) Range: 1-10 | 8.47 (1.58) | |
| HIV treatment access (mean, SD) Range: 7-28 | 24.14 (4.31) | |
| HIV related stigma (mean, SD) Range: 11-44 | 23.82 (7.89) | |
| HIV knowledge (mean, SD) Range: 1-7 | 6.81 (0.52) | |



RESULTS: BIVARIATE LOGISTIC REGRESSION MODEL PREDICTING FACTORS AFFECTING PAST WEEK 95% ARV ADHERENCE N=299



| Variable | Odds ratio | 95% CI | p |
|---|--------------|---------------------|----------------|
| Age | 0.994 | 0.947, 1.043 | 0.811 |
| Male gender ¹ | 0.979 | 0.613, 1.563 | 0.929 |
| African American ¹ | 0.612 | 0.365, 1.028 | 0.063 |
| Monthly Income: Less than \$1000 ^{1, 2} | 1.122 | 0.617, 2.039 | 0.706 |
| Primary Partner ¹ | 0.891 | 0.561, 1.415 | 0.624 |
| Recent homelessness (past 30 days)¹ | 0.544 | 0.328, 0.903 | 0.018 ← |
| Mental Health | | | |
| Depression ¹ | 0.667 | 0.420, 1.058 | 0.085 |
| Anxiety ¹ | 0.789 | 0.483, 1.290 | 0.344 |
| Substance Dependence¹ | 0.585 | 0.367, 0.932 | 0.024 ← |
| Higher coping (21 and over)¹ | 1.884 | 1.185, 2.996 | 0.007 ← |
| Higher social support (10 and over) ¹ | 1.028 | 0.649, 1.628 | 0.906 |
| Recent Substance Use (past 90) | | | |
| Alcohol ¹ | 0.492 | 0.199, 1.216 | 0.124 |
| Marijuana¹ | 0.613 | 0.385, 0.977 | 0.039 ← |
| Cocaine ¹ | 1.181 | 0.739, 1.888 | 0.486 |
| Crack ¹ | 0.666 | 0.380, 1.167 | 0.156 |
| Heroin ¹ | 1.280 | 0.601, 2.725 | 0.521 |
| Rx Opioids ¹ | 0.755 | 0.446, 1.277 | 0.295 |
| Rx sedatives ¹ | 1.606 | 0.961, 2.684 | 0.071 |

¹ Reference group is 'no'

³ N=235

² N=298

⁴ N=296



RESULTS: BIVARIATE LOGISTIC REGRESSION MODEL PREDICTING FACTORS AFFECTING PAST WEEK 95% ARV ADHERENCE N=299

| Variable | Odds ratio | 95% CI | p |
|---------------------------------------|--------------|---------------------|----------------|
| Sexual Risk behaviors | | | |
| Risky unprotected sex ^{1, 3} | 0.648 | 0.384, 1.095 | 0.105 |
| Sex while high¹ | 0.458 | 0.217, 0.969 | 0.041 ← |
| | | | |
| Individual Level HIV Factors | | | |
| ARV diversion¹ | 0.211 | 0.129, 0.346 | 0.000 ← |
| Years positive ² | 0.984 | 0.954, 1.016 | 0.325 |
| Years ARV meds ⁴ | 0.994 | 0.959, 1.029 | 0.718 |
| | | | |
| HIV Treatment factors | | | |
| 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 ← |

¹ Reference group is 'no'

³ N=235

² N=298

⁴ N=296



DISCUSSION

- We revealed modest levels of ARV adherence: 57% of our sample achieved at least 95% adherence in the past week.
- Both substance dependence and homelessness were negatively associated with optimal adherence in our study.
- Although the low adherence in our sample is contrary to a group of studies that find greater ARV adherence in older adults (compared to young) ^{10, 11}, our sample is especially disadvantaged.
- ARV diversion is a significant barrier to adherence, with ARV diverters having almost 80% decreased odds of optimal ARV adherence compared to non-diverters.
- Our aging sample of indigent OPLWH continued to engage in risky sexual practices, with almost 45% of our sample reporting unprotected sex.



DISCUSSION

- Sex while high was associated with suboptimal ARV adherence, with almost 75% of our sample reporting sex while intoxicated on alcohol or high on drugs.
- Our study also identifies several protective factors associated with optimal adherence among substance-involved OPLWH.
 - High coping ability, positive attitudes toward ARV medications and increased HIV knowledge are all associated with optimal ARV adherence.
- Our study and others find that adherence interventions for OPLWH should focus on promoting positive coping strategies.



CONCLUSIONS

- Our findings suggest that the 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.
- OPLWH continue to engage in risky behaviors and demonstrate only modest adherence, factors that have critical public health implications for the reduction in HIV transmission risk among aging individuals in vulnerable situations.

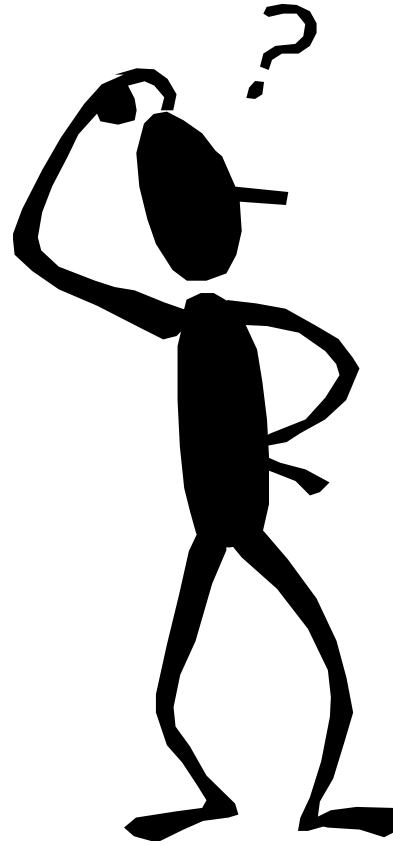


CONCLUSIONS

- Risk reduction interventions must be tailored to aging populations to address and treat substance dependence, mental illness, and other co-morbidities.
- Health care practitioners must broach topics of sexual risk and adherence among this population of aging adults with HIV.



QUESTIONS



THANK YOU!!!!

maria.leviminzi@nova.edu

Nova Southeastern University
Center for Applied Research on Substance
Use and Health Disparities



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