

# Neighborhood disorder, HIV treatment access and ARV diversion: a mediation study of drug-involved HIV positive individuals in South Florida

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## Abstract

**Aims:** Recent research has indicated the presence of an illicit market for HIV antiretroviral (ARV) medications in South Florida. We examine possible environmental contributors to ARV diversion among impoverished HIV+ substance abusers. In particular, this analysis focuses on the role of neighborhood disadvantage in impacting access to HIV treatment and subsequent ARV diversion. **Methods:** Participants were at least 18 years old, confirmed HIV+, and had used cocaine, crack or heroin at least 12 times within the last 3 months. By design, approximately half of participants endorsed recent diversion of ARVs (n=251). 503 participants completed a one-time face to face structured interview using standardized assessments. Mediation models were tested that examined the effects of neighborhood disorder and HIV treatment access on ARV diversion. **Results:** Significant correlations were found between neighborhood disorder and ARV diversion ( $r=0.09$ ,  $p<0.05$ ), neighborhood disorder and HIV treatment access ( $r=-0.10$ ,  $p<.03$ ), and HIV treatment access and ARV diversion ( $r=-0.12$ ,  $p<0.01$ ). During mediation analysis, the correlation of neighborhood disorder and diversion became non-significant, leading to the assumption of mediation through the indirect path of HIV treatment access. An increase in neighborhood disorder was associated with a decrease in HIV treatment access, while a reduction in HIV treatment access was correlated with ARV diversion. **Conclusions:** ARV diversion is problematic for individuals' quality of life as well as for public health. Our analysis documented significant impact of environmental stressors on ARV diversion among drug-involved HIV+ individuals. Further examination of the role of the community-level influences on diversion behaviors appears warranted.

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## Introduction

- There is an ARV diversion market in South Florida, consisting of HIV positive individuals who sell or trade their medications.
- Perceived neighborhood disorder indicates a lack of safety and order that residents feel in their communities (Ross and Mirowsky, 1999).
- HIV treatment access is the quantity and quality of care that a person living with HIV/AIDS feels they have (Bodenlos et al., 2004).
- We hypothesize that perceived neighborhood disorder is associated with increased ARV diversion through the mediating factor of HIV treatment.

## Methods

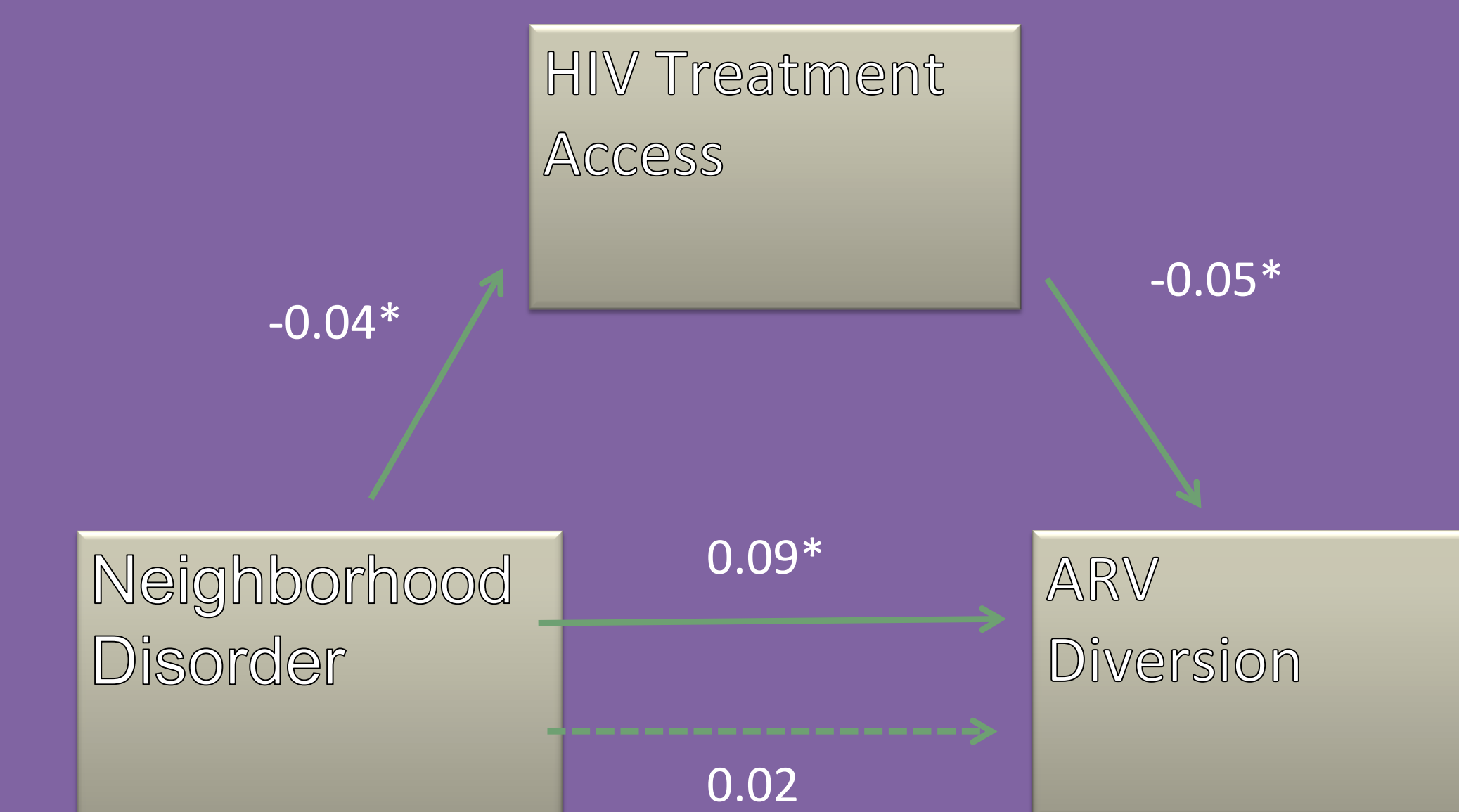
- Participants were recruited using targeted sampling strategies in South Florida.
- A single face to face interview was conducted by trained interviewers following informed consent.
- Assessment instrumentation used in this analysis included a newly developed ARV diversion questionnaire, the Attitudes Towards HIV Health Care Providers Scale (Bodenlos et al., 2004) and the Perceived Neighborhood Disorder Scale (Ross and Mirowsky, 1999).
- We used Pearson's r to examine bivariate correlations.
- We tested a mediation model in Stata using logistic regression for a dichotomous outcome (Hayes, 2008) and bootstrapping techniques to assess indirect effects.

## Selected Sample Characteristics (n=503)

Recent ARV Diversion, n(%)	251 (49.9%)
<b>Demographics</b>	
Age, mean (sd)	46.1 (7.8)
Female gender, n(%)	191 (38.0%)
<b>Race/Ethnicity</b>	
Hispanic/Latino, n(%)	90 (17.9%)
African American/Black, n(%)	341 (67.8%)
Caucasian/White, n(%)	66 (13.1%)
<b>Economic Factors</b>	
Income is \$500 or less a month, n(%)	159 (31.6%)
Currently unemployed, n(%)	442 (87.9%)
Without food/housing 3 months, n(%)	218 (43.3%)
<b>Environmental Contributors to Diversion</b>	
Neighborhood Disorder, mean (sd)	24.0 (9.8)
HIV Treatment Access, mean (sd)	23.8 (4.3)

## Results

Bivariate Correlations, Pearson's r (n=503)			
	ARV Diversion	HIV Treatment Access	Neighborhood Disorder
ARV Diversion	1	-0.12**	0.09*
HIV Treatment Access	-0.12**	1	-0.10*
Neighborhood Disorder	0.09*	-0.10*	1



Mediation Model: Neighborhood disorder on ARV diversion. Unstandardized path coefficients shown.

\* $p<0.05$  \*\* $p<0.01$

## Discussion

- Significant bivariate associations:
  - Increased perceived neighborhood disorder and ARV diversion
  - Perceived neighborhood disorder and decreased HIV treatment access
  - Decreased HIV treatment access and ARV diversion
- The mediation model has a significant indirect effect and a non-significant direct effect.
  - Indirect effect:
    - Neighborhood disorder does appear to influence ARV diversion through HIV treatment access.
    - Proportion of total effect mediated is 14%.

## Conclusion

- Our a priori hypothesis appears to be supported by the results: perceived neighborhood disorder influences ARV diversion through reduced HIV treatment access.
- Results point toward environmental influences on ARV diversion, with diversion occurring in areas with higher perceived neighborhood disorder and lower HIV treatment access.
- ARV diversion is problematic both for the health of individuals and from a public health standpoint. Results indicate a need for further study of neighborhood effects on HIV disease management.
- Community-level interventions may be warranted to increase HIV treatment access and reduce the risk for ARV diversion among HIV-positive individuals in disadvantaged communities.

## Literature Cited

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