Degree of Housing Instability Shows Independent "Dose-Response" with HIV Suppression

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Poster #908

Background

- Homelessness and housing instability are on the rise countrywide, especially among people living with HIV (PLHIV)
- Housing instability can hinder achieving virologic suppression (VS) among PLHIV, with implications both for individuals and forward transmission.[1–4]
- Most studies to date dichotomize housing status into homeless versus not, which may underestimate the nuanced effects of disparate living arrangements (e.g. transitional housing, shelters, hotels, living outdoors) on outcomes.
- We analyzed the relationship between a 6-category variable of housing status and VS rates among PLHIV in a large urban clinic

Methods

Study Population: Sequential sample of HIV + adult patients presenting for visit check-in at a safety-net HIV clinic ("Ward 86") in San Francisco.

Measurements:

- *Current housing status:* Circled on a pictorial survey depicting six different living arrangements: 1) Rent/Own; 2) Treatment/Transitional Program; 3) Hotel/Single Room Occupancy (SRO); 4) Staying with Friend; 5) Homeless Shelter; 6) Outdoors/In Vehicle.
- Viral load (VL): Closest measured within +/- 90 days of survey completion; VS defined as HIV RNA <200copies/mL.



Analysis: Odds of VS by 6-level housing status variable calculated, controlling for age, gender and race/ethnicity. Sensitivity analyses 1) excluded participants with missing VL data; and 2) categorized participants with missing VL within 90 days of the survey as VS instead of non-suppressed.

Results

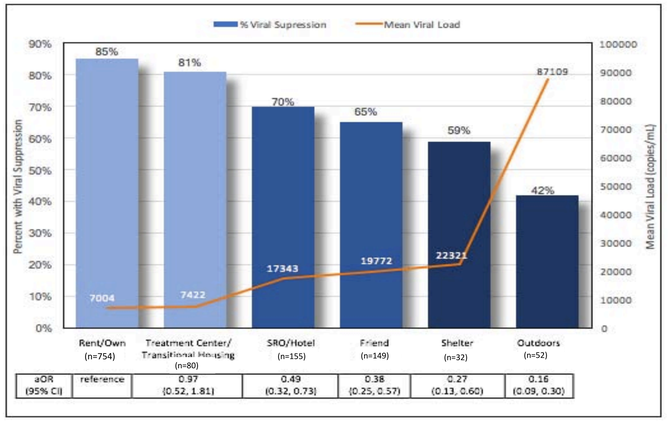
Table 1: Demographics of cohort (n=1222)

PATIENT CHARACTERISTICS (N=1222)	N/N (%)
Housing Status	
- Rent/Own	754 (62%)
- Rehabilitation	80 (7%)
- Hotel/SRO	155 (12%)
- Couch-surfing	149 (12%)
- Shelter	32 (3%)
- Streets	52 (4%)
Female Gender	159 (13%)
Race/Ethnicity	
- Black	285 (23%)
- White	476 (39%)
- Latino	289 (24%)
- Other	105 (9%)
Age	
- <30	72 (6%)
- 30-40	205 (17%)
- 40-50	317 (26%)
- >50	626 (51%)

Table 2: Unadjusted and Adjusted Odds of Virologic Suppression (N= 1222)

CHARACTERISTIC	UNADJUSTED OR (95% CI)	P-VALUE	ADJUSTED OR (95% CI)	P-VALUE
Housing Status				
- Rent/Own	Reference	Reference	Reference	Reference
- Rehabilitation	0.74 (0.40, 1.36)	0.33	0.92 (0.48, 1.76)	0.80
- Hotel/SRO	0.40 (0.26, 0.60)	<0.001	0.47 (0.30, 0.72)	<0.001
- Couch-surfing	0.30 (0.20, 0.45)	<0.001	0.34 (0.22, 0.52)	<0.001
- Shelter	0.25 (0.12, 0.53)	<0.001	0.26 (0.12, 0.59)	<0.001
- Streets	0.12 (0.07, 0.23)	<0.001	0.15 (0.08, 0.29)	<0.001
Female Gender	1.36 (0.90, 2.04)	0.15	1.40 (0.87, 2.27)	0.17
Race/Ethnicity				
- Black	Reference	Reference	Reference	Reference
- White	1.29 (0.92, 1.82)	0.14	1.48 (1.01, 2.18)	0.044
- Latino	1.15 (0.80, 1.66)	0.46	1.34 (0.88, 2.04)	0.17
- Other	1.08 (0.66, 1.79)	0.75	1.45 (0.82, 2.58)	0.20
Age				
- <30	Reference	Reference	Reference	Reference
- 30-40	0.71 (0.40, 1.26)	0.24	0.51 (0.26, 1.02)	0.058
- 40-50	0.89 (0.51, 1.56)	0.69	0.58 (0.30, 1.14)	0.11
- >50	1.76 (1.02, 3.03)	0.42	0.96 (0.50, 1.86)	0.91

Figure: Percent of Patients with Viral Suppression and Mean Viral Load by Living Arrangement (N= 1222)



n=total number of patients within each category of housing status. N=total number of patients evaluated. aOR = Adjusted Odds Ratio of Viral Suppression. CI = 95% confidence interval.

Key Findings

- Across a continuum of housing types VS rates decreased from 85% (rent/own) to 42% (outdoors) in a "dose-response" fashion.
- Adjusted odds of VS among those with unstable living arrangements were each significantly lower than in those who rented/owned, except when comparing those in treatment/transitional housing to those who rent/own
- Results unchanged in both sensitivity analyses.
- Adjusted odds of VS was higher in white than black patients.

Conclusions

- Although living outdoors was associated with the lowest likelihood of VS, other forms of instability (including living in a shelter, "couch-surfing", being in an SRO) were also associated with lower rates of VS compared to being stably housed.
- Consistent with other data on housing status and virologic outcomes, but provides greater granularity on housing type than any prior evaluation.[1,7]
- Our study confirms persistent disparities in virologic outcomes by race, a finding independent of housing status in this large urban clinic population.

Implications

- Evaluation of the causes of virologic non-suppression by dwelling type will address a fundamental research gap.
- Such evaluation should enhance our ability to tailor interventions to increase VS across a spectrum of unstable housing arrangements, not just among those living on the street.
- Incremental improvements in housing stability may improve VS and reduce transmission rates among PLHIV

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