

HIV viral suppression across the housing spectrum

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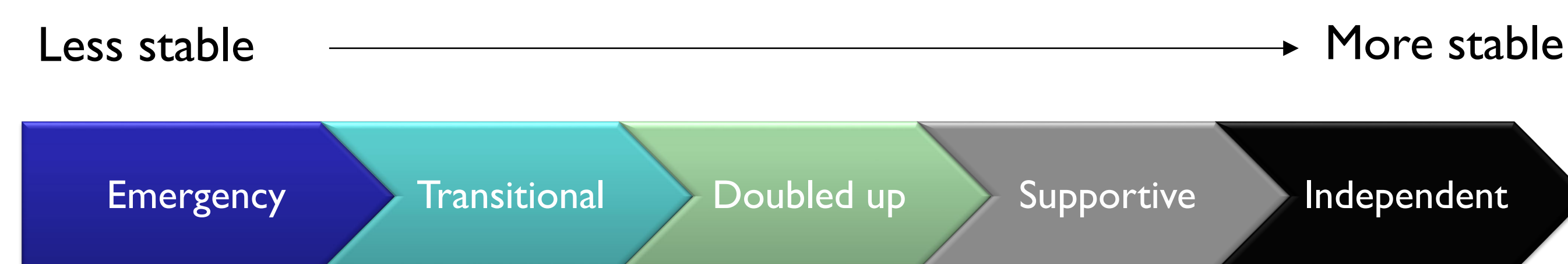
Background

- Suboptimal housing is a well-documented barrier to achieving desired HIV-related health outcomes.¹
- Much of the research on HIV and housing dichotomizes the living situation of persons living with HIV (PLWH) as either homeless versus housed, or stable versus unstable
- In reality, PLWH receiving housing services may experience a “spectrum of housing stability,” ranging from more stable (e.g., subsidized independent living) to less stable (e.g., street homelessness, while receiving housing placement assistance).
- There are several housing programs focusing on PLWH in New York City (NYC), including the federally funded Housing Opportunities for Persons with AIDS (HOPWA) program; in NYC, HOPWA is administered and evaluated by the Department of Health and Mental Hygiene (DOHMH).

Methods

- We matched all NYC HOPWA consumers who received at least one service in 2017 to the NYC HIV surveillance registry (the Registry).
- Our primary outcomes, obtained from the Registry, were lack of viral suppression (HIV viral load ≥ 200 copies/mL) at last HIV viral load test in 2017 and lack of durable viral suppression (any HIV viral load ≥ 200 copies/mL) in 2017.

Figure 1. Theorized Housing Stability Spectrum^a

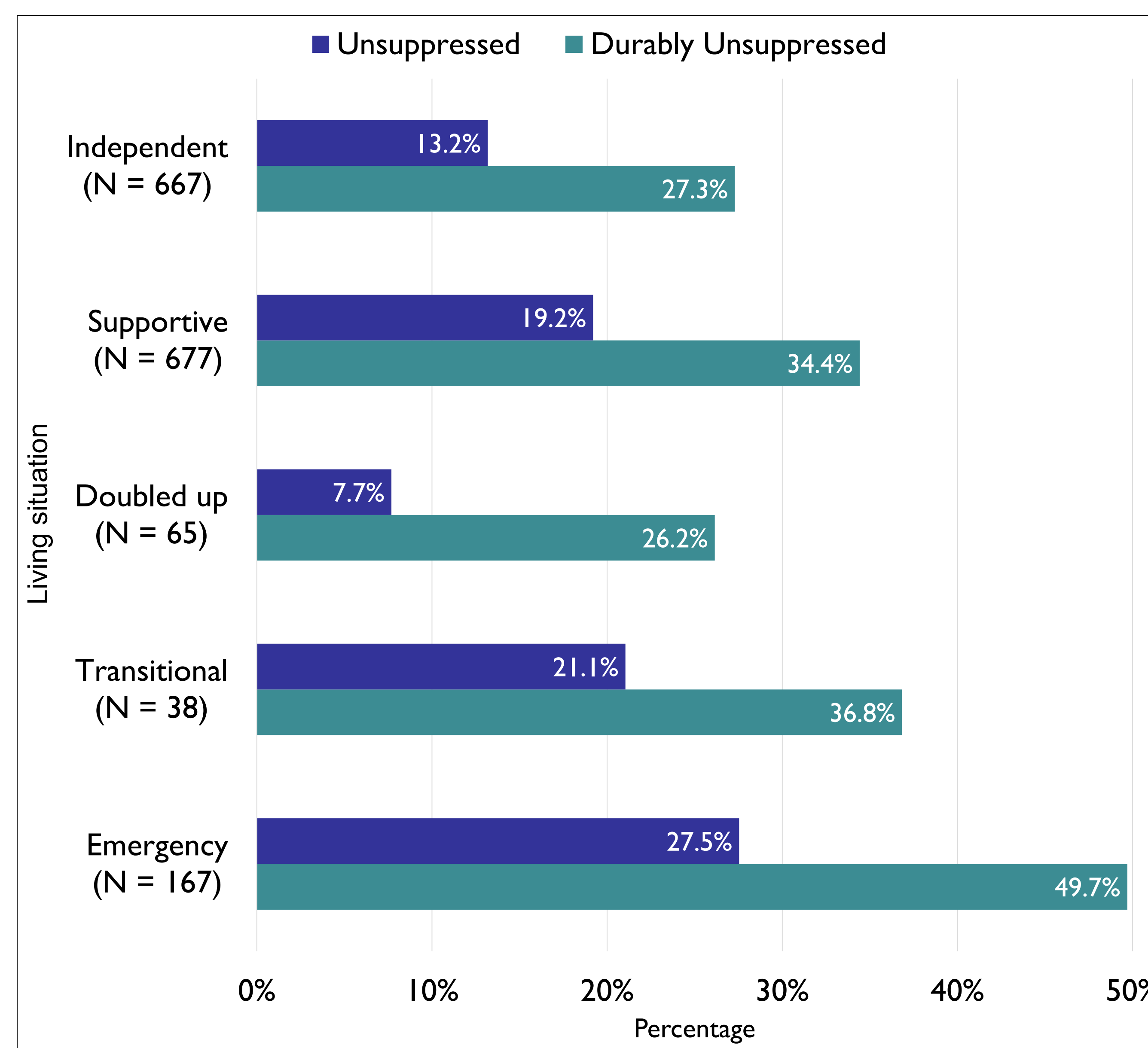


- Our main exposure, living situation, was categorized as: independent; supportive; “doubled-up” (temporarily staying in the apartment of a friend or family member); transitional; or emergency housing. Living situation and other covariates were obtained from routine quarterly assessments conducted by NYC HOPWA staff.
- Multivariable logistic regression was used to determine if there was an independent association between living situation and each measure of viral suppression.

Results

- Of 1,614 NYC HOPWA consumers in 2017, 277 (17.2%) were unsuppressed at last viral load and 529 (32.8%) lacked durable viral suppression in 2017.
- Consumers living in emergency housing (single-room occupancy hotels (SROs), homeless shelters, and on the street) had the worst suppression outcomes (27.5% unsuppressed and 49.7% lacking durable suppression – see Figure 2).

Figure 2. Outcomes by Housing Type



- Contrary to our hypothesis, the best outcomes in terms of suppression were among NYC consumers who were “doubled-up,” i.e. living temporarily with friends and family; possibly due to small sample size, these results were not statistically significant when compared to independent housing
- Other factors that were significantly associated with lack of suppression at last VL and lack of durable suppression, before adjusting for covariates, were: HIV risk category; mental health status; and recent reported substance use.

Results (cont.)

Table 1. Regression Results^{b,c}

	Unsuppressed at last VL		Lack of durable suppression	
	OR (95% CI)	AOR (95% CI)	OR (95% CI)	AOR (95% CI)
Living situation				
Independent (N=667)	Ref.	Ref.	Ref.	Ref.
Supportive (N=677)	1.6 (1.2, 2.1)	1.3 (0.9, 1.8)	1.4 (1.1, 1.8)	1.2 (0.9, 1.6)
Doubled-up (N=65)	0.5 (0.2, 1.4)	0.5 (0.2, 1.4)	0.9 (0.5, 1.7)	0.9 (0.5, 1.6)
Transitional (N=38)	1.8 (0.8, 4.0)	1.4 (0.6, 3.4)	1.6 (0.8, 3.1)	1.3 (0.7, 2.7)
Emergency (N=167)	2.5 (1.7, 3.8)	2.2 (1.4, 3.3)	2.6 (1.9, 3.7)	2.2 (1.5, 3.1)
Risk category				
MSM (N=650)	Ref.	Ref.	Ref.	Ref.
Heterosexual (N=455)	1.3 (0.9, 1.8)	1.2 (0.8, 1.9)	1.0 (0.8, 1.3)	1.1 (0.8, 1.6)
IDU (N=225)	1.8 (1.2, 2.7)	1.6 (1.0, 2.5)	1.6 (1.2, 2.2)	1.7 (1.2, 2.4)
Other/unknown (N=284)	1.4 (1.0, 2.1)	1.6 (1.0, 2.4)	1.2 (0.9, 1.6)	1.4 (1.0, 1.9)
Mental health				
No history (N=836)	Ref.	Ref.	Ref.	Ref.
Diagnosis (N=540)	1.3 (1.0, 1.7)	1.1 (0.8, 1.5)	1.1 (0.9, 1.4)	1.0 (0.8, 1.2)
Hospitalization (N=238)	1.9 (1.4, 2.8)	1.4 (0.9, 2.0)	1.7 (1.2, 2.2)	1.3 (0.9, 1.8)
Substance use				
None (N=821)	Ref.	Ref.	Ref.	Ref.
Soft ^d (N=715)	1.5 (1.1, 2.0)	1.4 (1.0, 1.8)	1.6 (1.3, 2.0)	1.5 (1.2, 1.8)
Hard (N=78)	4.0 (2.4, 6.6)	3.4 (2.0, 5.7)	3.2 (2.0, 5.1)	2.7 (1.7, 4.5)

Conclusions

- After controlling for other covariates, NYC HOPWA consumers who lived in emergency housing were more than twice as likely to lack HIV viral suppression compared to those in independent housing (see Table 1).
- These findings illustrate the importance of housing stabilization for persons in emergency housing, in order to improve HIV outcomes for themselves and reduce the risk of transmission to others.
- While being doubled-up is typically considered an unstable living situation, there may be factors (e.g. social support) that facilitate adherence to HIV medication and subsequent suppression.

¹ Aidala, A. A., Wilson, M. G., Shubert, V., Gogolishvili, D., Globerman, J., Rueda, S., ... & Rourke, S. B. (2016). Housing status, medical care, and health outcomes among people living with HIV/AIDS: a systematic review. *American journal of public health, 106*(1), e1-e23.

^a For most individuals, we acknowledge that independent living may never be appropriate for some individuals (those with some types of severe mental illness, cognitive disabilities, etc.), and they would be most stable in supportive housing.

^b Only covariates that were significant in bivariate analysis are included in Table 1 – however, our multivariable logistic regression model was theory-based and included covariates that were not statistically significant in bivariate analysis

^c All odds ratios (OR) and adjusted odds ratios (AOR) that are **bolded** are statistically significant at the 0.05 level.