Socio-structural HIV vulnerability and PrEP willingness among transgender women and transfeminine persons in the United States: A latent class analysis

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Background and Objective

Background: Transgender women and transfeminine people (TWTFP) experience socio-structural HIV vulnerabilities that drive elevated HIV burden and suboptimal pre-exposure prophylaxis (PrEP) uptake.

- PrEP is a highly effective biomedical HIV prevention strategy available in several modalities.

Objective: To examine patterns of socio-structural HIV vulnerabilities and their associations with PrEP willingness in a US nationwide sample of TWTFP.

Methods

Dataset: The Transgender Women's Internet Survey and Testing (TWIST) study, a cross-sectional online sexual health survey.

Sample: Sexually active TWTFP aged ≥15, without prior HIV diagnosis, who were not currently using PrEP (n=1569), recruited between June 2023 - October 2024 via email listservs and social media advertisements.

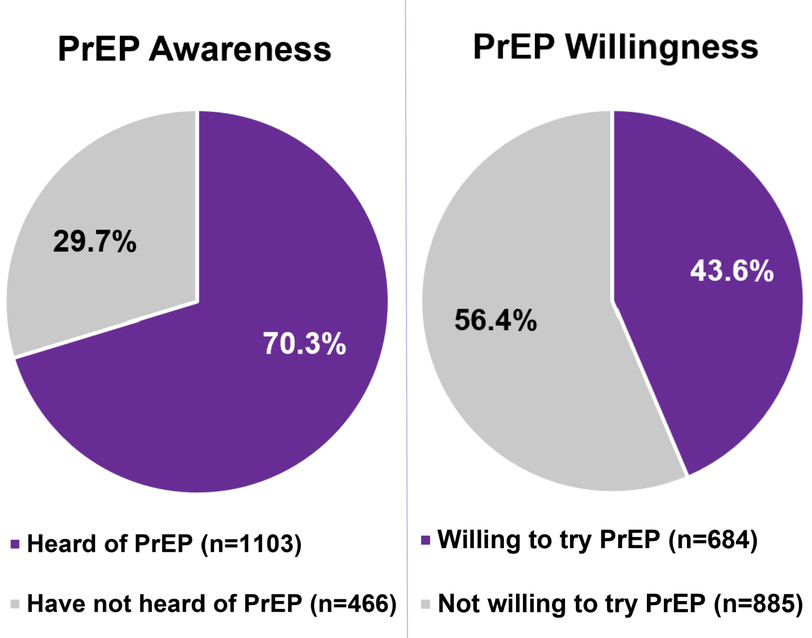
Outcome: PrEP willingness; willingness to start any PrEP modality in the next month if available from a local doctor and accessible for free.

Statistical analysis: A latent class analysis was conducted using eight socio-structural HIV vulnerability indicators, with multinomial logistic regression used to examine characteristics associated with class membership, and pairwise comparisons used to compare between-class prevalence of PrEP willingness

Socio-structural HIV vulnerability indicators:

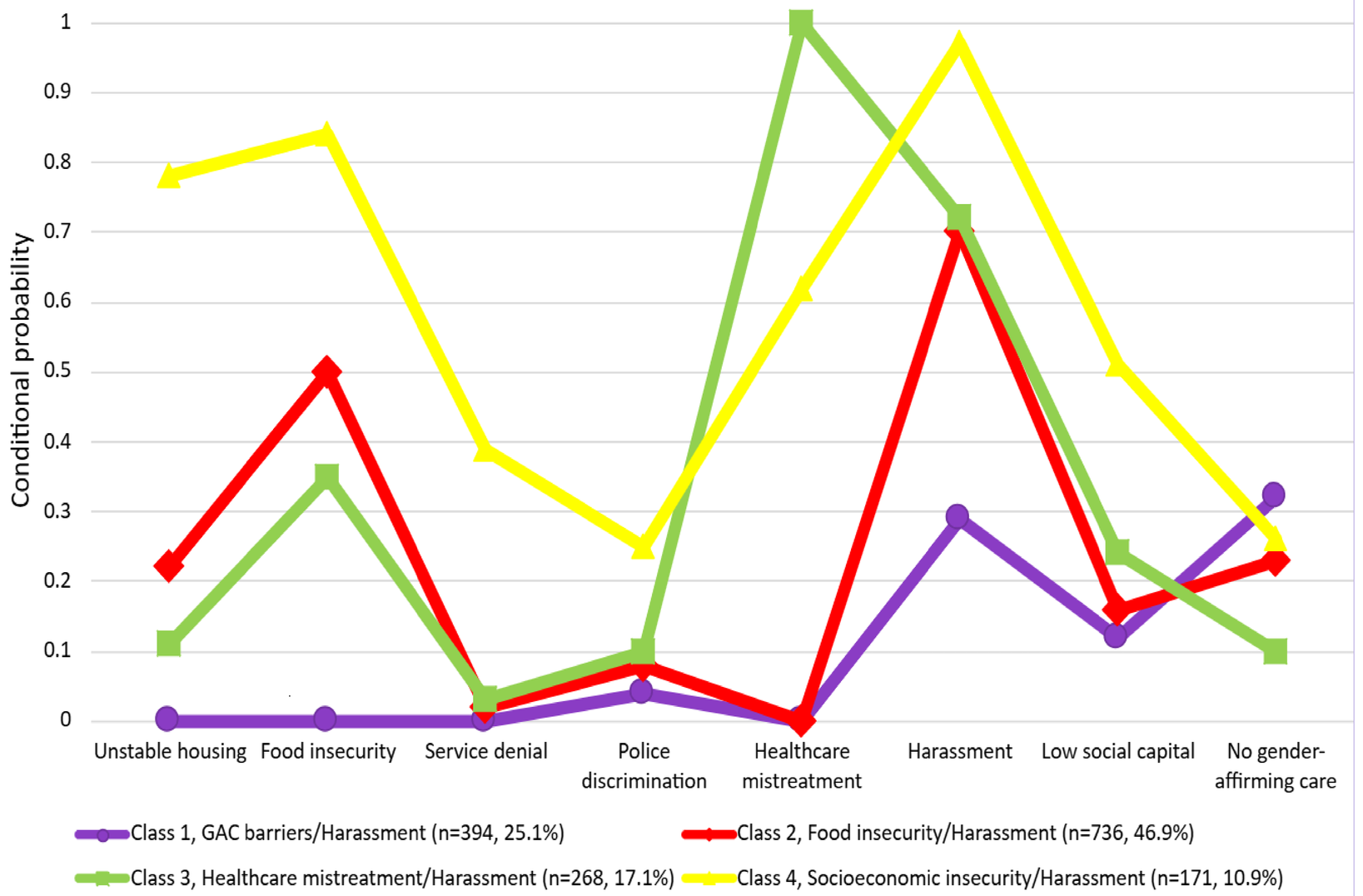
- Unstable housing
- Food insecurity
- Service denial
- Police discrimination
- Healthcare mistreatment
- Harassment
- Low social capital
- Lack of gender-affirming care (GAC)

Results



Results

Figure 1. Four latent classes of socio-structural HIV vulnerabilities among TWIST participants (N=1569), 2023.



- 52% of the sample was <25 years (mean = 26.1), 75% were non-Hispanic White, and 71% were privately insured. Nearly two-thirds resided in the West (33.4%) or South (29.3%).
- Past-year condomless anal sex and multiple sexual partnerships were reported by 39.3% and 46.3% of participants, respectively.
- Compared to Class 1, participants reporting both past-year condomless anal sex (CAS) and multiple sex partners were more likely to fall into Classes 2, 3, or 4.

Table 1. Crude and adjusted prevalences reflecting general PrEP willingness by latent socio-structural HIV vulnerability class among TWIST participants, 2023.

Full sample (N=1569)	Class 1		Class 2		Class 3		Class 4	
	Crude	Adjusted	Crude	Adjusted	Crude	Adjusted	Crude	Adjusted
Any PrEP willingness[a]	23.2%	12.1%	48.9%	**33.4%[1]**	45.4%	**30.5%[1]**	65.4%	**46.7%[2]**

[a] Adjusted for age group, race/ethnicity, region, insurance status, past-year CAS, no. of past-year sex partners, PrEP awareness.
[1] Significantly higher than Class 1 ($p<0.05$); [2] Significantly higher than Classes 1–3 ($p<0.001$)

- PrEP willingness was significantly higher in Class 4 compared to Classes 1-3 (all $p<0.001$) and in Classes 2-3 relative to Class 1 ($p<0.05$).
- Willingness to initiate PrEP was highest in Class 4 (46.7%), followed by Class 2 (33.4%), Class 3 (30.5%), and Class 1 (12.1%).

Conclusions

- The four-class model identified distinct socio-structural HIV profiles among TWTFP.
- Higher exposure to HIV vulnerability contexts was linked to a stronger willingness to use PrEP, as well as a greater likelihood of reporting CAS and multiple sexual partners, compared to participants in low vulnerability contexts (Class 1).
- Findings suggest that more vulnerable TWTFP recognize their risk and want prevention.
- Adapting PrEP outreach strategies for highly vulnerable TWTFP could increase PrEP willingness and uptake, a priority to achieve ending the HIV epidemic goals.

Additional Information

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