Social Networks Influence PrEP Use and Preference for Long-Acting PrEP among MSM In Baltimore

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BACKGROUND

- Understanding factors that promote the uptake of novel PrEP agents, including social networks, could be critical to increasing coverage and interrupting HIV transmission in vulnerable populations.

METHODS

- **Study Design:** Online network-based survey
- **Setting:** Baltimore, MD, USA and the surrounding area
- **Eligibility Criteria:** (1) valid referral link, (2) male biological sex, (3) ≥ 18 years of age, (4) self-report of sex with a man in the prior 12 months, and (5) informed consent.
- **Data:** The survey included modules on risk behaviors, social support, and PrEP use and preferences, among others.
- Participants provided data on recent sexual partners and close MSM friends who were referred to complete the survey.
- **Analysis:** We constructed networks integrating reported ties and referral patterns, applying fuzzy matching to identify cross-linkages. Statistical analyses were carried out in Python (v3.11), and networks were modeled using NetworkX. Logistic regression assessed network associations between the proportion of network connections (sexual ties, social ties, and both) ever taking PrEP and individual PrEP use, as well as the influence of network members' preferences on personal preference for long-acting injectable PrEP (**LA PrEP**). Nodes with unknown PrEP status or who were HIV-positive were excluded from analyses.

RESULTS

- Each five-percentage-point increase in the proportion of ties on PrEP raised an individual's odds of ever taking PrEP by 10% (AOR: 1.10; 95% CI: 1.05 – 1.16), equating to 5.3 times greater odds when one's entire network is on PrEP.
- When ties were stratified by relationship, a significant association was only observed in the proportion of close friends on PrEP and not sexual partners.
- In univariable models of LA PrEP preference, network member preference was one of the strongest correlates, with an individual's odds of preferring LA PrEP increasing by almost three times when all their ties preferred LA PrEP (OR: 2.75; 95% CI: 1.24 – 6.13). This association was attenuated and no longer statistically significant after adjusting for education or PrEP knowledge.

Social networks, particularly close friends, strongly influence PrEP uptake, while PrEP preference for long-acting formulations is primarily driven by education and knowledge.

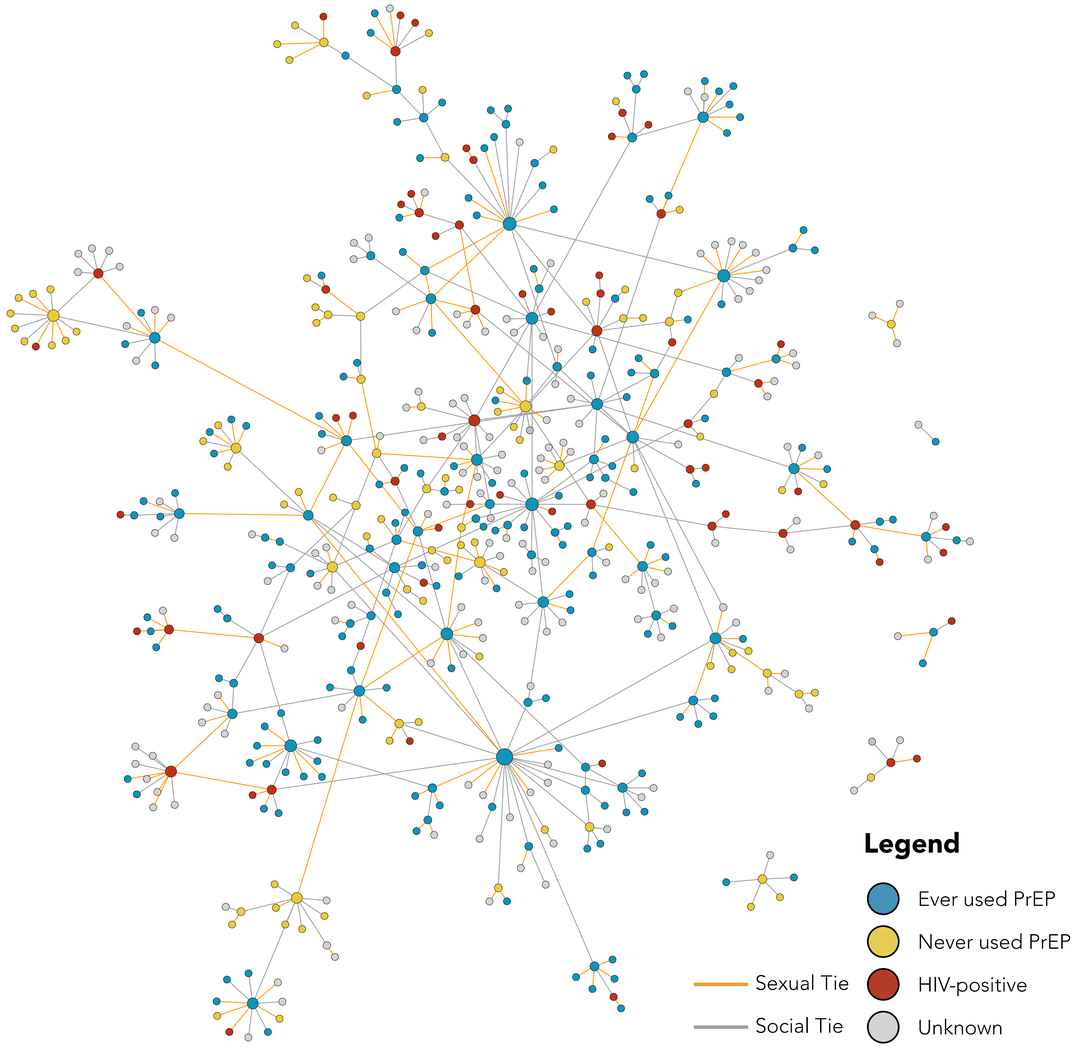


Figure. Sociometric network of 149 men who have sex with men and transgender women survey respondents and their named contacts constructed from peer referral and an online network inventory conducted in Baltimore, MD. Nodes are sized by degree (number of ties) and colored by PrEP status. Edges/ties are colored by relationship type. Gray nodes represent named partners who have not yet completed the survey and whose PrEP status was unknown to the index.

Table. Participant characteristics

Number of participants	**149**
Median Age (IQR)	34 (30 – 39)
Gender	
Cis-gender man	93% (139)
Trans-gender woman	3% (4)
Non-binary	4% (6)
Race	
Asian	7% (10)
Black	51% (76)
Indigenous Person of the Americas	3% (4)
Multi-racial	13% (19)
Native Hawaiian or Other Pacific Islander	1% (1)
White	26% (39)
Hispanic/Latino	20% (30)
Highest Level of Education	
Less than Highschool	1% (2)
Highschool	13% (20)
Associate's degree or some college	26% (39)
College degree	29% (43)
Graduate degree	30% (45)
Employment Status	
Employed full-time/part-time	86% (128)
Retired	1% (1)
Student	7% (10)
Unemployed	7% (10)
Household Income	
< $25,0000	14% (21)
$25,000 - $49,999	9% (13)
$50,000 - $74,999	18% (27)
$75,000 - $99,999	21% (31)
$100,000 - $149,999	19% (28)
≥ $150,000	19% (29)
Have Health Insurance	94% (140)
HIV-negative	79% (118)
Aware of PrEP	84% (125)
Ever taken PrEP	66% (82)
Currently on PrEP	52% (65)
Ever Used Long-acting Injectable PrEP	1% (7)
Prefer Long-acting Injectable PrEP	50% (62)

CONCLUSIONS

Social networks, specifically close friends more than sexual partners, may play a key role in an individual's PrEP use. With LA PrEP, education and knowledge play a critical role in shaping PrEP choice. Interventions to enhance PrEP uptake should consider prioritizing PrEP literacy alongside peer-based approaches to empower informed choices about PrEP.

ACKNOWLEDGEMENTS

- Study participants who made this research possible.
- Funding from the National Institutes of Health, USA (DP2DA056130) and The Johns Hopkins Center for AIDS Research (1P30AI094189).