RDS Network Size Among People Who Inject Drugs in Kenya as a Predictor of HIV and HCV Positivity

1011

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BACKGROUND

- People who inject drugs (PWID) are a key population for HIV and HCV transmission in sub-Saharan Africa.
- Understanding transmission networks is critical to reducing prevalence and incidence among PWID.
- Network-related factors associated with seropositivity are poorly understood.

METHODS

- We are recruiting PWID using respondent driven sampling (RDS) from syringe service programs.
- Participants complete biobehavioral surveys, receive HIV, HCV, and HBV testing, and are provided with 3 coupons to recruit their peers who are not enrolled.
- Upon return of 3 coupons, 5 tokens are given to establish crossties with PWID enrolled in the study.
- We evaluated the relationship between RDS-network size and HIV and HCV infection using t-tests and permutation tests.

Table 1. Sociodemographic and clinical characteristics

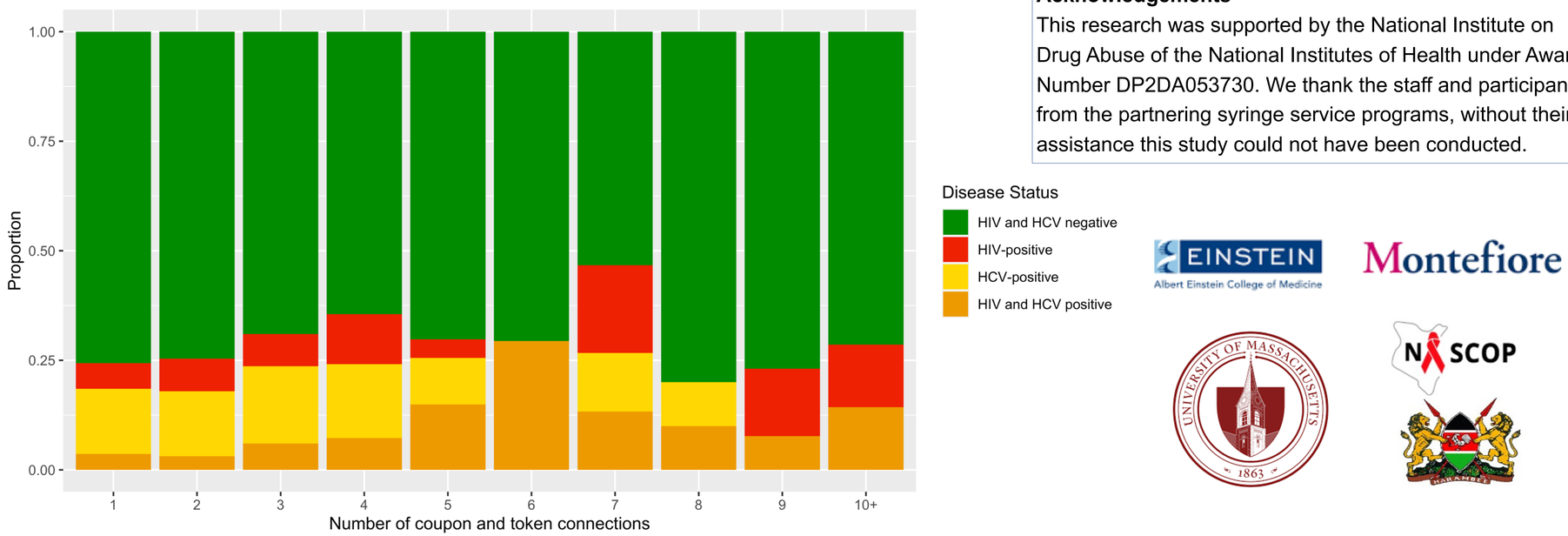
Characteristic	N (%)
Age (years, mean, SD)	34.6 ± [8.7]
Male	1917 (89.8%)
Location	
Coast	962
Nairobi	770
Western region	393
HIV positive	236 (11.1%)
Coast	130 (13.5%)
Nairobi	83 (10.8%)
Western region	21 (5.3%)
HCV antibody positive	425 (19.9%)
Coast	248 (25.8%)
Nairobi	175 (22.7%)
Western region	2 (0.5%)

We found a significant positive relationship between the number of **RDS connections** and likelihood of **HIV** and **HCV** mono-infection, and **HIV/HCV coinfection** among **PWID in Kenya**.

RESULTS

- 2135 PWID were enrolled from May 2022 to August 2023.
- On average, participants reported they know 11.1 (SD=14.9) PWID who also know them among whom they have seen 8.4 (SD=6.2) in the last 30 days and have injected with 5.4 (SD=5.4).
- Average network size as determined by coupon and token recruits was 2.2 with 7 (0.3%) having >10 connections.
- We observed a highly significant positive relationship between the number of RDS connections and likelihood of HIV/HCV co-infected vs. uninfected ($p<0.001$), HIV mono-infected vs. uninfected ($p<0.001$), and HCV mono-infected vs. uninfected ($p<0.05$).

Figure 1. Proportion of different disease status vs. number of baseline coupon and token connections



CONCLUSIONS

- These data, while preliminary, may inform policy makers and programs on HIV and HCV treatment and prevention strategies among PWID.
- The robust link between sample connectivity and elevated HIV and HCV risk highlights the importance of network dynamics in disease transmission.
- Further study is needed on the potential efficiency of network-based interventions compared with traditional testing and linkage to care to advance efforts toward ending the HIV epidemic and HCV elimination.

ADDITIONAL KEY INFORMATION

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Disclosures
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