A Social Network-Based Intervention to Promote HIV Prevention and Treatment Among Fishermen in Kenya

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Background

OWETE
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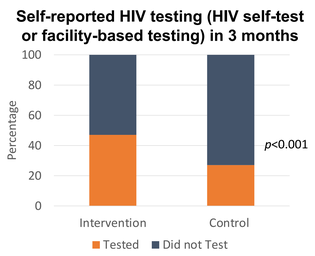
- HIV testing and linkage to either PrEP or ART is critical to achieving the target of 95-95-95 by 2030.
- Men in sub-Saharan Africa are less likely than women to know their HIV status, and be retained in care.

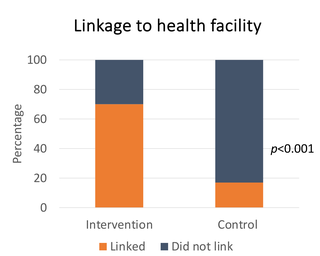
- We evaluated the impact of a social network-based intervention among Kenyan fishermen where network-central men acted as 'promoters' to their peers, of HIV self-testing and linkage to health facilities for either PrEP or ART, depending on HIV status.



Setting: Siaya County borders Lake Victoria, with ~79 beaches and 38,000 fisherfolk. HIV risks remain high:
- HIV incidence: 4.6-6.9/100 PY(2018)[1]
- HIV prevalence: 9.5-19.1%(2022)[2]

- **We previously found that the *Owete* intervention significantly improved men's HIV testing and linkage outcomes[3]**





Methods



- *Design*: Owete Study (NCT04772469) is a cluster randomized, HIV status neutral social-network based trial to establish the impact of the distribution of HIV self-test kits and linkage to either PrEP or ART among fishermen working in 3 beach communities in Siaya County.
- *Unit of randomization*: Social network clusters of men randomized 1:1
- *Eligibility*: Men aged ≥18 years, working in fishing industry
- *Social network analysis*: Name-generators used to identify trusted contacts across 7 relation types.
- **Highly socially connected men identified, recruited and trained to act as promoters to distribute HIV self-tests and encourage care linkage among other men in their close social networks.**
- *Intervention* promoters given HIV self-test kits and transport vouchers redeemable upon linkage. *Control* promoters given vouchers with no monetary value redeemable for routine HIV testing or self-test.
- Outcomes: ART initiation for those with HIV or screening for PrEP eligibility and initiation for those negative.

References

1. Borgdorff MW, et al. HIV incidence in western Kenya during scale-up of antiretroviral therapy and voluntary medical male circumcision: a population-based cohort analysis. Lancet HIV. 2018;5(5):e241-e249. 2. NASCOP. Kenya Population-based HIV Impact Assessment 2018: Nairobi; August 2022. 3. Camlin CS, et al. A social network-based intervention increases HIV self-testing and linkage to health facilities among fishermen in Kenya. Brisbane. IAS July 2023.

An *HIV status-neutral, social network-based intervention* improved HIV testing and linkage in a highly mobile population of men— Kenyan fishermen — but had no significant effect on short-term adherence to daily oral PrEP or HIV viral suppression.

Results

- Mean age was 37, and the majority were married, with two-thirds having primary level education
- About one-fifth of men were in a polygamous union
- There were no significant differences in socio-demographic characteristics across study arms

- For those on PrEP, the number of doses reported taken and percentage with detectable PrEP was similar across arms.
- Self-reported *non-adherence* was associated with objectively-measured non-adherence.
- For those on ART, the majority were diagnosed at stage 1 and approximately 1/3 had detectable viral load.

Clinical indicators by arm	Intervention	Control	*p*
PrEP measures (n=88)			
% of doses taken over month (median, IQR)	70 [50, 91]	87 [10, 90]	0.65
Urine detection of PrEP			0.69
<90%	39 (62.9%)	19 (73.1%)	
>=90%	9 (14.5%)	3 (11.5%)	
Missing	14 (22.6%)	4 (15.4%)	
HIV measures (n=166)			
WHO Stage at HIV diagnosis			0.34
1	36 (49.3)	38 (51/4)	
2	22 (30.1)	22 (29.7)	
3	12 (16.4)	14 (18.9)	
4	3 (4.1)	0 (0)	
% ART doses taken over month (median, IQR)	100 (97, 100)	100 (97, 100)	0.57
Detectable viral load[3]	24.3%	32.9%	0.33

Effect of intervention PrEP adherence & viral suppression	PrEP Users (n=88)[1]	PLHIV (n=166)[1]
PrEP non-adherence		
Control	Reference	
Intervention	0.90 (0.19, 4.30)	
Viral Suppression		
Control		Reference
Intervention		0.64 (0.28, 1.47)

[1] Models controlled for beach community (stratification factor in randomization) and clustered standard errors by social network

- Urine tenofovir was detected among 12/71 participants on PrEP (15% control vs. 12% intervention)
- 123/166 on ART had undetectable viral loads (67% control vs. 76% intervention)
- We did not detect a statistically significant difference between study arms in:
  - PrEP non-adherence (OR: 0.90; 95% CI: 0.19, 4.30) or
  - Viral suppression (OR= 0.64; 95% CI: 0.28, 1.47)

Conclusions

- No significant effect on short-term PrEP adherence or HIV viral suppression was observed. Possible reasons:
  - The study was not powered on PrEP adherence and viral suppression outcomes
  - Known barriers to oral daily PrEP uptake and adherence not overcome by social network model
  - Ceiling effect: substantial progress on 95-95-95 goals
- Given the positive direction of hypothesized effects, more research is warranted among sub-groups of PrEP or ARV initiates to evaluate the impact of social-network based interventions to improve HIV outcomes among fishermen and other hard-to-reach populations of men.
- Highly mobile men such as Kenyan fishermen face challenges to care-seeking at facilities. They may especially benefit from longer-acting HIV prevention and treatment products and flexible models of care delivery.

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