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Self–Assessed HIV Risk 3 years after HIV test and treat implemented in SEARCH

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Background

- Data are limited regarding self-perception of HIV acquisition risk where HIV test and treat is ongoing or on how self-perception correlates with true risk.
- We compared self-assessed HIV risk to an empirically-based risk score for HIV seroconversions to inform PrEP implementation in SEARCH.

Methods

- Seroconversion data from the SEARCH (HIV test-and-treat) trial (NCT#01864603) intervention arm were analyzed using machine-learning to build an HIV risk score that maximized observed seroconversion coverage under a minimized number of persons to be provided PrEP.
- The risk score included age, sex, marital status, polygamy, education, circumcision, occupation, and alcohol use.
- After 3 years of HIV test and treat, we measured self-assessed HIV risk (SAR) through structured survey among HIV-uninfected adults in the rural Kenyan community of Nyatoto.
- We evaluated gender-specific predictors of SAR and its relation to our empirically-derived risk score.

Analysis

- We examined predictors of SAR of HIV acquisition using Generalized Estimating Equation modelling

Results :

- **Baseline community HIV prevalence was 15%.**

Table 1: Participant characteristics

Study participants(n)		4159
Female		2258 (54.3%)
Age, median (IQR) years		28 (19-47)
15-25		1865 (44.8%)
26-35		697 (16.8%)
36-45		483 (11.6%)
46-55		359 (8.6%)
>55		755 (18.2%)
Marital status	Single	1595 (38.4%)
	Married	2192 (52.7%)
	Other	372 (8.9%)
Polygamy	Missing	3 (0.1%)
(among married)	Not polygamous	1702 (77.7%)
	Polygamous	487 (22.2%)
Serodiscordant spouse		17 (0.4%)
Education	Missing	10 (0.2%)
	None	460 (11.1%)
	Primary	2901 (69.8%)
	Secondary +	788 (19%)
Occupation	Formal	1418 (34.1%)
	Informal high risk	127 (3.1%)
	Informal low risk	2005 (48.2%)
	No job	498 (12%)
	Other	111 (2.7%)
Migration	0 months away	3681 (88.5%)
	1-7 month away	215 (5.2%)
	7 months away	263 (6.3%)
Alcohol use	0 days/month	3994 (96%)
	1-7days/month	90 (2.2%)
	>7days/month	75 (1.8%)
Circumcision	Circumcised	1171 (61.6%)
(among men)	Not circumcised	721(37.9%)
	Missing	9 (0.5%)
PrEP score identified	High risk	858 (20.6%)
	Not high risk	3299 (79.3%)
	Missing	2 (0.1%)

Table 2: Predictors of Self Assessed Risk (SAR)

Predictor	Crude				Adjusted			
	Males		Females		Males		Females	
	OR	95% CI	OR	95%CI	OR	95% CI	OR	95%CI
Age								
15-25	ref		ref		ref		ref	
26-35	2.3	(1.6, 3.1)	1.6	(1.2, 2.2)	1.9	(1.1, 3.2)	1.1	(0.8, 1.6)
36-45	1.2	(0.8, 1.8)	1.2	(0.9, 1.7)	1.0	(0.6, 1.9)	0.7	(0.5, 1.1)
46-55	1.1	(0.7, 1.8)	1.0	(0.7, 1.5)	0.9	(0.4, 1.7)	0.7	(0.4, 1.2)
>55	0.7	(0.5, 1.1)	0.2	(0.1, 0.3)	0.6	(0.3, 1.2)	0.2	(0.1, 0.4)
Marital Status								
Single	ref		ref		ref		ref	
Married – Not polygamous	1.0	(0.8, 1.4)	1.0	(0.8, 1.4)	0.6	(0.4, 1.1)	0.5	(0.3, 0.9)
Married – Polygamous	2.0	(1.3, 2.9)	1.9	(1.4, 2.6)	1.8	(0.9, 3.5)	1.3	(0.7, 2.4)
Other	1.0	(0.3, 3.0)	0.3	(0.2, 0.5)	0.7	(0.2, 2.4)	0.6	(0.3, 1.2)
Serodiscordant spouse	2.0	(0.4, 10.3)	8.5	(2.0, 35.7)	2.0	(0.3, 13.6)	7.0	(1.3, 36.5)
Education								
None	ref		ref		ref		ref	
Primary	2.3	(1.1, 5.1)	6.7	(3.7, 12.0)	1.6	(0.7, 3.6)	2.7	(1.4, 5.1)
Secondary +	3.3	(1.5, 7.3)	6.9	(3.7, 12.9)	2.6	(1.1, 5.8)	3.6	(1.8, 7.3)
Occupation								
Formal	ref		ref		ref		ref	
Informal high risk	3.0	(1.9, 4.9)	2.4	(1.1, 5.3)	3.2	(1.8, 5.6)	3.8	(1.5, 9.8)
Informal Low risk	1.4	(1.1, 1.9)	1.4	(1.1, 1.9)	1.7	(1.2, 2.5)	3.1	(1.8, 5.1)
No Job	0.6	(0.3, 1.2)	0.7	(0.4, 1.0)	0.8	(0.4, 1.5)	1.6	(1.0, 2.7)
Other	1.6	(0.9, 2.9)	2.3	(1.0, 5.5)	1.8	(1,3. 5.0)	3.2	(1.3, 7.8)
Migration								
0 months away	ref		ref		ref		ref	
1-7 month away	0.9	(0.6, 1.6)	0.7	(0.3, 1.3)	0.8	(0.4, 1.3)	0.5	(0.3, 1.1)
>7 months away	0.7	(0.4, 1.2)	0.7	(0.4, 1.2)	0.7	(0.4, 1.3)	0.8	(0.4, 1.4)
Alcohol use								
0 days drinking	ref				ref			
1-7 days/month	2.1	(1.3, 3.6)	-	-	1.8	(1.0, 3.2)	-	-
>7days/month	2.6	(1.5, 4.5)	-	-	2.1	(1.2, 3.7)	-	-
Circumcision	1.3	(1.0, 1.6)	-	-	1.3	(1.0, 1.7)	-	-
PrEP score high risk	1.7	(1.3, 2.3)	1.6	(1.3, 2.1)	-	-	-	-

*Analysis conducted among 3973(96%) who had the outcome

- **Overall, 17% of HIV-uninfected adults (n=3973) perceived themselves at risk of HIV.**
- **Among all (N=810) persons identified as empirically high-risk, only 23% perceived themselves at risk.**

Conclusions

- **After 3 years of HIV test and treat,17% of HIV-uninfected subjects perceived themselves at risk of HIV acquisition.**
- **Although an empirically-derived risk score predicted self-assessed risk, only 23% of individuals empirically targeted for PrEP perceived themselves at high-risk for HIV.**
- **These data suggest that optimizing the uptake of empirically targeted PrEP will require new community sensitization approaches to help persons recognize actual HIV risk.**

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