Self-Reported PrEP Use is Associated with Short and Long-Term Pharmacologic Metrics in Kenyan Women

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BACKGROUND

- Adherence to daily oral pre-exposure prophylaxis (PrEP) remains low among women during periods of HIV risk
- Self-reported PrEP adherence could help identify women who may benefit from additional adherence support, but is often inaccurate due to social desirability and recall biases[1]
- Biomarkers provide more reliable information on pill-taking
- Knowing that adherence biomarkers are being collected may itself increase the accuracy of self-report among participants[2]
- Data from a pilot study in Uganda[2] and qualitative work in Kenya[3] indicate that biomarker data, including data collected at the point-of-care, could facilitate honest conversations between PrEP clients and providers

Objective: Explore correlations between self-reported and biomarker-verified PrEP adherence in the PUMA trial in Kenya

METHODS

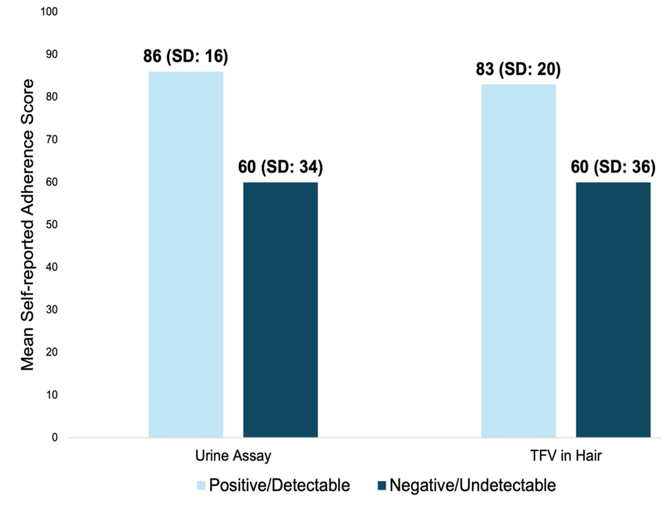
- PUMA population:[4] HIV-uninfected women >18 years using oral tenofovir (TFV)-based PrEP for 3 months
- 100 women enrolled from 2021-2022
- Randomized 1:1 to a urine point-of-care assay with drug-level feedback counseling vs standard-of-care
- Adherence measured at enrollment and months 3, 6, 9, and 12 via urine and hair assay, as well as self-report
- **Short-term adherence:** positive urine assay result (TFV>1500 ng/mL)
- **Long-term adherence:** detectable TFV in hair (TFV>0.002 ng/mg)
- **Self-reported adherence:** mean score (range 0-100) on 2-item modified Wilson scale assessing percentage of doses taken in prior month and adherence rating
- T-tests and generalized estimating equations examined associations between self-report score and biomarker data

Self-reported PrEP adherence, using a validated score, was **significantly associated** with biomarker-verified **short-term** (*urine*) and **long-term** (*hair*) PrEP adherence metrics in the context of ongoing, periodic adherence monitoring

RESULTS

- 49 women in urine assay counseling intervention arm, 51 in standard-of-care (SOC) arm
- Mean age 33.6 years (standard deviation [SD]=9.4)
- 84% (N=41) in the intervention and 77% (N=39) in the SOC arm self-reported high PrEP adherence in month prior to enrollment
- At Month 12, 86 (86%) were retained, of whom:
  - 59% had a positive urine assay
  - 69% had detectable TFV in hair
  - Mean adherence score was 79 (SD=28)
- Mean adherence score was higher in the groups with a positive urine assay and detectable TFV in hair at Month 12 (**Fig 1, p-value for both comparisons <0.01**)
- In longitudinal models, higher self-reported PrEP adherence score was positively associated with biomarker-verified short-term and long-term PrEP adherence:
  - Greater likelihood of a positive urine assay (**adjusted relative risk [aRR]: 1.46; 95% Confidence Interval [95% CI]: 1.35-1.57; p<0.01**)
  - Greater likelihood of detectable TFV in hair (**aRR: 1.07; 95% CI: 1.02-1.13; p=0.01**)

Figure 1. Mean self-reported adherence scores by urine assay and hair assay results, at Month 12



CONCLUSIONS

- Associations between self-reported and biomarker-verified PrEP adherence indicate that women in this cohort were able to accurately report pill-taking
- Self-reported PrEP adherence using validated items may be able to accurately identify PrEP use when individuals know their adherence is being monitored periodically with biomarkers, which is a benefit of monitoring
- The urine assay could facilitate honest conversations between PrEP clients and providers and help identify interventions to address challenges around pill-taking

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