

Title: Comparing PrEP adherence via objective and self-reported measures among fishermen working on Lake Victoria in Kenya

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Word Count: 422 target (500)

Abstract

Background Fishermen working along the shores of Lake Victoria in Kenya experience high rates of HIV acquisition that can be mitigated by effective prevention intervention such as pre-exposure prophylaxis (PrEP). PrEP requires adequate adherence to effectively prevent HIV acquisition. Despite the availability of PrEP in public health facilities in Kenya for HIV prevention, studies report low uptake and continuation, and poor adherence. Since self-report of PrEP adherence can be unreliable, we sought to evaluate PrEP adherence in this community using objective metrics and to better understand the reasons for non-adherence among fishermen.

Methods: This is a sub-study of the *Owete* study (NCT04772469), a cluster randomized control trial using a social network approach among fishermen to increase HIV prevention and treatment in Siaya County, Kenya. Survey and lab data were collected at 6 months from sero-negative fishermen who had initiated PrEP after enrolment in the study. Surveys included self-reported data on PrEP adherence in the past 30 days (reporting percentage of times a dose was missed) and reasons for non-adherence. To measure PrEP adherence, urine samples collected at this visit were examined using a point of care tenofovir monitoring assay. Analyses included descriptive analysis of self-reported adherence data and logistic regression to compare self-reported adherence to objective adherence via the urine tenofovir assay.

Results: Of 83 participants who initiated PrEP, 36 (43%) self-reported taking their PrEP dose $\geq 90\%$ of the time and 47 (57%) reported $< 90\%$ adherence to PrEP. Urine assays on adherence were conducted among 70 (84%) of the 83 participants, of which 12 (17%) had PrEP detected in their urine and 58 (83%) did not have PrEP detected. Primary reasons for self-reported non-adherence included not feeling at risk ($n=24$, 29%), being away from home and without PrEP medication ($n=21$, 25%), or feeling well and thinking they did not need the medications ($n=18$, 21%). In the regression analyses, self-reported PrEP non-adherence was associated with 15.7 higher odds of non-detection of PrEP medications in the urine assay (95% CI: 2.65, 93.3; $p=0.02$).

Conclusion: Self-reported PrEP adherence was much higher than objectively detected adherence via a urine tenofovir assay. Reasons for non-adherence centered on feeling at low risk for acquiring HIV and a mobile lifestyle. This study illustrates that objective measures, such as a point of care assay, may be a valuable tool for measuring PrEP adherence, especially among populations vulnerable to HIV. Developing strategies to increase knowledge about risks and benefits of PrEP for prevention, along with

interventions to bolster PrEP adherence, are critically needed to reduce HIV acquisition among this high-risk population.