Reviewer’s report

Title: Feasibility of Community Based HIV Self-Screening in South Africa: A Demonstration Project

Version: 1 Date: 28 Feb 2019

Reviewer: Katrina Ortblad

Reviewer's report:

OVERALL:
An interesting paper that provides novel information on HIVSS feasibility and acceptability among different populations that are not so commonly captured in other studies (men and female sex workers). Also, provides information on recruitment strategies to reach these populations. The paper could be revised to clarify language and grammatical errors. Not sure the information on HIV self-test kit sensitivity and specificity is adding much to this paper, as the kit has already demonstrated to be accurate in many other studies and South Africa would not have released the kit to the public if it wasn't accurate.

ABSTRACT:
* (Introduction, Line 9): HIV testing can also be helpful for linking those that are HIV-negative to HIV prevention services.

* (Methods): When did follow-up occur? E.g., 1 month after?

* (Results, Line 24): Extra space after "approached"

* (Results, Line 25): I am confused by "15 were excluded due to missing data" - suggest dropping and leaving for the methods.

* (Results, Lines 28-30): Does interested in HIVSS mean that they took an HIVST?

* (Results, Lines 31-33): You don't discuss in your methods section how you measure sensitivity and specify. You also don't mention what type of HIVST you used in this study. Please add this if you are going to present sensitivity and specificity results.

* (Conclusion, Lines 34-35): In your results, you present the % of participants that preferred HIVSS, but not the % that utilized HIVSS. If these are the same, only need to mention one.

* (Conclusion, Lines 35-36): In the results, you only present the % of HIV positives that initiated ART, you don't discuss the % that tested unsupervised that got confirmatory testing. I would mention this if you are going to add this as final conclusion.

INTRODUCTION:
Isn't oral HIVST already available in South Africa? Thus case, is the government still investigating implementation of HIVSS if they have already implemented it?

Minor:
* (Line 49): Add "s" to population = "populations"
* (Line 49): Add "In" before the = "In the newly-released…"
* (Line 59): "…HIV infections with 7.1 million…” - consider changing with to and.
* (Line 61): Define "HCT"
* (Lines 76-78): This sentence has a misspelling and discusses uptake twice - redundant.
* (Line 80): Want to clarify that these follow-up actions are for those to test HIV positive?
* (Lines 81-83): The information about sensitivity and specificity sound like methods, suggest re-framing so it sounds like a paper aim.
* (Line 84): Want to clarify linkage to care following self-screening?

METHODS:
* (Recruitment): It would be helpful to know some more details on each of these recruitment methods - e.g., how many mobile HIV testing sites did you set up and for how many dates was each set up? How many homes did you visit? How many work places did you visit? How many sex-worker locations did you visit?
* (Lines 172-175): "Terminated" seems like a strange word to use here. Consider word choice.

* (Data collection): Need more information here. What was the timing of the pre, follow-up, and post interviews? Were all quantitative? What types of information did you collect in these interviews (e.g., demographics, sexual behaviors, HIV testing preferences, etc)? Was the information from the paper questionnaires transferred to RedCap? How soon after?
* (Data Analysis): How did you determine the proportion of HIV-positive test results from those that used OraQuick? Self-report at follow-up? If so, at what time (e.g., 1 week following testing?). Or was this just for people in the supervised/semi-supervised group for whom you had results? Please clarify.

Minor:
* (Line 91): These estimates are very very precise, what year? Suggest rounding the numbers so they appear more like estimate.
* (Line 130): What local languages?
RESULTS:
* (Line 197): What does "approached for HIV testing" mean? Does this mean that they came to the events or were at home when you went to their door? Please define.

* (Line 201): Does "interested in HIV self-screening" = selected to self-screen?

* (Self-screening, Lines 244-247): Consider excluding those lost to follow-up from this calculation - mention this separately.

* (Lines 267-268): What were the other locations where people previously tested?

* (Lines 278-279): Suggest presenting initiation on ART before CD4 testing.

* (Linkage section): Did you measure linkage to any HIV prevention services (e.g., PrEP for FSWs)?

* (Line 281): You are measuring sensitivity of the kit, not the screening approach (community-based HIVSS).

* (Sensitivity and Specificity): These kits have already been proven in numerous studies to have high sensitivity and specificity when compared to blood-based tests, which is why they are available on the market in South Africa, not sure what this information is adding to the paper.

Minor:
* (Line 262): What is your definition of an invalid HIV test result?

* (line 270): Need "of the" before "participants"

* (Line 273): "and one (3.6%) person not wanting to respond to the interviewer" - this is confusing and unclear what this means. Suggest dropping.

DISCUSSION:
* (Lines 312-314): "The update of HIV self-screening was due to individuals wanting to know their status and being influenced by friends, partners, and family members" - how do you know this? This wasn't presented in the results section.

* (Lines 327-329): Did you as participants that had not linked to care at follow-up why they did not link to care in this study?

* (Lines 344-345): I thought they had the option to do the rapid HIV finger-prick test? This is making it sound like it was mandatory.

* (Lines 350-351): What were the follow-up rates for this study? Make sure this is clear at the beginning of the results section.

FIGURES & TABLES:
**Figure 1: "HIV test results available" - what does this mean? Does this mean they conducted an HIV-rapid test? Or does it include self-reported HIV test results for those who did unsupervised testing?**

**Are the methods appropriate and well described?**
If not, please specify what is required in your comments to the authors.

No

**Does the work include the necessary controls?**
If not, please specify which controls are required in your comments to the authors.

Unable to assess

**Are the conclusions drawn adequately supported by the data shown?**
If not, please explain in your comments to the authors.

No

**Are you able to assess any statistics in the manuscript or would you recommend an additional statistical review?**
If an additional statistical review is recommended, please specify what aspects require further assessment in your comments to the editors.

I recommend additional statistical review

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Needs some language corrections before being published

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