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HIV SELF-TESTING AFRICA

Does Community-Based Distribution of HIV Self-Test Kits Increase Uptake of HIV testing at Population Level? Results of a Cluster-Randomised Trial in Zambia

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BACKGROUND

Over the last decade, levels of HIV testing have increased markedly across Zambia. In 2007, 19% of women and 12% of men aged 15-49 years had ever-tested and received the result of an HIV test in the previous 12 months [1]. By 2015-2016, 67.3% of PLHIV in Zambia knew their status, 70% in females and 62.8% in males [2].

Despite the availability of facility- and community-based HIV testing services, there remain a number of barriers to access, including concerns associated with confidentiality and privacy. To reach UN 90:90:90 targets, increased access to HIV testing services (HTS) is needed. HIV self-testing (HIVST) has been proposed as one strategy to increase uptake of HIV testing. We conducted a cluster-randomised trial of community-based distribution of HIVST kits to measure whether this strategy can increase uptake of HTS at population-level.

METHODS

The intervention was implemented over 12 months in catchment areas of government health facilities. Six matched-pairs of catchment areas (clusters) from four districts were purposively selected. Two pairs were urban and four pairs rural. Within pairs, clusters were randomised to receive the HIVST intervention or HTS as per national standard (SoC). The HIVST intervention included provision of OraQuick HIVST at the health facility as well as community-based distributors (CBDA) distributing HIVST kits to community members, with demonstrations and instructions for use, with provision for collection of used kits and referrals for care.

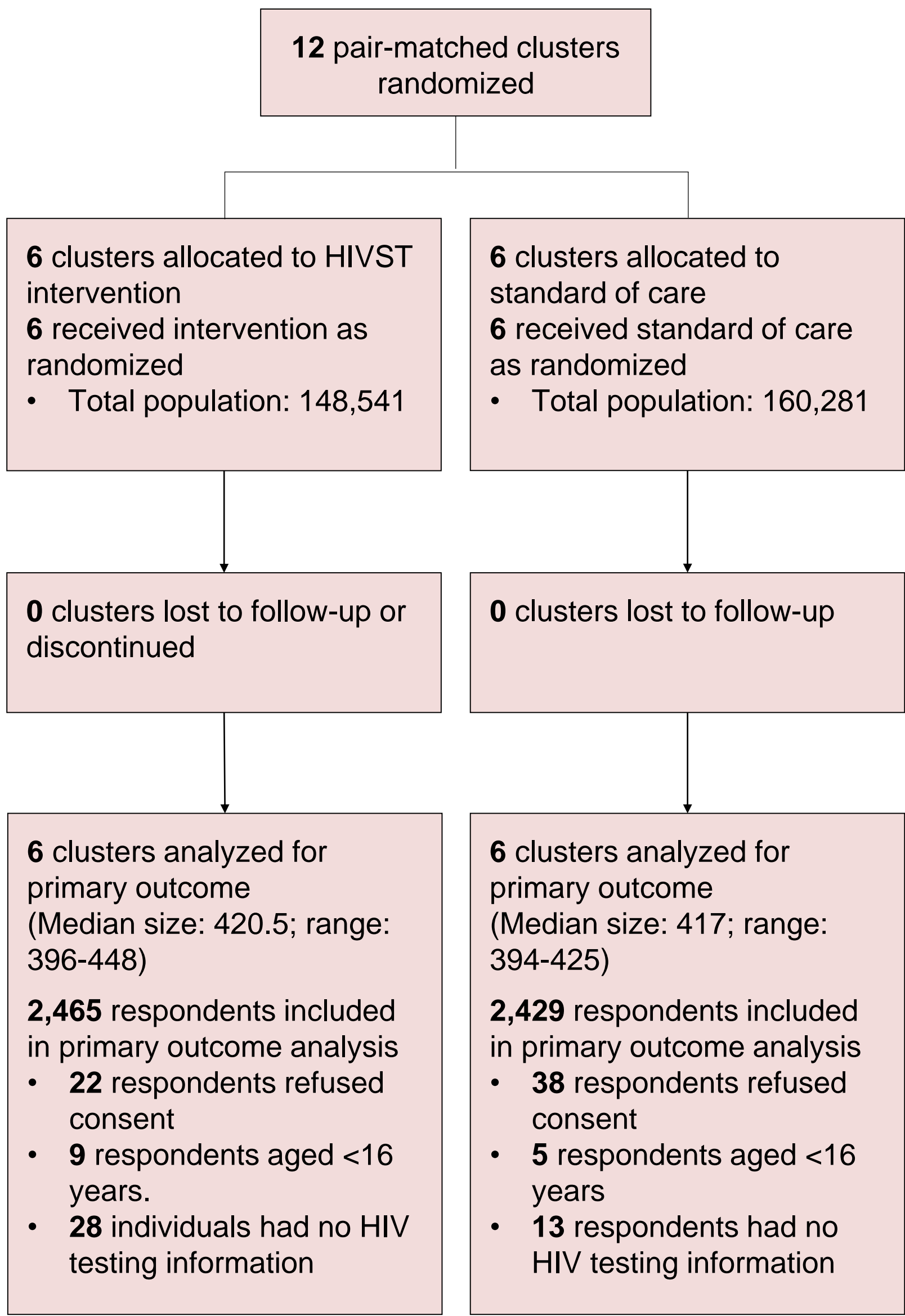
Primary outcome: Self-reported HIV testing within previous 12 months, measured after at least 12 months of intervention.

Secondary outcomes: Lifetime HIV testing and ART initiations at clinics for 17 months after cluster enrolment.

Data sources: HIV testing data collected from cross-sectional surveys conducted among individuals, aged ≥16 years, living in households in randomly selected blocks in each cluster. ART data collected from clinic registers, with population denominators taken from recent census data.

Analysis: Cluster-level analysis used for HIV testing outcomes. Adjusted analysis controls for sex, age, and household assets tertile. ART initiation analysis adjusted for ART initiations per clinic before the beginning of the self-testing intervention.

Figure. Flow diagram for STAR-Zambia trial



RESULTS

BACKGROUND CHARACTERISTICS

Table 1. Comparison of population characteristics by trial arm

| | HIVST | Standard of care |
|-----------------------------------|--------------|------------------|
| Household characteristics | | |
| Total households participating | 1,221 | 1,212 |
| Assets index (n/%) ¹ | | |
| Lowest | 354 (29.6) | 452 (37.4) |
| Second | 421 (35.1) | 379 (31.3) |
| Highest | 423 (35.3) | 379 (31.3) |
| Individual characteristics | | |
| Total individuals consented | 2,521 | 2,484 |
| Age (mean/SD) | 32.7 (14.1) | 33.8 (14.8) |
| Age group (n/%) | | |
| 16-17 years | 73 (2.9) | 66 (2.7) |
| 18-24 years | 845 (33.5) | 775 (31.2) |
| 25-29 years | 439 (17.4) | 404 (16.3) |
| 30-40 years | 505 (20.0) | 529 (21.3) |
| 41-50 years | 315 (12.5) | 321 (12.9) |
| 51-60 years | 209 (8.3) | 233 (9.4) |
| 61+ years | 135 (5.4) | 156 (6.3) |
| Male (n/%) | 1,042 (41.3) | 976 (39.3) |

¹ 444 households missing assets information (189 in self-testing arm, 255 in comparison).

PRIMARY AND SECONDARY OUTCOMES

Table 2. Primary and secondary outcomes, STAR-Zambia trial

| | HIVST | | Standard of care | | Risk ratio | (95% CI) | p-value |
|---|---------------|------|------------------|------|------------|---------------|---------|
| | n/N | % | n/N | % | | | |
| Primary trial outcome: Recent HIV testing | | | | | | | |
| Unadjusted | 1,622/2,465 | 65.8 | 1,456/2,429 | 59.9 | 1.08 | (0.91, 1.29) | 0.145 |
| Adjusted | | | | | 1.08 | (0.94, 1.24) | 0.241 |
| Secondary trial outcomes | | | | | | | |
| Ever tested for HIV | | | | | | | |
| Unadjusted | 2,006/2,493 | 80.5 | 1,905/2,471 | 77.1 | 1.04 | (0.91, 1.18) | 0.420 |
| Adjusted | | | | | 1.04 | (0.92, 1.18) | 0.441 |
| HIV testing during intervention | | | | | | | |
| Unadjusted | 1,344/2,493 | 53.9 | 1,291/2,471 | 52.2 | 1.02 | (0.84, 1.24) | 0.673 |
| Adjusted | | | | | 1.02 | (0.87, 1.21) | 0.726 |
| Current ART use (% PLHIV) | | | | | | | |
| Unadjusted | 33/43 | 76.7 | 13/20 | 65.0 | 1.01 | (0.58, 1.77) | 0.228 |
| Adjusted | | | | | 0.96 | (0.76, 1.21) | 0.657 |
| ART initiation (rate/000) | 2,826/148,541 | 19 | 3,482/155,433 | 22.4 | 0.90 | (0.55, 1.46) | 0.666 |
| Circumcised (% uncircumcised men) | | | | | | | |
| Unadjusted | 22/945 | 2.3 | 14/908 | 1.5 | 1.30 | (0.07, 25.63) | 0.294 |
| Adjusted | | | | | 1.36 | (0.49, 3.78) | 0.475 |

¹ Adjusted for cluster-level baseline recent testing and individual-level covariates age, sex and assets index. ² Adjusted for baseline (pre-intervention) ART initiation.

FIDELITY

Overall 65,585 HIVST kits were distributed by 60 CBDs in the intervention clusters with a range of 58 to 1260 kits/1000 population. No social harms were recorded. A higher proportion of surveyed adults in the HIVST vs standard of care arm (88.9% vs 31.5%) had heard of HIVST and ever self-tested (42.5% vs 8.3%).

CONCLUSION

Despite additional personnel distributing a large number of HIVST kits this strategy did not significantly increase HIV testing at community-level. Novel HIV testing strategies show promise for expanding access to HTS but ensuring correctly targeted coverage will be vital for this promise to be realised.

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