Evaluating pharmacy-based PrEP delivery for sex workers in Zimbabwe: a pilot quasi-experimental study

1202

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BACKGROUND

- Young and adult women who sell sex (YAWSS) experience high HIV incidence.
- Potential benefit of daily oral pre-exposure prophylaxis (PrEP) is limited by poor continuation among YAWSS.
- Enabling pharmacy-based PrEP collection has potential to improve continuation among YAWSS allowing anonymity, convenient location, long operating hours and shorter waiting times.

We piloted pharmacy-based PrEP prescription refills to improve continuation; the Together Optimizing PrEP Access in Zimbabwe (TOPAZ) intervention.

METHODS

- We co-developed TOPAZ with people who sell sex and pharmacists.
- TOPAZ is embedded in a nationally scaled Key Populations (KP) program which provides free HIV and sexual reproductive health to people who sell sex.

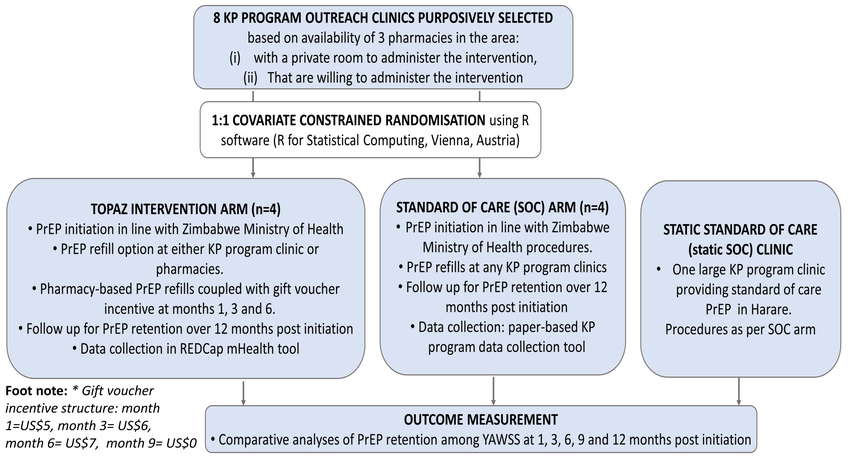
Study setting and randomization: We purposively selected 8 KP program outreach sites and randomized them 1:1 to TOPAZ intervention or standard-of-care (SOC) arms. For additional comparison, we analyzed data from one large KP program clinic that provides support for outreach sites - static SOC (Fig 1).

Enrolment and data collection: We recruited YAWSS ≥16 years newly initiated on oral PrEP at the study sites between March-September 2024. We followed up participants at 1-, 3-, 6-, 9- and 12- months after PrEP initiation.

SOC: PrEP refills collection occurred according to national implementation guidelines at KP program clinics at: 1, 3, and 6 months after initiation, and every 3 months thereafter.

TOPAZ intervention: Optional Pharmacy-based PrEP refill coupled with an escalating incentive of US$5 (at month 1), US$6 (at month 3) and US$7 (at month 6); **OR** PrEP refill at KP program clinics (Figure 1). PrEP refills were according to national implementation guidelines.

Figure 1. Overview of the TOPAZ intervention and outcome measurements



Foot note: ** Gift voucher incentive structure: month 1=US$5, month 3= US$6, month 6= US$7, month 9= US$0*

Outcomes: Comparison of proportion of participants collecting PrEP refills at 1-, 3-, 6-, 9- and 12- months, by arm.

Data analysis: R package was used to compute:

- Proportions of participants continuing PrEP at months 1, 3, 6 and 9, by arm.
- Unadjusted and adjusted risk difference (RD) analyses using Poisson regression.

Pharmacy-based collection of PrEP refills was **acceptable** and **associated with improved PrEP continuation among women who sell sex.**

RESULTS

- 100 YAWSS were recruited in the TOPAZ intervention arm with mean age (SD) 29.3 (17.2) years vs 62 YAWSS in the SOC arm with mean age 31.9 (7.78) years and 96 YAWSS in the static SOC clinic with mean age (SD) of 27.7 (6.14).
- Across all time points, PrEP continuation was higher in the intervention arm compared to SOC (Table 2). Differences in PrEP continuation were persistent in age-adjusted model (Table 2).

Table 1. Demographic characteristics of study participants

	Intervention arm (N=100), n (%)	SOC arm (N=62), n (%)	Static SOC clinic (N=96), n(%)
Age category, years			
16 - 20	11 (11.0)	2 (3.2)	11 (11.5)
21 – 25	21 (21.0)	11 (17.7)	30 (31.3)
26 – 30	29 (29.0)	15 (24.2)	29 (30.2)
31– 34	20 (20.0)	13 (21.0)	12 (12.5)
35+	19 (19.0)	21 (33.9)	14 (14.6)
Highest education level among YAWSS			
Primary	10 (11.5)	5 (10.6)	2 (8.0)
Secondary	76 (87.4)	42 (89.4)	23 (92.0)
Tertiary	1 (1.1)	0 (0.0)	0 (0.0)
Missing information	13 (13.0)	15 (24.2)	71 (74.0)
Duration of YAWSS in sex work, years			
<1	8 (10.0)	4 (9.1)	2 (10.5)
1-2	23 (28.8)	11 (25.0)	6 (31.6)
3-5	28 (35.0)	16 (36.4)	8 (42.1)
5+	21 (26.3)	13 (29.5)	3 (15.8)
Missing information	20 (20.0)	18 (29.0)	77 (80.2)

Figure 2. PrEP continuation rates among YAWSS by arm

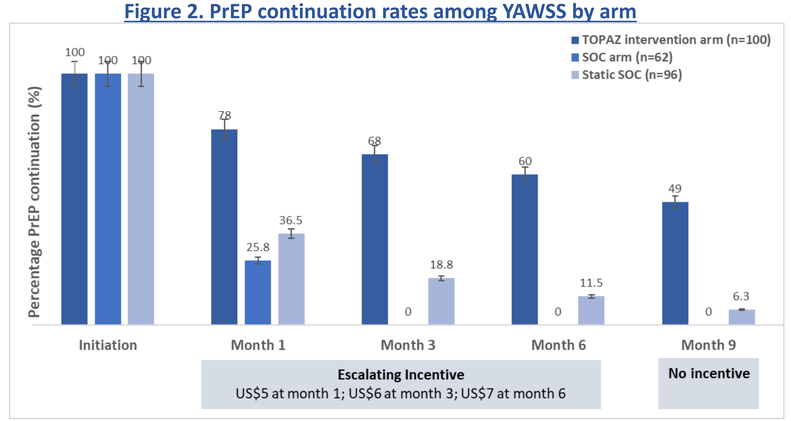


Table 2. Risk Difference analyses of PrEP continuation at different time points

	Time since PrEP initiation in months	PrEP continuation		Unadjusted RD (95% CI)	P-value	Age adjusted RD (95% CI)	P-value
		Intervention N (%)	Comparator N (%)				
SOC arm vs. TOPAZ intervention arm	**1**	78 (78.0)	4 (6.5)	0.72 (0.61 – 0.82)	<0.01	0.73 (0.63 – 0.83)	<0.01
	3	68 (68.0)	0 (0.0)*	-**	-**	-**	-**
	6	60 (60.0)	0 (0.0)*	-**	-**	-**	-**
	9	49 (49.0)	0 (0.0)*	-**	-**	-**	-**
Static SOC vs. TOPAZ intervention arm	**1**	78 (78.0)	35 (36.5)	0.42 (0.31 – 0.52)	<0.01	0.39 (0.26 – 0.52)	<0.01
	3	68 (68.0)	18 (18.8)	0.48 (0.40 – 0.57)	<0.01	0.47 (0.35 – 0.59)	<0.01
	6	60 (60.0)	11 (11.5)	0.49 (0.37 – 0.60)	<0.01	0.47 (0.35 – 0.58)	<0.01
	9	49 (49.0)	6 (6.3)	0.43 (0.32 – 0.54)	<0.01	0.41 (0.30 – 0.52)	<0.01

*Foot note: * indicates that none of the participants (n=0) collected PrEP refills at this timepoint.*
***indicates risk differences could not be computed due to PrEP refills n=0 in the comparator (SOC arm).*

RESULTS CONTINUED…

- Differences in PrEP continuationveven persisted in refill month 9 when gift voucher incentives were no longer offered (Fig 2).
- 99% (99/100) YAWSS in the intervention arm collected PrEP refills from pharmacies. One (1%) YAWSS switched to SOC during the intervention.

CONCLUSIONS

- Our study demonstrates that pharmacy-based PrEP access is acceptable and is associated with high rates of PrEP continuation among YAWSS.
- There is indication of continued preference for the pharmacy model even after removal of gift card incentives.
- This promising intervention needs to be explored for other populations who are vulnerable to HIV.
- A larger effectiveness trial that will differentiate the effect of incentives from pharmacy-based PrEP access and provide objective adherence measures is planned.

Trial registration: ClinicalTrial.gov ID: NCT06348069.
Ethical approval: Medical Research Council of Zimbabwe (MRCZ/A/2988) and University of California Committee for Protection of Human Subjects: UCB-CPHS-2022-15783.
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