A Dual Prevention Pill for HIV & Pregnancy Prevention: A Pilot Study Among Young Women in Zimbabwe

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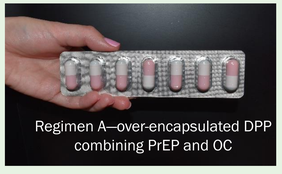
- **Young women preferred a single dual prevention pill that provided HIV and pregnancy prevention versus 2 separate pills.**
- **Acceptability and adherence did not differ between the single pill and 2 separate pills.**
- **Additional research with greater statistical power is needed to explore factors associated with preference, acceptability, and adherence.**

BACKGROUND

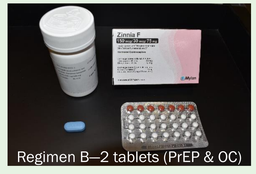
- Oral pre-exposure prophylaxis (PrEP) is highly effective in reducing the risk of HIV infection, yet uptake and adherence among young women in sub-Saharan Africa has been limited.
- Studies suggest women would be more interested in HIV prevention if combined with contraception.
- We hypothesized that a single dual prevention pill (DPP) combining oral PrEP and an oral contraceptive (OC) would be preferred, acceptable and increase PrEP adherence compared to oral PrEP alone.

METHODS

- **Population**: 30 healthy, sexually active, HIV-uninfected, non-pregnant 16- to 24-year-old cisgender females using OCs for contraception and at risk of HIV.
- **Design**: Single site (Chitungwiza [Harare], Zimbabwe), randomized, open-label, 2-way crossover study
- **Study products/regimens**: Participants were randomized (1:1) to a sequence of 2 regimens, each used daily for three 28-day menstrual cycles:



Regimen A—over-encapsulated DPP combining PrEP and OC



Regimen B—2 tablets (PrEP & OC)

- **Study duration:** 24 weeks
- **Monthly study visits/assessments:** HIV & pregnancy testing, counseling, returned used & unused product, self-administered socio-behavioral questionnaires via computer assisted self-interviewing (CASI) on tablets.

Key research questions

1. **PREFERENCE:** Proportion preferring DPP vs 2 separate pills (exact binomial test).
2. **ACCEPTABILITY:** Effect of regimen on 4 acceptability domains (Wilcoxon signed-rank tests):
   - ease of use
   - product attributes
   - side effects
   - effect on sex
3. **ADHERENCE:** Adherence to each regimen by self-report and tenofovir diphosphate (TFV-DP) levels in dried blood spots indicative of ≥4 doses per week.

RESULTS

- Most (26/30) participants completed the study;
- 4 withdrew early (2 relocated/had job conflicts, 2 became pregnant).

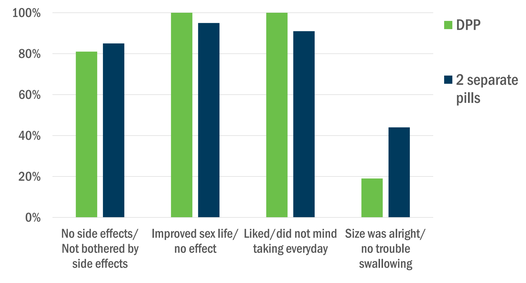
Table 1 Participant characteristics by randomization sequence

	DPP then 2 pills N (%)	2 pills then DPP N (%)	Total N (%)
Age (mean, SD)	19.4 (2.36)	19.5 (2.5)	19.4 (2.38)
Marital status			
Never married	5 (31.2%)	1 (7.1%)	6 (20%)
Married	9 (56.2%)	5 (35.7%)	14 (46.7%)
Divorced	2 (12.5%)	7 (50%)	9 (30%)
Other	0 (0%)	1 (7.1%)	1 (3.3%)
Educational completion			
Primary	0 (0%)	1 (7.1%)	1 (3.3%)
Secondary	16 (100%)	13 (92.9%)	29 (96.7%)
Lifetime parity			
0	1 (6.2%)	0 (0%)	1 (3.3%)
1	13 (81.2%)	14 (100%)	27 (90%)
2+	2 (12.5%)	0 (0%)	2 (6.7%)
Vaginal sex since last visit*			
None	3 (21.4%)	4 (28.6%)	7 (25%)
Once or twice	6 (42.9%)	4 (28.6%)	10 (35.7%)
3-10 times	2 (14.3%)	5 (35.7%)	7 (25%)
Daily/almost daily	3 (21.4%)	1 (7.1%)	4 (14.3%)
Condom used at last vaginal sex*	4 (33.3%)	4 (40%)	8 (36.4%)
Any STI at baseline	6 (37.5%)	4 (28.6%)	10 (33.3%)
Transactional sex, last 3 months*	4 (26.7%)	4 (30.8%)	8 (28.6%)
Worry about getting HIV, next 3 months*			
Very worried	7 (43.8%)	10 (76.9%)	17 (58.6%)
Somewhat worried	6 (37.5%)	2 (15.4%)	8 (27.6%)
Not worried at all	3 (18.8%)	1 (7.7%)	4 (13.8%)
Importance of avoiding pregnancy?*			
Very important	14 (87.5%)	13 (100%)	27 (93.1%)
Somewhat important	1 (6.3%)	0 (0%)	1 (3.4%)
A little important	1 (6.3%)	0 (0%)	1 (3.4%)

*Total <30 because some responses were missing or participant refused to answer.

- **Preference**: More women (64%) preferred the DPP than 2 pills (36%), although the difference was not statistically significant.
- **Acceptability**: Most participants rated both regimens as acceptable (**Figure 1**), with no significant difference in side effects, ease of use, or effect on sex. More participants said the size of PrEP was acceptable (paired difference p=0.06); all participants were able to swallow both the DPP and PrEP.

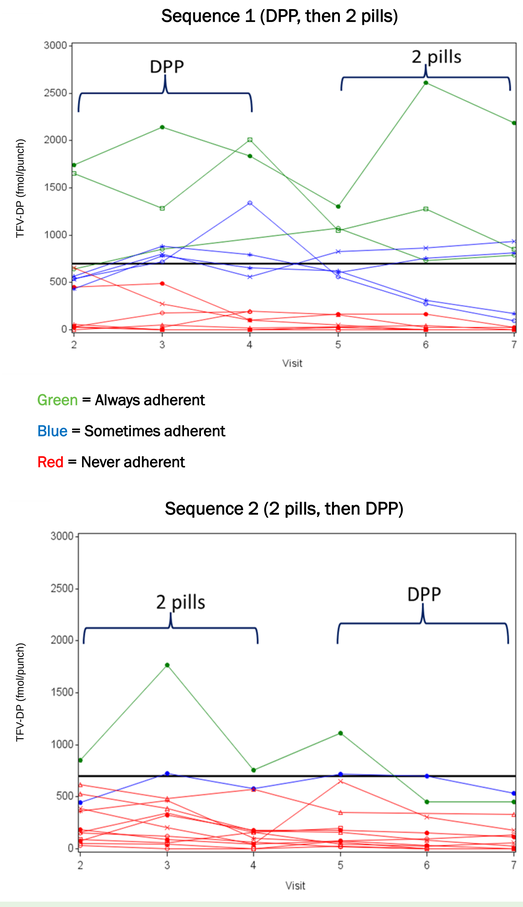
Figure 1. Acceptability



RESULTS

- **Adherence:** Self-reported adherence was high (>96%), yet <20% of participants were consistently adherent to both treatment regimens per TFV-DP levels (DPP mean: 392 fmol/punch; 2-pills mean: 384 fmol/punch).
- There was no difference in adherence by regimen. However, participants were 9 times more likely to be adherent if they were randomized to using the DPP first (adjusted odds ration [AOR] 9.3; 95% confidence interval [CI], 1.0-87.5) and nearly 4 times more likely to be adherent during treatment period 1 vs 2 (AOR 3.7; 95% CI, 1.10-12.8). **See Figure 2**.

Figure 2. Individual participant levels of TFV-DP by visit, by randomized sequence



CONCLUSIONS

- This was the first study examining real world acceptability of an over-encapsulated daily oral MPT product (as a proxy for the DPP that is currently in development).
- Most young women preferred the DPP (not significant).
- We found no differences on any acceptability domain between the DPP and 2 pills.
- As has been seen in multiple other studies, adherence was high based on self-report yet low based on drug levels and declined over time between Treatment Period 1 and Treatment Period 2.
- An unexpected finding was higher adherence among those randomly assigned to using the DPP first followed by 2 separate pills (vs those starting with 2 separate pills); more information may emerge from the qualitative interviews.
- Additional research with the actual (smaller) co-formulated DPP powered to detect smaller differences in preference and adherence, as well as exploring factors associated with acceptability is warranted.

CONTACT AND FUNDING INFORMATION

For more information, contact Barbara Friedland at bfriedland@popcouncil.org.

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