



Are Ring Worries Affecting Use? Findings from the MTN-020/ASPIRE Phase III Dapivirine Ring Trial

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Background

- **Vaginal ring :**
 - Allow sustained delivery of microbicides for ≥ 1 month
 - 25mg NNRTI Dapivirine (DPV) formulated in silicone elastomer matrix ring

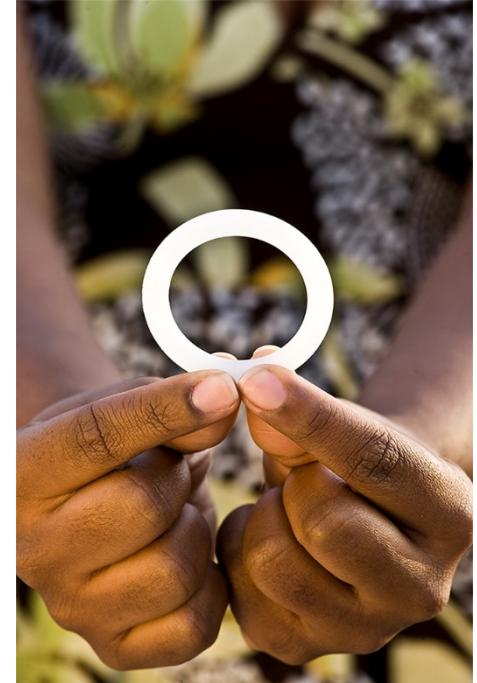
- **MTN-020/ASPIRE Study (2012-2015)**¹
 - A multi-site Phase 3 trial of the DPV ring used monthly for 12-33 months among women in South Africa, Uganda, Zimbabwe & Malawi.
 - The DPV ring showed 27% protection against HIV overall and >50% protection among women aged 22-45, who were more adherent.

¹ Baeten et al. *N Engl J Med.* 2016

Research questions

We assessed if reporting ring worries (RW) at baseline:

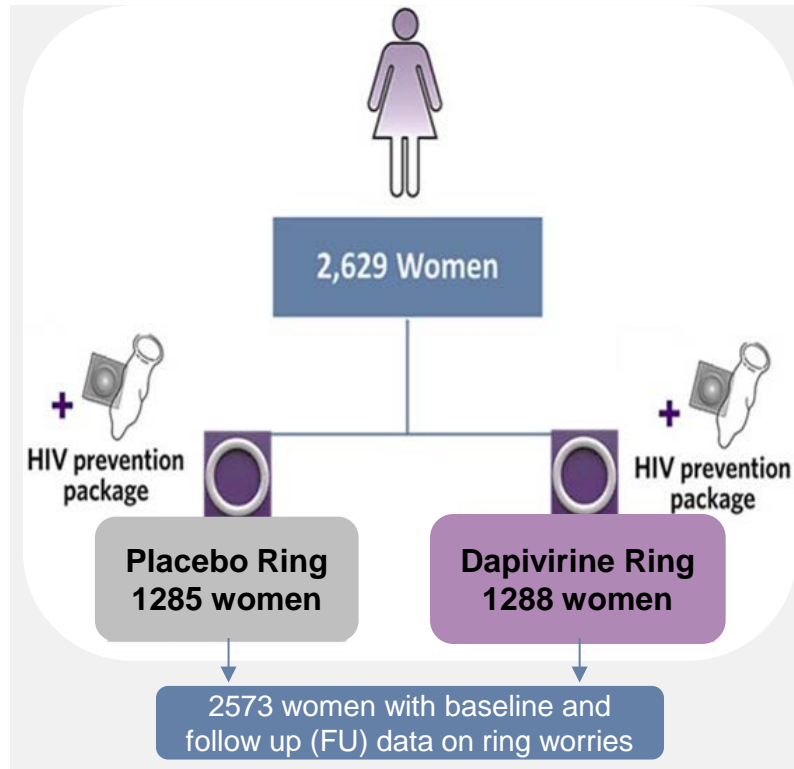
- a) Changed at follow-up
- b) Was associated with age group at both time points
- c) Influenced willingness to use the ring in the future as well as ring non-adherence



Analysis

- **Final Analytical Sample:**
 - Ring Worry data available for baseline visit and last follow-up (FU) (mean: 21 months; range 1-34 months)
 - Women excluded post-seroconversion

ASPIRE Study Flow

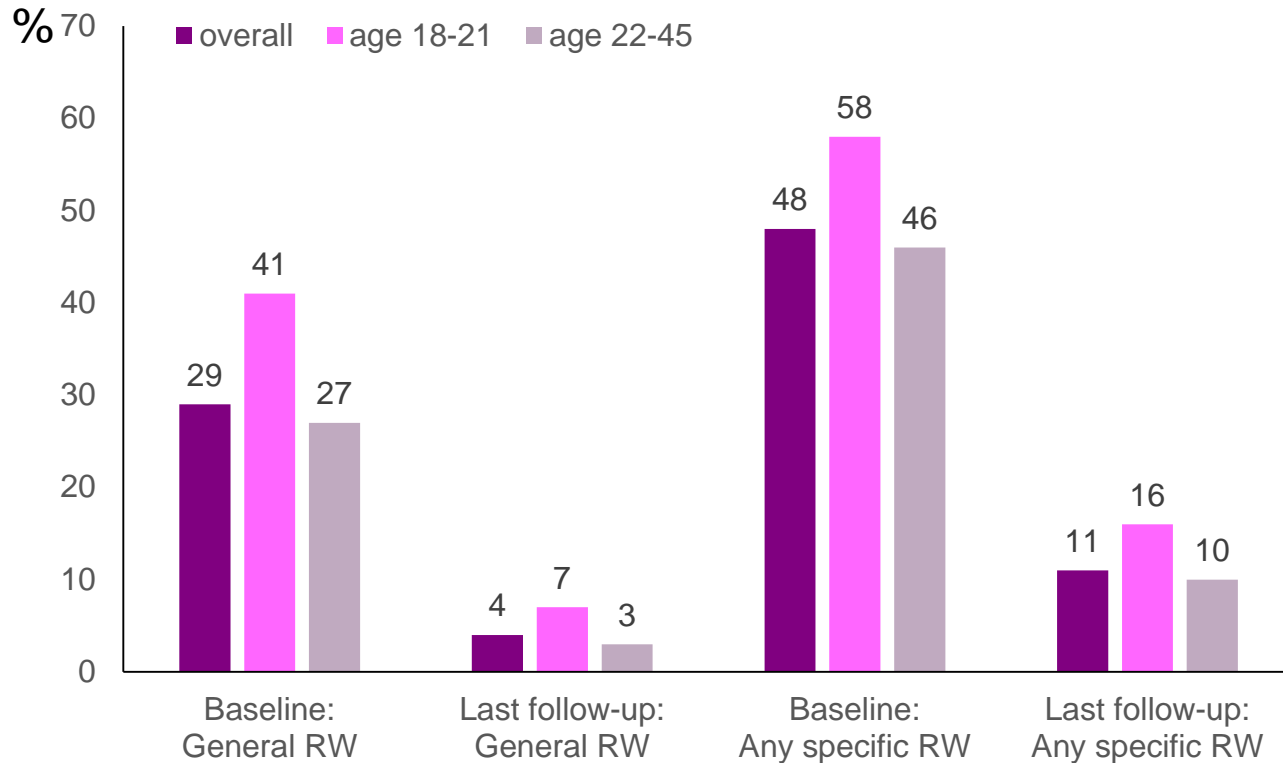


Baseline Characteristics of Sample (N=2573)	%
Country South Africa Uganda Malawi Zimbabwe	44 23 13 21
Age group median (mean, min-max) 18-21 22-45	26 (27.2, 18-45) 20 80
Some secondary school or more	85
Married	41
Had a primary sex partner in past 3 months	100
Contraceptive use at baseline Injectable Implant IUD Oral contraceptives Sterilization	55 19 12 11 3
Condom use at last vaginal sex act (self-reported)	57

Ring worries measures:

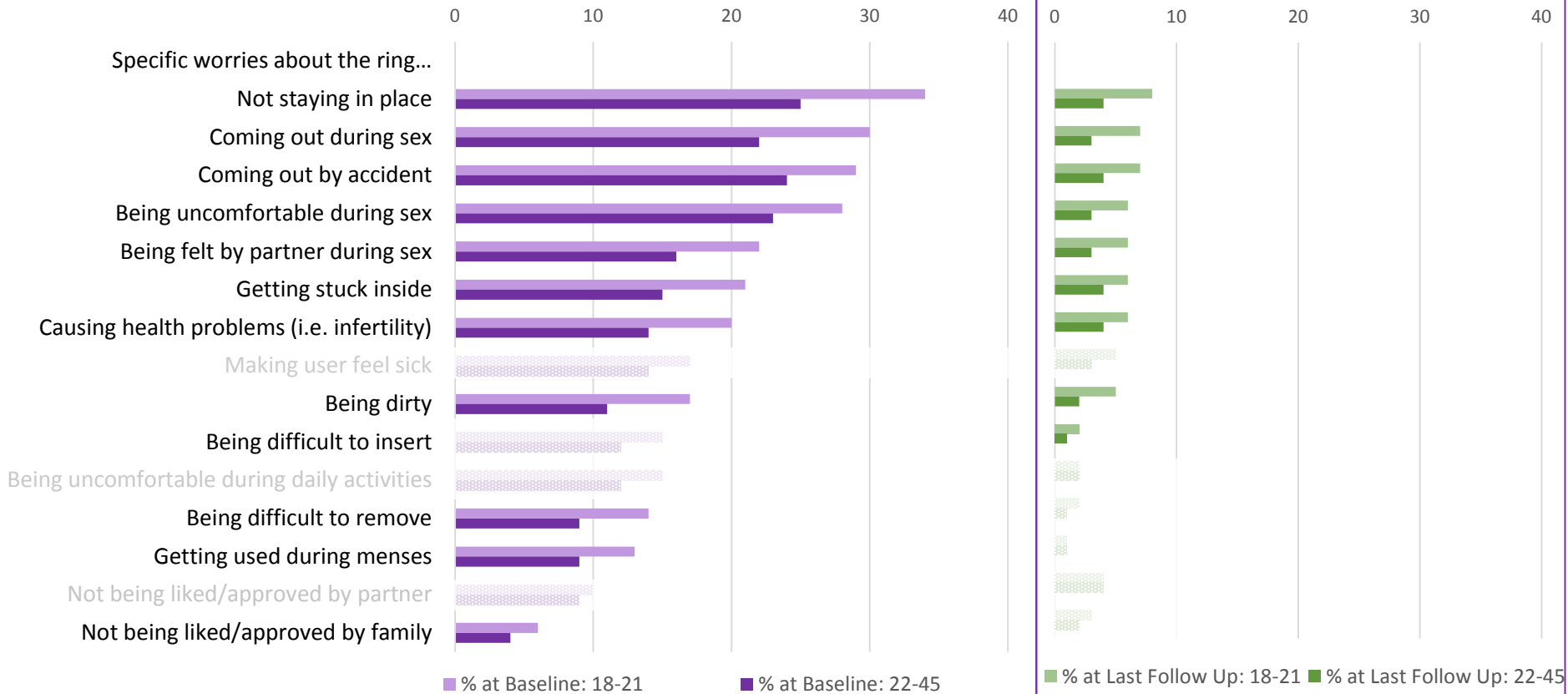
- **General ring worries**
 - Baseline and last FU visit (CRF)
 - *How worried are you about having a vaginal ring inside you every day for at least a year?
(very/somewhat vs not-at-all worried)*
- **Specific ring worries**
 - Baseline and last FU visit (CRF)
 - 15 items incl. use attributes, health, hygiene, sex & social approval

Ring worries at baseline and last follow up, overall and by age



Percent of women at baseline with specific ring worries, by age (n=2573)

Percent of women at last follow up with specific ring worries, by age (n=2573)



Patterned fill ( ) indicates non-significant difference between younger and older groups (Fisher's p value ≥ 0.05)

RW and willingness to use in future

- Willingness to use ring in the future
 - Baseline (ACASI)
 - 4 pt scale- dichotomized: “very likely” vs not “very likely”

Adherence-related outcomes		Total	Worried*	Not Worried*	UOR	X ² p-value	AOR**	X ² p-value
Baseline	Not “very likely to use” in the future (n=2552)	42%	53%	37%	1.97	<.0001	1.73	<.0001

**Participants who responded that they were “very” or “somewhat worried were classified as “worried,” those that responded they were “not at all worried” were classified as “not worried.”*

*** Controlling for country and age group*

Biological non-adherence

- **Plasma DPV levels**-Quarterly
- A measure that calculates the amount of DPV in the plasma. $\leq 95\text{pg/ml}$ is considered evidence for no or little use in the 8 hours prior to blood collection.
- **DPV ring residual**- Monthly (starting 1 year after initiation)
- Amount of DPV remaining in the used ring. $\geq 23.5\text{mg}$ DPV remaining is consistent with little/no ring use during the month, < 23.5 likely indicates at least some use during the month, but not necessarily high, or even modest, adherence.

Baseline ring worries (RW) as a predictor of biological non-adherence: General Estimating Equation (N = 1279)

Biological Non-Adherence:	Univariate model		Multivariate model: controlling for age group, country, and time	
	OR	X ² p-value	AOR	X ² p-value
DPV plasma level ≤ 95 pg/ml	1.6	<0.0001	1.4	0.0058
DPV Ring residual ≥ 23.5 mg	1.4	0.0048	1.1	0.6822

Qualitative sample: Changing worries

I had some fear that probably during sex it might come out along with his penis [all laugh] but when I saw nothing coming out I gathered confidence.

(Age 28, Uganda)

...the ring coming out during sex

...the ring being felt by partner during sex

..the ring causing health problems

...using the ring during menses

I got threatened that it was going to cause me cancer and so I removed it, wrapped it in a white cloth and kept it in my suitcase... That was the first and last time I removed it.

(Age 36, Uganda)

I thought maybe my partner would feel it or it will come out with a penis after sex, and that I have to take it out during menstruation. I just thought that it would mix up my life, it would be difficult to use easily... but it wasn't.

(Age 21, South Africa)



Summary

We assessed if reporting ring worries (RW):

- a) Changed between baseline and follow-up?
- b) Was associated with age group at both time points?
- c) Influenced willingness to use the ring in the future as well as ring non-adherence?



Conclusions, part 1

- Ring worries (RW) were common at baseline but mostly resolved by end of study.
- Younger women (aged 18-21) had more worries than older women (22-45); this association was stronger at last follow up.
- At baseline, RW were associated with a lower interest in using a ring daily in the future.

Conclusions, part 2

- Baseline RW were also associated with biological non-adherence:
 - For plasma DPV, the association persisted after controlling for age, time & country, but not for DPV ring residual.
- These findings suggest that ring worries may be a deterrent to correct, continuous ring use, but there was no evidence that it was associated with minimal/non-use of the ring for a full month.
- Addressing RW early on through tailored counseling may help improve comfort with and correct use of the ring.



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Thank you!