



# Awareness of Male Partner Circumcision and Women's Health

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# Introduction

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- Male medical circumcision (MMC) is known to reduce the risk of heterosexual transmission of HIV infection in men by 50-60%.
- MMC has no direct HIV benefit to women although there is some known indirect health benefits to women.
- There are also concerns about MMC and its impact on women's health.

# Indirect Benefit to Women

- MMC provides secondary protection against HIV by decreasing the incidence and prevalence of HIV among men.
- There is also a protective benefit of MMC on STI transmission to the female partner:
  - ✓ Women with circumcised partners showed lower rates of genital ulceration, bacterial vaginosis and trichomonas infections.
  - ✓ Decreased risk of cervical cancer due to circumcised partners having lower rates of HPV infection and therefore lower transmission rates to women.

# Considerations for Women

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- MMC in HIV positive men does not protect women from male to female HIV transmission.
- Transmission of HIV to their female partners was shown to be higher in couples who resumed sex prior to complete wound healing post MMC surgery.

# Sexual Risk Compensation

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- Women are being educated by health care workers on the indirect benefits of MMC on their health.
- There is therefore a potential of sexual risk compensation among women whose partners are circumcised.

# Sexual Risk Compensation in Men

- Men who received circumcisions reported significantly more sexual contacts than the control group (South Africa, Orange Farm).
- Condom use increased , number of partners and unprotected sexual acts decreased from baseline in both control and intervention arms (Kenya, Kisumu).
- Rates of condom use increased in both the intervention and control arms during the study (Uganda, Rakai).

# Sexual Risk Compensation in Women

- Women perceived that MMC would increase female's risk of HIV acquisition as a result of her circumcised partner engaging in riskier sexual behavior such as having multiple partners and decrease in condom use (KZN).
- Majority of participants (WHiPT project) perceived that MMC might lead to an increase in gender-based violence (GBV) and stigma for women living with HIV.

# MTN 003 Study (VOICE)

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- MTN 003 (VOICE) study , a safety and effectiveness study of oral and topical PrEP, collected data from women on their primary partner circumcision status and sexual and behavioral data at prescribed study visits.

# Methods

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- This is a secondary analysis from the VOICE (MTN-003) trial which enrolled 5029 HIV uninfected women, 18 to 45 years of age, at 15 sites in Africa.
- Participants in the VOICE trial underwent monthly pregnancy, HIV and STI testing at baseline and quarterly visits.
- Socio-demographic data was collected at the screening visit and sexual behaviour data were collected at every study visit.

# Study Objectives

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- To describe the prevalence of reported male partner circumcision in the VOICE trial.
- To determine whether male partner circumcision is associated with incident STI infection, HIV, pregnancy and risky sexual behaviour in the female participant.

# Methods

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- Risky sexual behaviour was measured by:
  - Frequency of sex acts in the past week
  - Condom use at last vaginal sex
- The effect of partner circumcision on incident STI, HIV and pregnancy was assessed using Cox regression models.

# Methods

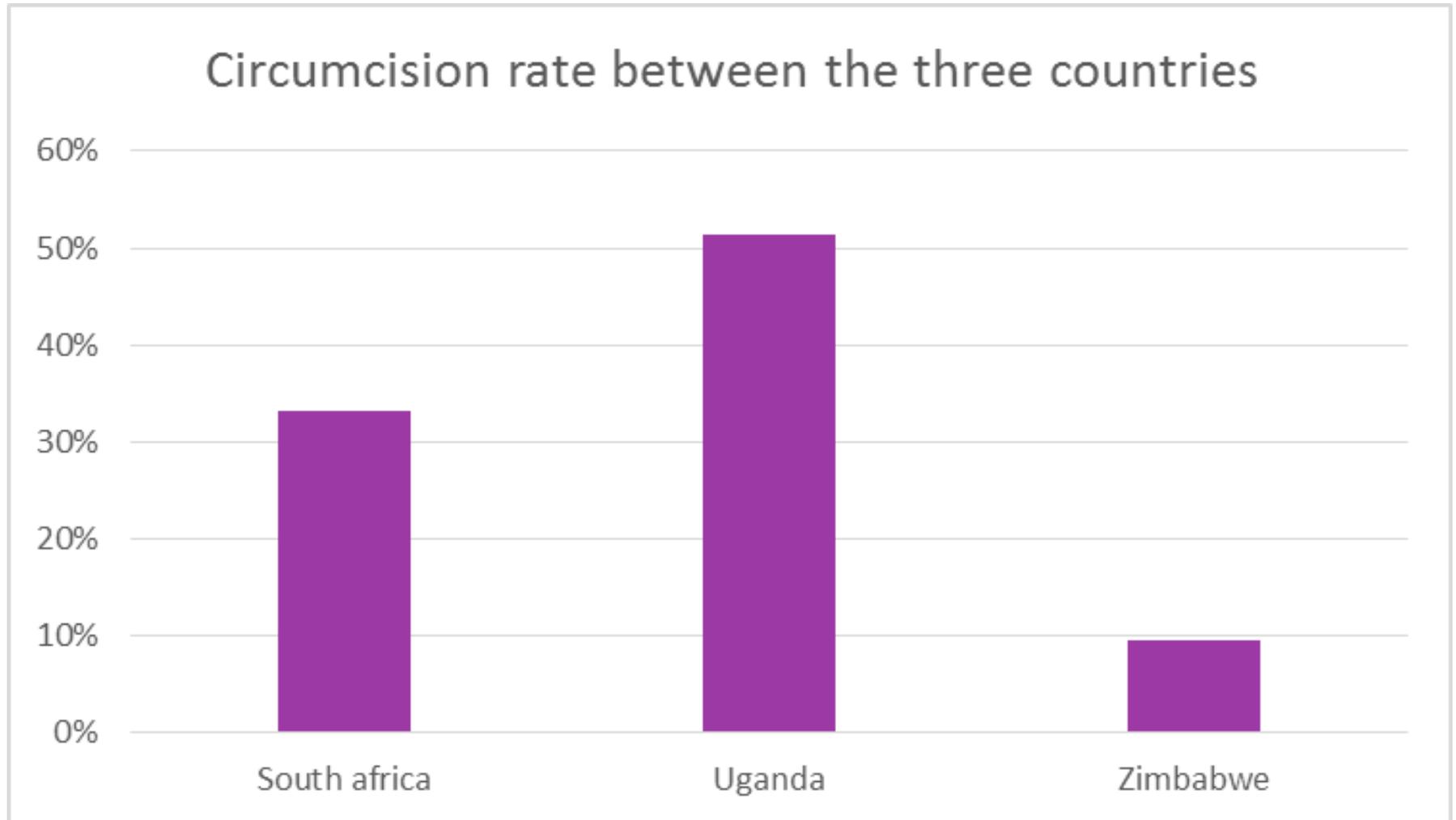
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- Impact of knowledge of partner circumcision on condom usage and frequency of sex was analysed using generalized estimating equation (GEE) models with a logit and log link, respectively.
- Participant age, education, study site and marital status were adjusted for in all analyses.

# Prevalence of Circumcision of Male Sexual Partner at Baseline

Circumcision Status of Male Sexual Partner at Baseline (N=4982)	n (%)
<b>Yes, circumcised</b>	1561 (31.3%)
<b>No, uncircumcised</b>	2863 (57.5%)
<b>Do not know circumcision status</b>	558 (11.2%)

# Partner Circumcision Rates in South Africa, Uganda and Zimbabwe



# Participant Baseline Characteristics by Male Sexual Partner Circumcision Status

Baseline Characteristics	Total (n=4982)	Circumcised (n=1561)	Uncircumcised (n=2863)	Unknown Circumcision Status (n=558)	p-value <sup>1</sup>
<b>Participant Characteristics</b>					
Median age, years (IQR)	24 (21, 29)	24 (21, 29)	25 (21, 29)	23 (20, 26)	<0.0001
<b>Partner Status</b>					
Married	1052 (21%)	257 (16%)	714 (25%)	81 (15%)	<0.0001
Unmarried, has primary sex partner	3930 (78%)	1304 (84%)	2149 (75%)	477 (85%)	
Currently living with partner	1606 (32%)	455 (29%)	1042 (36%)	109 (20%)	<0.0001
Earns own income	2853 (57%)	844 (54%)	1688 (59%)	321 (58%)	0.007
<b>Education<sup>3</sup></b>					
Primary or less	388 (8%)	128 (8%)	236 (8%)	24 (4%)	0.005
Secondary or more	4590 (92%)	1432 (92%)	2625 (92%)	533 (96%)	

# Participant Baseline Characteristics by Male Sexual Partner Circumcision Status

Baseline Characteristics	Total (n=4982)	Circumcised (n=1561)	Uncircumcised (n=2863)	Unknown Circumcision Status (n=558)	p-value <sup>1</sup>
<b>Participant Characteristics</b>					
<b>Perceived risk of HIV in the next year<sup>8</sup></b>					0.002
Very worried	3016 (61%)	880 (57%)	1770 (62%)	366 (66%)	
Somewhat worried	832 (17%)	280 (18%)	468 (16%)	84 (15%)	
Not at all worried	1088 (22%)	377 (25%)	609 (21%)	102 (18%)	
<b>Perceived risk of HIV prior to enrollment<sup>9</sup></b>					0.0004
High risk	930 (41%)	285 (40%)	559 (43%)	86 (36%)	
Moderate risk	404 (18%)	129 (18%)	236 (18%)	39 (16%)	
Low risk	329 (15%)	133 (19%)	159 (12%)	37 (15%)	
No risk	583 (26%)	158 (22%)	347 (27%)	78 (33%)	

# Partner Baseline Characteristics by Male Sexual Partner Circumcision

Partner Characteristics					
Baseline Characteristics	Total (n=4982)	Circumcised (n=1561)	Uncircumcised (n=2863)	Unknown Circumcision Status (n=558)	p-value <sup>1</sup>
Median age, years (IQR) <sup>10</sup>	28 (25, 33)	29 (25, 34)	28 (25, 34)	26 (24, 31)	<0.0001
Has other sexual partners					<0.0001
Yes	764 (15%)	266 (17%)	429 (15%)	69 (12%)	
No	1231 (25%)	392 (25%)	741 (26%)	98 (18%)	
Participant does not know	2987 (60%)	903 (58%)	1693 (59%)	391 (70%)	
Provides financial support <sup>11</sup>	4148 (83%)	1294 (83%)	2415 (84%)	439 (79%)	0.004
Education <sup>12</sup>					<0.0001
Primary or less	181 (4%)	53 (3%)	115 (4%)	13 (2%)	
Secondary or more	4480 (90%)	1363 (87%)	2602 (91%)	515 (92%)	
Participant does not know	320 (6%)	145 (9%)	145 (5%)	30 (5%)	

# HIV and Pregnancy Incidence

- The overall HIV Incidence rate was 5.67 (5.05,6.33) per 100PY (95% CI). There was no significant difference in HIV incidence between women with circumcised and uncircumcised partners [HR 1.08 (0.83,1.40), p-value=0.59].
- The pregnancy incidence rate between women with circumcised and uncircumcised partners was not significantly different (p-value = 0.500)

# Sexually Transmitted Infections

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- There was no significant difference in Gonorrhoea and Chlamydia incidence rates between women with circumcised and uncircumcised partners (p-value=0.25 and p-value=0.52 , respectively).

# The Effect of Circumcision Status on Risk of Incident Syphilis Infection

Circumcision Status Comparison	Adjusted HR (95% CI)	Adjusted p-value*
<b>Circumcised vs. uncircumcised</b>	0.52 (0.26, 1.02)	0.058
<b>Unknown vs. circumcised</b>	1.95 (0.62, 6.12)	0.254
<b>Unknown vs. uncircumcised</b>	1.01 (0.37, 2.79)	0.983
<b>Circumcised vs. all others</b>	0.52 (0.27, 1.02)	0.055

\*From Cox proportional hazards regression model, stratified by site and adjusted for participant age, participant education, and marital status

# Association between Sex Frequency and Circumcision Status

Circumcision Status Comparison	Adjusted Mean Estimate (95% CI)	Adjusted p-value*
<b>Circumcised vs. uncircumcised</b>	0.94 (0.90, 0.97)	0.0005
<b>Unknown vs. circumcised</b>	0.98 (0.94, 1.03)	0.510
<b>Unknown vs. uncircumcised</b>	0.92 (0.88, 0.96)	0.0003
<b>Uncircumcised vs. all others</b>	1.07 (1.04, 1.11)	<0.0001

\*From GEE model with log link (Poisson) and exchangeable correlation, stratified by site and adjusted for participant age, participant education, and marital status

# Association between Circumcision Status and Condom Use during Last Vaginal Sex

Circumcision Status Comparison	Adjusted RR (95% CI)	Adjusted p-value*
<b>Circumcised vs. uncircumcised</b>	1.12 (1.04, 1.21)	0.003
<b>Unknown vs. circumcised</b>	1.13 (1.02, 1.25)	0.018
<b>Unknown vs. uncircumcised</b>	1.26 (1.15, 1.39)	<0.0001
<b>Uncircumcised vs. all others</b>	0.86 (0.80, 0.92)	<0.0001

\*From GEE model with logit link and exchangeable correlation, stratified by site and adjusted for participant age, participant education, and marital status

# Discussion

- Women in this study reported an overall 31% prevalence of male partner circumcision, similar to the estimated global prevalence of circumcision among males aged 15 years and over (30%).
- The study noted no difference in HIV transmission in women with circumcised and uncircumcised partners.
- Women with circumcised partners showed a significantly reduced risk of syphilis acquisition which is consistent with other studies thus indicating health benefits for both men and their partners.

# Discussion

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- Participants with circumcised partners reported significantly fewer sex acts in the past 7 days, and used condoms more frequently at the last sex act compared to participants with uncircumcised partners.
- This indicates that women and their circumcised male partners did not engage in riskier sexual practices as a result of being circumcised.

# Conclusions

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- The benefits of MMC have been shown to extend to women.
- Women with circumcised partners reported less risky sexual behaviour than women with uncircumcised partners.
- Ongoing education of couples on safe sex practices and the benefits of MMC is essential to HIV prevention efforts.

# Recommendation

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- Include key messages on MMC to ensure women understand that circumcised men have only partial protection from HIV acquisition.
- Empower women to discuss the benefits of MMC for both men and women with their sexual partners.

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