A sport-based intervention to increase uptake of voluntary medical male circumcision among adult male football players: results from a cluster-randomised trial in Bulawayo, Zimbabwe

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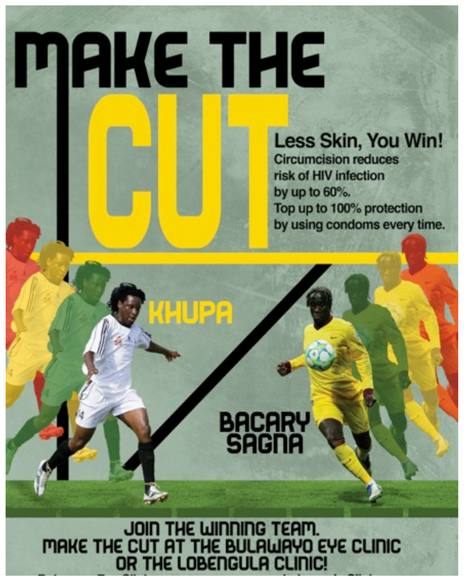
BACKGROUND

Three randomised controlled trials have shown that voluntary medical male circumcision (VMMC) can reduce female-to-male transmission of HIV by 50-60%. Zimbabwe has a target to reach 80% VMMC coverage among HIV-negative 15-29 year-old men by 2015. This is a central strategy in the nation's HIV response. Despite considerable recent investment, VMMC uptake has been slower than hoped. Demand creation, particularly among adult men, presents a critical challenge to increasing VMMC coverage.

The MTC intervention targets adult male soccer players to increase demand for VMMC.

Make The Cut (MTC) was developed by Grassroot Soccer (GRS) in 2012 to use soccer as an entry point to increase demand for, and uptake of, VMMC. Make The Cut" (MTC) is a 60-minute, sport-based intervention aiming to educate men about the benefits of VMMC and motivate them to get circumcised. A cluster-randomised trial was carried out in 2012-2013, in order to (i) assess the effectiveness of MTC in increasing VMMC uptake among adult male soccer players in Bulawayo and (ii) determine if MTC was more effective when delivered by well-known local professional soccer players who received a one-day training to deliver the intervention than when delivered by other trained facilitators with no celebrity status.

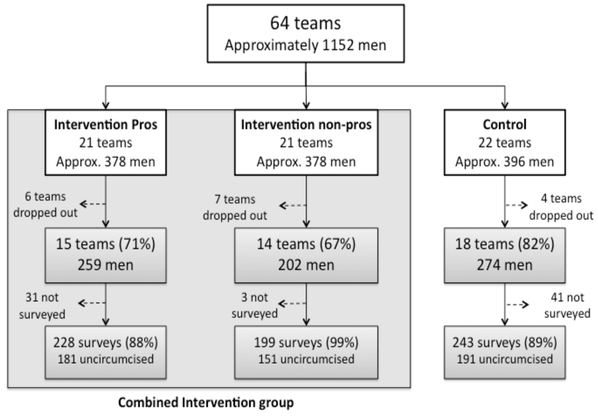


VMMC campaign promoted through MTC poster.

METHODS

A cluster-randomised trial was conducted with soccer teams as the trial clusters. There were two intervention arms, so the effect on uptake among men who received the intervention from professional soccer players as facilitators (Intervention Pros group) with uptake among men who received the intervention from other non-celebrity facilitators (Intervention Non-Pros group) could be compared.

Figure 1: Flow of teams and participants by study group



Eighty-five local soccer teams were identified, 64 teams agreed to participate and were randomised to one of the three trial arms, and 47 teams actually participated in the study. Teams in the control group participated in the baseline survey but did not receive the MTC intervention until after VMMC clinic data collection was finished. In all, 735 men aged 18-45 years (median age 24 years) enrolled in the study and 670 completed a baseline questionnaire. Seventeen teams dropped out after randomization and before participants consented: 6 in the Intervention Pros group, 7 in the Intervention Non-Pros group, and 4 in the Control group. The primary reason for this was a delay in ethics clearance that caused the trial to start two weeks later than anticipated. The trial had a narrow time window in November and December to complete baseline data collection and conduct interventions before the Christmas/New Year holiday break.

Table 1: Sample characteristics (N=670)

Characteristic	All		Control		Internvention Non-Pros		Internvention Pros	
	n	%	n	%	n	%	n	%
Teams	47		18		14		15	
Men surveyed	670		243		199		228	
Age Group								
18-24 yrs	363	54.2	130	53.5	112	56.3	121	53.1
25-29 yrs	129	19.3	41	16.9	33	16.6	55	24.1
30+ yrs	178	26.6	72	29.6	54	27.1	52	22.8
Education								
Lower than O-Level	85	12.9	37	15.5	16	8.3	32	14.1
O-Level	422	63.9	137	57.3	152	78.4	133	58.6
A-Level or higher	153	23.2	65	27.2	26	13.4	62	27.3
Monthly Income								
Less than $100	171	41.6	55	36.4	44	36.7	72	51.4
$100 to 300	145	35.3	53	35.1	40	33.3	52	37.1
$301 to 600	80	19.5	40	26.5	27	22.5	13	9.3
>$600	15	3.6	3	2.0	9	7.5	3	2.1
Circumcised	141	20.8	56	23.1	43	21.6	42	18.4
At a clinic or hospital	129	80.6	58	86.6	35	77.8	36	75
In the last 3 months	24	3.6	9	3.7	9	4.6	6	2.6

VMMC uptake was measured over 4.5 months (15 November 2012 to 31 March 2013) by cross-linking clinic registers with trial consent forms using name, national ID, date of birth, phone number, and age as identifiers. The two intervention groups were combined for the main analysis, as decided a priori. Random-effects logistic regression (to assess relative effect) and linear regression (to assess absolute differences in mean prevalence) were used to compare uptake between groups, adjusting for team-level clustering and, in a separate multivariable analysis, also for age.

RESULTS

Linkage between clinic registers and consent forms revealed that one control participant (0.4%) and 16 intervention participants (3.5%) took up VMMC. In the intention-to-treat analysis adjusted for clustering, this corresponded to roughly 9.8-times higher odds of VMMC uptake in the intervention group than in the control group (OR=9.81, 95% CI=0.93-103.2, p=0.057). When restricted to men reporting being uncircumcised at baseline (n=522), the odds of VMMC uptake in the intervention group (4.8%) compared to the control group (0.5%) were approximately 10.3-times higher (OR=10.28, 95% CI=0.91-115.7, p=0.059).

Table 2: Comparing uptake of VMMC between groups, main outcome analysis by intention-to-treat

	Control		Intervention			Unadjusted Analysis			Adjusted for age		
Analysis	**n/N**	**%**	**n/N**	**%**	**Diff**	**OR***	**95% CI**	**p value**	**AOR****	**95% CI**	**p value**
All Participants	1/274	0.4	16/461	3.5	3.1%	9.81	0.93-103.2	0.057	9.59	0.83-110.6	0.070
Restricted ^	1/190	0.5	16/332	4.8	4.3%	10.28	0.91-115.7	0.059	10.2	0.77-135.9	0.08

^Denominator restricted to men reporting they were uncircumcised at baseline
*Via random-effects logistic regression, adjusted for team-level clustering
**Via random-effects logistic regression, adjusted for team-level clustering and age

Table 3 presents a sub-group analysis of uptake by age group and study group. While it was not possible to statistically test for effect modification due to low uptake numbers in the control group, there was a strong suggestion of differences in MTC's effectiveness by age. In the intervention group, five 18-20 year-olds (9.1% of those reporting being uncircumcised), two 20-24 year-olds (1.6% of those reporting being uncircumcised), eight 25-29 year-olds (11.3% of those reporting being uncircumcised), and one 30+ year-old (1.5% of those reporting being uncircumcised) took up VMMC. In the control group, one 20-24 year-old (1.5% of those reporting being uncircumcised) took up VMMC and no participants aged 18-20, 25-29 or 30+ participants took up VMMC. While it was not possible to statistically test for effect modification due to low uptake numbers in the control group, there was weak statistical evidence that uptake in the intervention group varied by age group (p=0.084).

Table 3: Comparing VMMC uptake between study groups across age groups

	All Participants (n=735)				Restricted to uncircumcised (n=523)			
	Control		Intervention		Control		Intervention	
Age Group	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**
<20	0/39	0.0	5/78	6.4	0/26	0.0	5/55	9.1
20-24	1/93	1.1	2/168	1.2	1/65	1.5	2/126	1.6
25-29	0/44	0.0	8/88	9.1	0/30	0.0	8/71	11.3
30+	0/86	0.0	1/110	0.9	0/62	0.0	1/69	1.5

CONCLUSION

Overall, the findings are promising in suggesting MTC's strong relative effect and modest absolute effect in increasing VMMC uptake among adult male soccer players in Bulawayo. Since no other VMMC demand creation trials have yet reported results to our knowledge, we cannot effectively compare MTC with other interventions delivered with adult men. The low baseline circumcision prevalence and very low uptake during the course of the trial corroborate Zimbabwe's lack of progress to date in mobilizing adult men to take up VMMC and further underscore the need for effective demand creation with this population.

Although the confidence intervals around the estimate of the ORs comparing VMMC uptake among the two intervention arms were wide, the results hint that there may not be a substantial difference between the two intervention groups, suggesting that the facilitator's celebrity status may not be an important factor in determining MTC's effectiveness. Of the 16 intervention participants who took up VMMC, 7 (3.8% uptake) were from the Pros group and 9 (5.9% uptake) were from the non-Pros group (OR=0.58, 95%CI=0.11-3.02). This suggests not restricting facilitators to professional soccer players will make the intervention easier and more affordable to scale up.

ACKNOWLEDGEMENTS:

The trial was funded by the Bill and Melinda Gates Foundation and the Doris Duke Charitable Foundation. We would like to acknowledge the support and cooperation of our colleagues at Grassroot Soccer Zimbabwe, Population Services International Zimbabwe, and the London School of Hygiene and Tropical Medicine, and also of the Zimbabwe Football Association, and the players and coaches of the participating soccer teams.

Presented at AIDS 2014 – Melbourne, Australia