



Published in final edited form as:

Sex Transm Dis. 2018 November ; 45(11): e94–e97. doi:10.1097/OLQ.0000000000000890.

Correlates of Rectal Douching Practices Among Men Who Have Sex with Men in Kenya

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Abstract

Background: Among men who have sex with men (MSM), rectal douching (RD) has been associated with increased prevalence of HIV and other sexually transmitted infections. Substances commonly used for RD, especially water-based solutions, could disrupt the rectal epithelium and increase susceptibility to infection. The few existing reports on RD among MSM are primarily in middle- and high-income settings, and to date, no study has focused on RD among MSM in Africa.

Methods: We conducted a secondary data analysis of programmatic data from key population service centers in western Kenya. Data were extracted from records of clients who identified as MSM and accessed services between January 1, 2014 and September 1, 2016. We compared demographic and behavioral characteristics of men who did and did not practice RD. Logistic regression assessed associations with RD.

Results: Of the 202 MSM in this analysis, 63% engaged in RD. All who engaged in RD used water-based substances. Those who engaged in receptive anal intercourse (RAI) in the last 3 months were more likely to report RD (Odds Ratio (OR): 3.19, 95% Confidence Interval (CI): 1.67–6.07). Among MSM who engaged in sex work, those who practiced RD reported more regular clients per week (2.8 vs. 1.3 clients, $p=0.01$). RD practices did not vary by other sexual risk practices.

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CONFLICT OF INTEREST: The authors report no conflict of interest for this work.

Conclusions: RD is common in this population of Kenyan MSM, especially among those who have recently engaged in RAI, suggesting that a rectal douche that delivers microbicides could be a potential intervention to reduce HIV/STI infection within this population.

SHORT SUMMARY:

A study of programmatic data on MSM in Kisumu, Kenya, found that those who practice rectal douching were more likely to engage in recent receptive anal intercourse.

Keywords

Rectal Douching; Enema; Men who have sex with men (MSM)

Background

Rectal douching (RD), or enema use, has been associated with increased prevalence of HIV as well as other sexually transmitted infections (STIs) among men who have sex with men (MSM).¹⁻⁴ Common substances used to douche, especially certain water-based solutions (e.g., soapsuds or tap water), could disrupt the rectal epithelium and increase susceptibility to HIV or STI at the time of exposure; these water-based solutions often have low osmolality relative to the normally isotonic contents of the colon, and osmotic movement of water from hypotonic enemas into the epithelial cells can lead over-absorption of water and cell lysis.⁵

Beyond the risks incurred by damage to the anal epithelium, douching can have important implications for the use of rectal microbicides. Rectal microbicides, in the form of liquid, gel, or suppository, are being developed as a method to prevent HIV among MSM.⁶ However the effectiveness of rectal microbicides in the context of rectal douching has yet to be evaluated, and willingness to use microbicides may depend on practices that precede or are concurrent with anal sex, including rectal douching. Douching could also be seen as a promising, albeit hypothetical, mechanism for microbicide delivery: given high rates of and consistent adherence to rectal douching among MSM who engage in receptive anal intercourse, Carballo-Diéguez et al. suggest that rectal douches (using non-damaging substances) containing microbicides can be a potentially effective prevention tool, especially among individuals less receptive to condoms and other methods of prevention.¹

Given its paradoxical role in potentially increasing HIV risk through damage to the rectal epithelium, yet possibly reducing HIV risk through delivery of (still in development) rectal microbicides, RD is a critical yet largely unexplored behavior among MSM. The few published studies on this topic primarily include men from middle or higher income^{1,6,7}, or are internet surveys^{4,6}, which can be methodologically problematic due to selection bias and limited generalizability (i.e., all those who respond are self-selected and have internet access). Of the studies that have been published, RD among MSM has been associated with behaviors known to increase HIV/STI risk, including recent receptive anal intercourse (RAI)^{4,6-8}, having more than two current sex partners with whom they engaged in anal sex⁴, and having been diagnosed with an STI in the past year.^{4,6} Furthermore, among men practicing RD, a majority report using water to douche.^{4,6,7}

In sub-Saharan Africa, MSM are disproportionately affected by HIV: studies throughout the region report significantly higher prevalence of HIV among MSM relative to the general population.⁹ Further, behavioral studies have found African MSM are highly likely to engage in risky sexual behaviors, such as transactional or unprotected sex.¹⁰ In Kenya, the prevalence of HIV among MSM was over threefold that of the general adult population in 2016 (18.2% vs. 5.4%), according to reports by UNAIDS and the Integrated Biological and Behavior Survey in Nairobi.¹¹ Understanding RD behaviors of this population could inform the development of HIV prevention programs in the region, whether this be through the distribution of safe douching substances or rectal douches containing microbicides. Yet, to our knowledge, no study has focused chiefly on RD among MSM in Africa.

Materials & Methods

We conducted a secondary data analysis of programmatic data from six drop-in service centers (DISCs) that target key at-risk populations for HIV prevention, including MSM. At the time of this analysis, these DISCs, located in western Kenya, were run by Impact Research and Development Organization (IRDO), a non-governmental organization dedicated to HIV programs and research. Three of the DISCs were located in rural areas, while remaining three were located in urban and semi-urban areas. At each DISC, IRDO employed ‘peer educators’ (i.e., members of the target population (MSM, in this case) who promote health behaviors among their peers), to disseminate information about services offered through the DISC, and to recruit MSM to enroll into a cohort for HIV testing and prevention services. Demographic factors, behaviors and sexual characteristics data were extracted from the enrollment records of all MSM clients who accessed services at the DISCs between January 1, 2014 and September 1, 2016. All participants included within this study were categorized as MSM based on self-report of ever having sex with men. Variables on RD were drawn from the questions, “Do you insert cleaning fluids into your anus?” and “What do you use to clean your anus?” Men who answered “yes” to the former question were categorized as currently practicing RD. No timeframe was specified for last RD episode, and no other additional variables on RD were collected.

We used t-tests to compare differences in continuous variables (e.g., age, number of sex acts per week, number of regular clients) and χ^2 tests to compare differences in categorical variables (e.g., marital status, lubrication use, RAI in the past 3 months) between men reporting RD and those who did not. When cell sizes were less than 5, we used Fisher’s exact tests. Using unadjusted logistic regression models, we assessed associations between several demographic and behavioral factors and RD. We did not adjust for confounders because multivariable models could not converge given the small sample size. However, given the potential for confounding by sexual role (i.e., receptive vs. penetrative anal intercourse), we ran additional logistic models limiting the population to those who engaged in recent RAI. Variables with over 25% missing observations were excluded from these analyses.

Results

Of the 202 MSM included in the study, a majority (n=127, 63%) reported that they practiced RD, and a significant minority (n=83, 41%) reported having sex with men for money. Most (85.2%) men were single, and had completed primary or secondary education (40.6% and 38.6%, respectively). The majority (73.3%) engaged in RAI within the past 3 months. Of those who practiced RD, 74 (58%) used water, 40 (31%) used water and cloth (i.e., inserting a moist cloth into the anus), and 13 (10%) used water and bath soap. No men reported douching with other substances (Table 1).

RD practices did not vary by education level, marital status, or other sexual practices such as number of sex acts per week, number of casual clients per week, sex under the influence of alcohol or condom use. In the full sample, those who practiced RD were older than those who did not (mean age: 24.2 vs. 22.9 years, $p=0.04$). A greater proportion of MSM who practiced RD reported that they tested positive for HIV relative to their non-douching counterparts (7.7% vs. 0%, $p=0.02$). Among those who reported having sex for money, those who practiced RD reported a significantly higher number of regular clients per week (mean number: 3.8 vs. 1.3 clients, $p<0.001$) (Table 1). Having engaged in RAI in the last 3 months was also associated with RD: those who engaged in RAI in the past 3 months were approximately 3 times as likely to have engaged in RD than those who had not engaged in RAI in the past 3 months (odds ratio (OR): 3.19, 95% confidence interval (CI): 1.67–6.07). Those who engaged in RD were more likely to report that they lubricated their condoms as well; the odds of RD among those who reported condom lubrication was more than 2 times that of those who did not lubricate condoms (OR: 2.61, 95% CI: 1.26–5.40) (Table 1). Upon limiting the population to those who engaged in RAI in the past 3 months, the odds of RD did not vary significantly by age or number of regular clients (among those who also engaged in transactional sex), however the odds of RD among those who reported condom lubrication was over threefold that of those who did not lubricate condoms (OR: 3.32, 95% CI: 1.37–8.04).

Discussion

In this population of Kenyan MSM, RD is fairly widespread, with over 60% of the population reporting that they engaged in the practice. Among men who reported RD, all the substances they reported using for RD are capable of disrupting the rectal epithelium and increasing HIV/STI susceptibility. We also found that RD was associated with several sexual behaviors, including recent RAI and number of regular clients per week (among sex workers). However, RD was not associated with many behavioral correlates that increase HIV/STI risk, including sex acts per week, number of casual clients, and sex under the influence of alcohol.

It is unclear why RD was associated with a higher mean number of regular clients but not of casual clients. One possibility is that the frequency of certain sexual behaviors may vary by partner type; several studies from the United States, China, and Peru suggest that, in general, unprotected anal intercourse among MSM is more common in stable, non-transactional partnerships than unstable or transactional partnerships^{12–14}, though it is unclear whether

these same patterns exist among MSM in Africa. In this study, data on specific behaviors (e.g. condom use) were not captured separately by client type, thus it is not possible to assess the impact of differences in the prevalence of these behaviors on RD by client type. However, the number of regular clients per week was no longer associated with RD after limiting the population to those who practiced recent RAI, suggesting that the effect of this factor may be the result of confounding by sexual role.

Several findings were consistent with those from previous studies of MSM, which report that RD is associated with recent RAI, and the majority of those who practice RD use water-based substances.^{4,7,15} The prevalence of RD in this population is high when compared to estimates of prevalence among MSM in other regions: a study among Peruvian MSM found that 27% reported a history of rectal douching¹⁶, while an online survey of MSM in sixteen U.S. cities found that 52% of respondents reported that they had douched at least once and 35% reported that they engaged in RD within the last 3 months.⁴

In this study, nearly two thirds of MSM practiced RD, and those who did were also more likely to report RAI and condom lubrication, which could indicate that RD is being used as a means of pre or post-coital cleansing. The frequency and timing of RD could have important implications for the acceptability of a rectal douche that delivers microbicides. If the majority of MSM engage in RD within a short period of time before or after intercourse, then the introduction of a safe, microbicide-containing rectal douche could be highly acceptable because it would require little behavioral alteration.

This study has several limitations. First, all measures were self-reported, thus the data are subject to response bias; individuals could have provided responses they feel are most socially acceptable, especially for harmful risk behaviors. Consequently, our estimates of the prevalence of sensitive or stigmatized behaviors and characteristics (e.g., RAI in the past 3 months, HIV-status) might underestimate the true prevalence. We were also unable to assess key clinical indicators of sexual risk behaviors, such as prior STIs. In addition, there was substantial missingness (>10%) for certain variables, specifically those relating to condom and lubrication usage. For these variables, missingness was greater among those who did not report RD, which suggests that data are not missing at random. Thus, results from the analysis of these variables could be subject to bias. Furthermore, as this study relies on programmatic data, the study population is limited to MSM who sought services from DISCs. MSM who access DISCs may differ from those who do not access DISCs, thus the results may not be generalizable to the broader MSM population.

Finally, no data were available on the frequency and timing of RD, nor on time since last RD episode. Thus, it is impossible to establish the variability of this behavior among those classified as practicing RD, and our results can only be interpreted as applying broadly to men who have engaged in RD at some point. Further, RD timing and frequency are likely relevant variables when assessing the acceptability of a potential rectal douche to deliver microbicides (e.g., if douching occurs before or after sex). Nonetheless, this study is the first to offer insight into the RD practices among any population of MSM in Africa.

In conclusion, RD is a common practice in this population of Kenyan MSM, especially among those who have recently engaged in RAI. This increased likelihood of RD among those who recently engaged in RAI could indicate that a rectal douche that delivers microbicides might be an acceptable intervention to reduce the risk of HIV/STI infection within this population.

SOURCES OF SUPPORT:

This publication was made possible by support from the U.S. President's Emergency Plan for AIDS Relief (PEPFAR) through the U.S. Centers for Disease Control and Prevention (CDC) under the terms of the cooperative agreement # 5U2GPS002777.

CDC Disclaimer:

The findings and conclusions in this paper are those of the author(s) and do not necessarily represent the official position of the funding agencies.

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TABLE 1.

Selected characteristics of men who have sex with men (MSM) in Kisumu, Kenya, overall and by rectal douching (RD) practices, 2014–2016*

	All MSM		Reported RD		No reported RD		P-value [†]	OR (95% CI)
	(n=202)		(n=127)		(n=75)			
	N	%	N	%	N	%		
Age (Mean (SD))	23.7	(4.4)	24.2	(4.4)	22.9	(4.4)	0.04	1.08 (1.00–1.15)
Sex acts per week (Mean (SD))[‡]	3.3	(4.0)	3.5	(4.5)	3.0	(2.9)	0.4	
Education level								
Less than primary	22	10.9	13	10.2	9	12.0	0.7	
Primary	82	40.6	49	38.6	33	44.0		
Secondary	78	38.6	50	39.4	28	37.3		
Higher education	13	6.4	10	7.9	3	4.0		
Missing	7	3.5	5	3.9	2	2.7		
Marital status								
Single	172	85.1	109	85.8	63	84.0	0.6	
Married	24	11.9	15	11.8	9	12.0		
Separated/Divorced	3	1.5	1	0.8	2	2.7		
Missing	3	1.5	2	1.6	1	1.3		
Self- Reported HIV Status								
Positive	10	4.9	10	7.7	0	0	0.02	N/A ^{##}
Negative	182	90.1	115	90.5	67	89.3		
Other [#]	8	4.5	1	0.8	7	9.3		
Missing	2	0.5	1	0.8	1	1.4		
Has sex under the influence of alcohol								
Yes	74	36.6	49	38.6	25	33.3	0.4	
No	128	63.4	78	61.4	50	66.7		
Missing	0	0	0	0	0	0		
Receptive anal intercourse in the last 3 months								
Yes	148	73.3	104	81.9	44	58.7	<0.001	3.19 (1.67–6.07)
No	54	26.7	23	18.1	31	41.3		
Missing	0	0	0	0	0	0		
Condom-use during receptive anal sex in the last 3 months[§]								
Yes	129	87.2	93	89.4	36	81.8	0.7	
No	10	6.8	8	7.7	2	4.5		
Missing	9	6.1	3	2.9	6	13.6		
Lubricates condoms^{**}								

	Yes	59	35.8	46	43.0	13	22.4	0.01	2.61 (1.26–5.40)
	No	106	64.2	61	57.0	45	77.6		
	Missing	0	0	0	0	0	0		
Engages in transactional sex									
	Yes	83	41.1	53	41.7	30	40.0	0.5	
	No	96	47.5	66	52.0	30	40.0		
	Missing	23	11.4	8	6.3	15	20.0		
<i>Among those who ever engaged in transactional sex:</i>									
		All MSM (n=83)		Reported RD (n=53)		No reported RD (n=30)			
	Number of regular clients per week (Mean (SD))^{††}	2.8 (3.7)		3.8 (4.3)		1.3 (1.7)		<0.001	1.38 (1.07–1.77)
	Number of casual clients per week (Mean (SD))^{††}	1.8 (1.8)		2.0 (1.5)		1.7 (2.0)		0.4	

OR: “Odds Ratio”; CI: “Confidence Interval”

* All data were derived from Impact Research and Development Organization’s programmatic enrollment data from drop-in service centers (DISCs) for key populations of HIV-transmission

[†] For continuous variables, p-values were calculated using two-sample t-tests. For categorical variables, p-values were calculated using Wald chi-square test and Fisher’s exact test. All tests used complete case analysis (i.e., omitted missing observations).

[‡] N=50 missing observations.

[#] Seven individual were not tested, 1 individual refused to disclose HIV status.

[§] Among MSM reporting to have engaged in receptive anal sex in the past 3 months (n=148).

^{**} Among MSM reporting to use condoms (n=165).

^{††} Among MSM reporting to have ever engaged in transactional sex (n=22 missing observations).

^{##} Odds ratio was not calculable because there were 0 MSM reporting to be HIV positive among those who did not practice RD.