

## Sexual Pleasure and Function, Coital Trauma, and Sex Behaviors After Voluntary Medical Male Circumcision Among Men in the Dominican Republic

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### ABSTRACT

**Background:** Voluntary medical male circumcision (VMMC) is effective in decreasing the risk of HIV acquisition. As men resume sexual activity after circumcision, it will be important to study their satisfaction with the procedure, sexual pleasure and function, coital trauma, and risk compensation (RC), which can hamper or facilitate the long-term success of VMMC programs.

**Aim:** To assess men's satisfaction with VMMC, sexual pleasure and function, coital trauma, and RC after VMMC.

**Methods:** This is a cohort study of circumcised men who presented for follow-up 6 to 24 months after VMMC. Logarithmic binomial regression was performed to explore factors associated with any increase in the number of sex partners after VMMC as a measurement of RC.

**Main Outcome Measures:** (i) Men's satisfaction with their VMMC; (ii) sexual pleasure and function after VMMC; (iii) coital trauma; and (iv) RC.

**Results:** Of 454 circumcised men, 362 (80%) returned for a follow-up visit 6 to 24 months after VMMC. Almost all (98%) were satisfied with the outcome of their VMMC; most (95%) reported that their female partners were satisfied with their circumcision. Two thirds (67%) reported enjoying sex more after VMMC and most were very satisfied or somewhat satisfied (94%) with sexual intercourse after VMMC. Sexual function improved and reported sex-induced coital injuries decreased significantly in most men after VMMC. There was an increase in the proportion of men who reported at least two sexual partners after VMMC compared with baseline. In multivariate analysis, having sex with a woman they met the same day (adjusted relative risk = 1.7, 95% CI = 1.2–2.4) and having at least two sexual partners at baseline (adjusted relative risk = 0.5, 95% CI = 0.3–0.8) were associated with the outcome of any increase in the number of partners after VMMC.

**Clinical Implications:** VMMC can be offered to Dominican men for HIV prevention without adversely affecting sexual pleasure or function. The procedure substantially reduces coital trauma.

**Strengths & Limitations:** This is the first report of long-term overall satisfaction, sexual pleasure/function and sex behaviors in the context of VMMC outside of Africa. Limitations of the study included the reliance on self-reported sex behaviors, the lack of physiologic measurement of penile sensitivity and the lack of follow up data beyond 24 months, which precludes the assessment of longer term RC.

**Conclusion:** The study confirmed men's long-term satisfaction with the outcome of their VMMC. VMMC improved sexual pleasure and function for most men and significantly decreased coital injuries. There was mixed evidence of RC. **Brito MO, Khosla S, Pananookooln S, et al. Sexual Pleasure and Function, Coital Trauma, and Sex Behaviors After Voluntary Medical Male Circumcision Among Men in the Dominican Republic. J Sex Med 2017;XX:XXX–XXX.**

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**Key Words:** HIV and AIDS; Male Circumcision; Risk Compensation; Behavioral Disinhibition; Dominican Republic

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## INTRODUCTION

Programs to scale up voluntary medical male circumcision (VMMC) for HIV prevention are underway in some sub-Saharan African countries in accord with the recommendation by the World Health Organization.<sup>1</sup> The Caribbean has the highest HIV prevalence in the world outside Africa and transmission mainly occurs through heterosexual contact.<sup>2</sup> Although the HIV epidemic in the Dominican Republic (DR) has been reclassified as concentrated to certain high-risk groups, such as men who have sex with men and sex workers,<sup>3</sup> there are regions of the country with high heterosexual transmission where the prevalence of HIV in men who are married or partnered is approximately 3.3%. HIV prevalence increases with age and has been reported as high as 11.1% in men 40 to 44 years of age residing in these communities.<sup>4</sup> There is an opportunity to expand the portfolio of HIV prevention strategies beyond condom use to include biomedical interventions. VMMC is an effective prevention strategy that decreases the risk of HIV acquisition by 60%.<sup>5,6</sup> As a low-cost, one-time surgical intervention, it is a viable alternative for areas of the DR with a significantly large number of high-risk heterosexual men. To assess whether VMMC would be a feasible intervention for certain areas of high HIV prevalence in the DR, we conducted and previously reported on a single-arm, non-randomized, pragmatic VMMC trial during 2013 through 2014. The results of the trial showed low rates of adverse events and high satisfaction with the procedure at the 7-day postoperative visit.<sup>7</sup>

As men resume sexual activity after circumcision, it will be important to assess their postoperative satisfaction with the outcome of VMMC and their postprocedure sexual pleasure and function, which could hamper the long-term success of future VMMC programs. Circumcision has been practiced for millennia and beliefs about its effect on sexual pleasure are plentiful and controversial. Some studies have suggested that circumcision decreases glans sensitivity and erectile function.<sup>8,9</sup> However, results from landmark randomized clinical trials (RCTs) have indicated that circumcision does not adversely affect sexual pleasure or function,<sup>10,11</sup> and these results have been confirmed by two systematic reviews and a prospective cohort study.<sup>12–14</sup> Another beneficial effect of circumcision that could contribute to improved sexual pleasure is the decrease in genital ulcerative disease and coital injuries, specifically bleeding, abrasions, and swelling during intercourse.<sup>15</sup> Female partner and circumcised men's satisfaction with the outcome of VMMC has been high in previous studies. Women have reported better hygiene and increased frequency of sex after VMMC as reasons for increased satisfaction with their partner's circumcision.<sup>16</sup> Men have reported greater penile sensitivity and found it easier to reach an orgasm after being circumcised.<sup>10</sup>

A theoretical concern of using VMMC as an HIV prevention strategy is risk compensation (RC), which is defined as an increase in sexual risk behaviors from perceived protection after an

intervention.<sup>17</sup> If present, then RC could mitigate or even negate the effectiveness of VMMC in decreasing HIV incidence. Although results from some early studies have suggested that circumcised men engage in higher risk behaviors,<sup>18,19</sup> large cohort studies using data from RCT participants in Kenya,<sup>20,21</sup> data from an initial VMMC program implementation in Kenya,<sup>14</sup> and RCT follow-up data from Uganda<sup>22,23</sup> have indicated that RC after VMMC is absent or negligible and is not likely to undermine the impact of circumcision on HIV prevention.

Although results of the studies discussed earlier have suggested that sexual pleasure, sexual function, and RC are not prevalent in recently circumcised African men, there are no studies specifically looking at the effect of circumcision on the sexual pleasure, function, or behaviors of Dominican men. The sociocultural context, beliefs, and familiarity with circumcision and men's sexual practices can be very different in African communities vs the DR and should be studied independently before rolling out VMMC services in the DR. We report on the results of a follow-up study to our clinical trial. We assessed postprocedure client satisfaction, sexual pleasure and function, coital trauma, and sexual risk behaviors 6 to 24 months after VMMC. Understanding these factors is an important component of our comprehensive assessment of acceptability and safety of VMMC in the DR. We hypothesized that men's satisfaction with the outcome of circumcision would be high and that men's sexual pleasure and function would remain unchanged. We posited that coital injuries would decrease and there would be no RC after VMMC.

## METHODS

### Study Design, Recruitment, and Data Collection

This is a cohort study of men circumcised as part of a single-arm, non-randomized, pragmatic VMMC trial conducted at two clinical sites in the DR from February 2013 through March 2014. Men 18 to 40 years of age circumcised in the VMMC clinical trial who returned for the follow-up visit were included in this study. These men were recruited into the parent clinical trial by community advertisement and outreach work. We organized social activities in the study clinics to increase participation. More details of recruitment, eligibility, and inclusion and exclusion criteria for the parent trial have been published previously.<sup>7</sup>

Participants were invited to return for a long-term follow-up visit 6 to 24 months after VMMC to complete an extensive survey with questions about their sexual pleasure and practices, high-risk sex behaviors, history of sexually transmitted diseases (STDs), coital injuries, and sexual health and hygiene during the post-VMMC period. We compared their responses with those given during a similar survey administered before VMMC. Most participants were interviewed in person. We conducted phone interviews for participants who had moved to a different city or could not return to the clinic to be interviewed.

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