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ORIGINAL RESEARCH—BEHAVIOR

The Influence of Sexual Orientation and Sexual Role on Male Grooming-Related Injuries and Infections

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ABSTRACT

Aim. Pubic hair grooming is a common practice in the United States and coincides with prevalence of grooming-related injuries. Men who have sex with men (MSM) groom more frequently than men who have sex with women (MSW). We aim to characterize the influence of sexual orientation and sexual role on grooming behavior, injuries, and infections in men in the United States.

Methods. We conducted a nationally representative survey of noninstitutionalized adults aged 18–65 residing in the United States. We examined the prevalence and risk factors of injuries and infections that occur as a result of personal grooming.

Results. Of the 4,062 men who completed the survey, 3,176 (78.2%) report having sex with only women (MSW), 198 (4.9%) report sex with men (MSM), and 688 (16.9%) report not being sexually active. MSM are more likely to groom (42.5% vs. 29.0%, $P < 0.001$) and groom more around the anus, scrotum, and penile shaft compared with MSW. MSM receptive partners groom more often (50.9% vs. 26.9%, $P = 0.005$) and groom more for sex (85.3% vs. 51.9%, $P < 0.001$) compared with MSM insertive partners. MSM report more injuries to the anus (7.0% vs. 1.0%, $P < 0.001$), more grooming-related infections (7.0% vs. 1.0%, $P < 0.001$) and abscesses (8.8% vs. 2.5%, $P = 0.010$), as well as lifetime sexually transmitted infections (STIs) (1.65 vs. 1.45, $P = 0.038$) compared with MSW. More receptive partners report grooming at the time of their STI infection (52.2% vs. 14.3%, $P < 0.001$) compared with insertive partners.

Conclusions. Sexual orientation, and in particular sexual role, may influence male grooming behavior and impact grooming-related injuries and infections. Anogenital grooming may put one at risk for an STI. Healthcare providers should be aware of different grooming practices in order to better educate safe depilatory practices (i.e., the use of electric razors for anogenital grooming) in patients of all sexual orientations. **Gaither TW, Truesdale M, Harris CR, Alwaal A, Shindel AW, Allen IE, and Breyer BN. The influence of sexual orientation and sexual role on male grooming-related injuries and infections. J Sex Med 2015;12:631–640.**

Key Words. Grooming; Men Who Have Sex with Men (MSM); Sexually Transmitted Infection (STI); Sexual Role; HIV; Injury

Introduction

Throughout the United States and other developed nations, pubic hair grooming is becoming increasingly common [1]. The number of emergency department (ED) visits for genitourinary (GU) injury related to grooming products or practices increased fivefold from 2002 to 2010 [2]. The reason for an increase in pubic hair removal is unclear, although some studies suggest trends in sexually explicit material to be a main influencer [3]. Vannier et al. analyzed pornographic movies and found men are likely to be groomed and most women were likely to have no

pubic hair at all, mirroring some pubic hair grooming trends [4].

Pubic hair removal has also been associated with various sexual behaviors in women, such as receiving vaginal and clitoral stimulation with fingers [5]. The role of sexual behavior and pubic hair removal in men is less clear. Several studies have looked at psychological factors contributing to pubic hair removal in men and have found the drive for muscularity, gender role conflicts, and physical appearance social comparisons have been correlated with increasing degrees of body hair removal [6]. It has been shown that men who have sex with men (MSM) remove their pubic hair more frequently [7]. However, differences between MSM and men who have sex with women (MSW) in hair removal patterns and practices are unexplored.

Sexual role is an important aspect of identity in MSM, and various roles carry different health risks. According to the CDC, receptive anal intercourse is the most efficient way to acquire HIV from sexual activity [8]. In young MSM, sexual role shapes sexual risk behavior [9]. Moreover, receptive MSM are twice as likely to be infected with HIV but more likely to be unaware of this increased risk [10]. Microinjuries and skin abrasions are likely to be more common in groomers and hence may increase infection transmission risk. Thus, various aspects of sexual behavior warrant future research. To our knowledge, how sexual role (i.e., insertive vs. receptive anal intercourse) influences grooming characteristics has never been studied.

Aims

We aim to identify any differences in removal patterns and location of pubic hair grooming in MSM and MSW. We intend to determine if MSM sexual role during anal sex is associated with different grooming characteristics. We hypothesize that MSM groom more frequently and in different anatomical locations, which may place them at greater risk for injuries or infections. As MSM receptive partners have been associated with less masculinity [10], we hypothesize that this group grooms more frequently than insertive partners and would hence be at a greater risk for injury or infection.

Methods

Study Population

We conducted a nationally representative survey of noninstitutionalized adults aged 18–65 residing in the United States. We developed a questionnaire examining the prevalence of injuries and infections that occurs as a result of personal grooming and associated risk factors. The survey was conducted with the GfK Group (GfK, formerly Knowledge Networks). Details regarding GfK study methods have been reported previously [11]. The panel members are recruited using random probability-based sampling to increase accuracy [12].

Panel members are randomly recruited using address-based sampling methods. GfK samples addresses from the U.S. Postal Service's Delivery Sequence File. Address-based sampling estimates 97% of households can be reached and contacted through household mail [11]. Once the panel members are recruited, they receive notification via email to participate in a study sample. Panel members may also check their personal online member page to participate in survey taking. The topic of the survey is given to participants. Participants do not see any questions from a particular survey until they accept the survey. The topic of the current study given to participants was "Personal Grooming Injuries." GfK provides a laptop or netbook computer and free Internet service to all panel members without access to the Internet. For the current study, panel members received 1,000 points for completing the survey, which is the cash equivalent of $1.

In addition to standard measures taken by GfK to enhance survey cooperation, email reminders were sent to nonresponders on day three of the field period. Although the survey as a whole has not been validated elsewhere, a pretest survey was completed in December of 2013 to ensure participants understood the questions. The final survey was conducted in January of 2013 in which 7,580 subjects completed the survey out of 14,409 sampled (completion rate of 52.5%). GfK consented all participants prior to the beginning of the survey.

GfK uses statistical weighting adjustments to correct for known deviations. Additional survey errors such as noncoverage and nonresponse are also corrected for using panel demographic poststratification weights. The Committee on Human Research at the first author's institution approved the study.

Predictor Variables

We collected the following demographic data: age, race, relationship status, education, and geographic

region. Men who reported having sex with men only or men and women were added to the MSM group. Men who reported having sex with women only were added to the MSW group. We then classified MSM by sexual role. We classified receptive partners as those who reported engaging in anal receptive intercourse and insertive partners as those who reported only penetrative vaginal sex or penetrative anal sex. Men who reported engaging in both penetrative and receptive intercourse were considered receptive partners. Women were excluded from the analysis to focus on reporting differences between MSM and MSW.

Main Outcome Measures

Outcome Variables

The survey instrument can be found in Appendix S1. The timeframe for all questions was with regard to the subject's lifetime. We asked questions about personal and ideal hairiness, personal grooming practices, injuries related to grooming, and infections related to grooming. Natural hair pattern images were adapted from Ramsey et al. [13]. The survey also asked details of any pubic hair grooming injury. The last part of the survey inquired about how grooming practices were associated with sexual behavior and sexually transmitted infections (STIs).

For the current study, we explored differences in characteristics of grooming, grooming injuries, and grooming-related infections between MSW (n = 3,176) and MSM (n = 166) and as well as between receptive partners (n = 117) and insertive partners (n = 42).

Statistical Methods

Data analysis was conducted using the survey function within Stata 12.0 (Stata, StataCorp, College Station, TX, USA) to account for complex sampling design. Any P value less than 0.05 were considered statistically significant, and all statistical tests were two sided. All missing or incomplete data were excluded from the analyses.

Initially, grooming characteristics between MSM and MSW were examined using univariate statistical analysis to test for significance between groups in the following categories: natural hairiness, grooming frequency, reasons for grooming, removing all pubic hair, and areas that are groomed. We repeated this analysis comparing receptive and insertive partners. Following this, the two groups (MSM and MSW, receptive and insertive partners) were compared on the following characteristics with respect to grooming-related injuries, experience with grooming injuries, instrument used while grooming, injury location, whether they sought medical treatment, and injury type. Finally, we compared infectious parameters mentioned above between MSM and MSW and receptive and insertive partners, testing for significance in the following categories: skin infections/abscesses, self-reported diagnosis of MRSA, number of sexual partners in the year and lifetime, grooming at the time of STD, and grooming instrument. All variables used are binary or categorical predictors with the exception of hairiness (seven-point Likert scale) and the number of infections and number of sexual partners, which were numeric. All analyses used MSW or receivers as the reference group based on large sample size and/or meaningful comparisons.

Results

General Population

Out of the original 7,580 subjects, 4,062 (53.6%) men completed the survey. Of these men, there were 3,176 (78.1%) who self-identified as MSW, 688 (16.9%) as not being sexually active, 166 (4.1%) as MSM, and 32 (0.8%) as men who have sex with women and men (MSWM). Of MSM and MSWM, there were 117 (59.1%) receptive partners, 42 (21.1%) insertive partners, and 39 (19.7%) MSM or MSWM who did not report their sexual role. The average age for MSW was 42.5 ± 11.9, and the average age for MSM was 42.0 ± 12.9 ($P = 0.55$). Receptive partners were younger (39.4 ± 11.3) than insertive partners (47.7 ± 10.3, $P < 0.001$). In the MSM group, there were 50.8% white, 9.0% black, and 27.1% Hispanic men, and in the MSW group, there were 65.6% white, 11.4% black, and 16.0% Hispanic men ($P = 0.001$). No statistical racial differences were found between receptive and insertive partners ($P = 0.62$). Income data for the groups are as follows: MSM (38.6% earn <$50,000, 30.5% earn $50,000–99,999, and 29.9% earn >$100,000); MSW (32.4% earn <$50,000, 41.1% earn $50,000–99,999, and 26.4% earn >$100,000); receptive partners (44.4% earn <$50,000, 27.4% earn $50,000–99,999, and 28.2% earn >$100,000); and insertive partners (31.7% earn <$50,000, 31.7% earn $50,000–99,999, and 36.6% earn >$100,000).

MSM vs. MSW

No difference of self-reported baseline hairiness was found between MSM (3.99 ± 1.56) and MSW (3.93 ± 1.41, $P = 0.60$). Compared with MSW, MSM were more likely to groom more than five times per year (42.5% vs. 29.0%, $P < 0.001$), daily (2.4% vs. 1.3%, $P = 0.02$), and to have completely removed all pubic hair more than five times (24.6% vs. 20.7%, $P = 0.02$). MSM reported grooming more for sex (76.5% vs. 67.9%, $P = 0.02$) and for vacation (31.9% vs. 20.5%, $P = 0.001$). MSM were less likely to prefer their partner to be groomed (42.8% vs. 63.3%, $P < 0.001$). Hair on penile shaft, from penis to navel, scrotum, between scrotum and anus, around anus, and buttocks were areas groomed more often by MSM (all P values <0.05) (Table 1).

More MSM reported never sustaining a grooming injury compared with MSW (65.9% vs. 79.0%, $P = 0.003$); however, no differences were observed for total lifetime grooming injuries between the two groups. MSM had more grooming injuries involving scissors (28.6% vs. 12.8%, $P = 0.006$) and reported more injuries to the anus (7.0% vs. 1.0%, $P < 0.001$). MSM sought more medical treatment for injuries than MSW (8.8% vs. 1.3%, $P < 0.001$). Infections (7.0% vs. 1.0%, $P < 0.001$) and abscesses (8.8% vs. 2.5%, $P < 0.01$) were more common injury types in MSM (Table 2).

Baseline skin infections and abscesses were reported more by MSM (12.7% vs. 4.7%, $P < 0.001$). More MSM self-reported being diagnosed with MRSA (4.8%) than MSW (2.5%) ($P = 0.05$). MSM reported fewer regular sexual partners (64.5% vs. 87.3%, $P < 0.001$), more sexual partners in a year (2.81, IQR 5.00 vs. 1.00, IQR 0.00, $P < 0.001$), and more sexual partners in a lifetime (25.00, IQR 65.00 vs. 6.00, IQR 12.00, P <0.001). The number of lifetime STIs was higher in MSM than MSW (1.65 vs. 1.45, $P = 0.04$). Compared with MSW, MSM report higher prevalence of HIV (20.8% vs. 0.4%, $P < 0.001$), syphilis

Table 1 Grooming characteristics of MSM and MSW

	MSM* (n = 198, 4.9%)	MSW (n = 3,176, 78.2%)	*P* value
Hairiness Likert scale	3.99 ± 1.56	3.93 ± 1.41	0.60
Annual grooming			<0.001
Not at all	17 (10.2%)	364 (16.6%)	
1 time	11 (6.6%)	328 (15%)	
2–5 times	68 (40.7%)	861 (39.4%)	
>5 times	71 (42.5%)	635 (29.0%)	
Grooming frequency			0.022
Daily	4 (2.4%)	29 (1.3%)	
Weekly	30 (18.1%)	305 (14.0%)	
>Monthly	132 (69.4%)	1,852 (84.7%)	
Removed all your pubic hair			0.024
Not at all	46 (27.5%)	877 (40.0%)	
1 time	38 (22.8%)	409 (18.7%)	
2–5 times	42 (25.1%)	452 (20.6%)	
>5 times	41 (24.6%)	454 (20.7%)	
Why you groom			
Sex	127 (76.5%)	1,491 (67.9%)	0.021
Doctor	28 (16.8%)	352 (16.0%)	0.80
Vacation	53 (31.9%)	451 (20.5%)	0.001
Other	34 (20.5%)	414 (18.8%)	0.60
Never for events	17 (10.2%)	331 (15.1%)	0.086
Partners preferences			
Partner prefers you to be groomed	46 (43%)	911 (48.0%)	0.35
You prefer partner to be groomed	71 (42.8%)	1,376 (63.3%)	<0.001
Areas that you groom			
Hair above penis	147 (88.0)	1,930 (87.8%)	0.93
Penile shaft	123 (73.7%)	1,272 (57.9%)	<0.001
Hair from penis to navel	66 (39.5%)	670 (30.5%)	0.015
Scrotum	135 (80.8%)	1,457 (66.3%)	<0.001
Inner thighs	72 (43.4%)	808 (36.8%)	0.09
Between scrotum and anus	91 (54.5%)	718 (32.7%)	<0.001
Hair around anus	61 (36.7%)	374 (17.0%)	<0.001
Buttocks	39 (23.5%)	202 (9.2%)	<0.001

*MSM category includes men who have sex with women and men
Missing data due to nonresponse excluded from the analysis
MSM = men who have sex with men; MSW = men who have sex with women

Table 2 Grooming injuries in MSM and MSW

	MSM* (n = 198, 4.9%)	MSW (n = 3,176, 78.2%)	*P* value
Experienced grooming injury			
Yes	110 (65.9%)	1,652 (79.0%)	0.003
Number of grooming injuries	7.24 ± 9.49	6.03 ± 8.73	0.42
Instrument used			
Nonelectric blade	30 (57.7%)	168 (52.0%)	0.11
Electric razor	29 (56.2%)	209 (40.5%)	0.47
Scissors	12 (28.6%)	41 (12.8%)	0.006
Wax/electrolysis/laser removal	0 (0.0%)	3 (1.0%)	0.95
Injury location			
Scrotum	29 (50.9%)	296 (56.8%)	0.39
Penis	13 (22.8%)	141 (27.1%)	0.49
Anus	4 (7.0%)	5 (1.0%)	<0.001
Perineum	5 (8.8%)	28 (5.4%)	0.30
Inner thigh	10 (17.5%)	57 (10.9%)	0.14
Pubis	16 (28.1%)	154 (29.6%)	0.82
Other	0 (0.0%)	13 (2.5%)	0.23
Sought medical treatment			
Yes	5 (8.8%)	7 (1.3%)	<0.001
Injury type			
Burn	13 (22.8%)	84 (16.1%)	0.20
Rash	20 (35.1%)	155 (29.8%)	0.41
Laceration with blood	37 (64.9%)	355 (68.3%)	0.61
Injury requiring medical care	0 (0.0%)	4 (0.8%)	0.51
Infection	4 (7.0%)	5 (1.0%)	<0.001
Abscess	5 (8.8%)	13 (2.5%)	0.010
Other	7 (12.3%)	43 (8.3%)	0.30

*MSM category includes men who have sex with women and men
Missing data due to nonresponse excluded from the analysis
MSM = men who have sex with men; MSW = men who have sex with women

(23.7% vs. 6.8%, $P < 0.001$), anal warts (9.7% vs. 1.1%, $P = 0.001$) and less prevalence of genital herpes (herpes simplex virus [HSV]) (4.2% vs. 15.5%, $P = 0.002$). No statistical differences were found between groups for chlamydia ($P = 0.24$), human papillomavirus (HPV) ($P = 0.20$), gonorrhea ($P = 0.49$), or lice ($P = 0.47$). Grooming at the time of an STI was more prevalent in MSM (45.2% vs. 11.5%, $P < 0.001$). MSM were using more nonelectric blades to groom during the time of an STI (88.2% vs. 54.5%, $P = 0.02$) (Table 3).

Receptive vs. Insertive Partners

No difference of self-reported baseline hairiness was found between insertive (4.12 ± 1.62) and receptive partners (4.12 ± 1.50, $P = 0.99$). Compared with insertive partners, receptive partners were more likely to groom more than five times per year (50.9% vs. 26.9%, $P = 0.005$) and weekly (23.6% vs. 11.1%, $P = 0.04$). Receptive partners reported grooming more for sex (85.3% vs. 51.9%, $P < 0.001$). No significant differences were found between partner grooming preferences. Hair from penis to navel, scrotum, and hair between scrotum and anus were areas significantly groomed more often by receptive partners (Table 4).

Similar analysis for grooming injuries in Table 2 by sexual role showed no statistical differences (data not shown).

Skin infections and abscesses were described more by insertive partners (19.0% vs. 5.2%, $P = 0.01$). There was no difference in cases of self-reported MRSA. Insertive and receptive partners report similar regular sexual partners (61.9% vs. 65.0%, $P = 0.43$), but receptive partners reported more annual sexual partners (4.00, IQR 7.00 vs. 1.00, IQR 3.00, $P < 0.001$) and more lifetime sexual partners (42.8, IQR 93.00 vs. 18, IQR 83.00, $P < 0.001$). The number of lifetime STIs did not differ between the two groups; however, receptive partners reported more grooming at the time of STI (52.2% vs. 14.3%, $P < 0.001$). Compared with insertive partners, receptive partners reported higher rates of HIV (22.0% vs. 0.0%, $P = 0.05$) and syphilis (33.3% vs. 7.1%, $P = 0.05$) but fewer rates of gonorrhea (35.6% vs. 71.4%, $P = 0.02$). No statistical differences were found for chlamydia ($P = 0.11$), HPV ($P = 0.57$), HSV ($P = 0.56$), anal warts ($P = 0.27$), or lice ($P = 0.44$). No statistical differences of grooming instruments used at the time of STI were found between insertive and receptive partners (Table 5).

Table 3 Infections, number of sexual partners, and STI in MSM and MSW

	MSM* (n = 198, 4.9%)	MSW (n = 3,176, 78.2%)	*P* value
Previous infections			
Skin infections/abscesses	21 (12.7%)	102 (4.7%)	<0.001
Diagnosed with MRSA	8 (4.8%)	51 (2.4%)	0.053
Regular sexual partner			
Yes	107 (64.5%)	1,907 (87.3%)	<0.001
Annual sexual partner (median, IQR)†	2.81, 5.00	1.00, 0.00	<0.001
Lifetime sexual partners (median, IQR)†	25.00, 65.00	6.00, 12.00	<0.001
Lifetime # of STI	1.65 ± 0.67	1.45 ± 0.65	0.038
Type of STI			
HIV	15 (20.8%)	1 (0.4%)	<0.001
Syphilis	17 (23.7%)	19 (6.8%)	<0.001
Gonorrhea	31 (43.7%)	124 (44.8%)	0.49
Genital herpes (HSV)	3 (4.2%)	43 (15.5%)	0.002
Anal warts	7 (9.7%)	3 (1.1%)	0.001
Grooming at the time of STI			
Yes	28 (45.2%)	22 (11.5%)	<0.001
Grooming instrument at time of STI			
Nonelectric blade	23 (88.2%)	12 (54.5%)	0.024
Electric razor	17 (62.1%)	12 (54.5%)	0.71
Scissors	7 (25.0%)	4 (18.2%)	0.56
Wax/electrolysis/laser removal	0 (0.0%)	0 (0.0%)	1.000

*MSM category includes men who have sex with women and men
†Q75-Q25
Missing data due to nonresponse excluded from the analysis
HSV = herpes simplex virus; IQR = interquartile range; MSM = men who have sex with men; MSW = men who have sex with women; STI = sexually transmitted infection

Table 4 Grooming characteristics of male insertive and receptive partners

	Insertive partner (n = 42, 26.4%)	Receptive partner (n = 117, 73.6%)	*P* value
Hairiness Likert scale	4.12 ± 1.62	4.12 ± 1.50	0.99
Annual grooming			0.005
Not at all	4 (15.4%)	6 (5.6%)	
1 time	4 (15.4%)	2 (1.9%)	
2–5 times	11 (42.3%)	45 (41.7%)	
>5 times	7 (26.9%)	55 (50.9%)	
Grooming frequency			0.036
Daily	1 (3.7%)	3 (2.7%)	
Weekly	3 (11.1%)	26 (23.6%)	
>Monthly	17 (62.2%)	74 (67.3%)	
Removed all your pubic hair			0.12
Not at all	12 (44.4%)	23 (21.1%)	
1 time	6 (22.2%)	28 (25.7%)	
2–5 times	5 (18.5%)	26 (23.9%)	
>5 times	4 (14.8%)	32 (29.4%)	
Why you groom			
Sex	14 (51.9%)	93 (85.3%)	<0.001
Doctor	5 (18.5%)	17 (15.5%)	0.45
Vacation	7 (25.9%)	39 (35.8%)	0.23
Other	6 (22.2%)	22 (20.2%)	0.50
Never for events	4 (14.8%)	17 (6.4%)	0.14
Partners preferences			
Partner prefers you to be groomed	10 (38.5%)	36 (47.4%)	0.81
You prefer partner to be groomed	13 (31.7%)	48 (41.4%)	0.063
Areas that you groom			
Hair above penis	23 (85.2%)	95 (84.2%)	0.54
Penile shaft	19 (70.4%)	81 (74.3%)	0.42
Hair from penis to navel	7 (25.9%)	53 (48.2%)	0.029
Scrotum	17 (63.0%)	93 (84.5%)	0.015
Inner thighs	13 (48.1%)	50 (45.5%)	0.48
Between scrotum and anus	6 (22.2%)	68 (61.8%)	<0.001
Hair around anus	7 (25.9%)	46 (42.2%)	0.090
Buttocks	7 (25.9%)	28 (25.5%)	0.57

Missing data due to nonresponse excluded from the analysis

Table 5 Infections, number of sexual partners, and STI of male insertive and receptive partners

	Insertive partner (n = 42, 26.4%)	Receptive partner (n = 117, 73.6%)	*P* value
Previous infections			
Skin infections/abscesses	8 (19.0%)	6 (5.2%)	0.012
Diagnosed with MRSA	2 (4.8%)	6 (5.2%)	0.64
Regular sexual partner			
Yes	26 (61.9%)	76 (65.0%)	0.43
Annual sexual partner (median, IQR)*	1.00, 3.00	4.00, 7.00	<0.001
Lifetime sexual partners (median, IQR)*	18.00, 83.00	42.8, 93.00	<0.001
Lifetime # of STI	1.56 ± 0.68	1.68 ± 0.69	0.57
Type of STI			
HIV	0 (0.0%)	10 (22.2%)	0.051
Syphilis	1 (7.1%)	15 (33.3%)	0.050
Gonorrhea	10 (71.4%)	16 (35.6%)	0.020
Genital herpes (HSV)	1 (7.1%)	2 (4.4%)	0.56
Anal warts	0 (0.0%)	5 (10.9%)	0.27
Grooming at the time of STI			
Yes	2 (14.3%)	24 (52.2%)	<0.001
Grooming instrument at time of STI			
Nonelectric blade	0 (0.0%)	12 (50.0%)	0.28
Electric razor	0 (0.0%)	9 (39.1%)	0.40
Scissors	0 (0.0%)	13 (54.2%)	0.24
Wax/electrolysis/laser removal	1 (50.0%)	3 (12.5%)	0.29

*Q75-Q25
Missing data due to nonresponse excluded from the analysis
IQR = interquartile range; STI = sexually transmitted infection

Discussion

We evaluated the association of sexual orientation, sexual role, and personal grooming characteristics and associated injuries and infections via a nationwide survey. We found increased grooming frequency in annual grooming, daily grooming, and removing all of one's pubic hair in MSM as compared with MSW. These results confirm those found by Martins et al. in Australia, which showed that MSM removed body hair more than MSW [7]. To our knowledge, this is the first nationwide study in the United States comparing grooming characteristics and frequency in MSM and MSW.

MSM report grooming more for sex and vacation (Table 1). This association is likely due to a particular physical appearance concerns germane to these activities. Total removal of pubic hair in women has been associated with higher rates of cunnilingus [1] and, thus, may be a similar behavior in men preparing for anilingus. Body depilation in men has been associated with drive for muscularity, gender role conflict, and physical appearance social comparison [6], which may also be a reason why MSM groom more for these occasions. However, it remains unclear why MSW groom less frequently for sex. Interestingly, MSW did report more preference for partner grooming than MSM (Table 1). These results correlate with Tiggemann and Hodgson's study, which showed women groom their body hair, including pubic hair, due to perceptions that "men prefer women without body hair" [14]. Among MSM, we found no statistical difference in preferences of partner grooming between receptive and insertive sexual role (Table 4). It therefore seems that partner grooming preference may be more dependent on sexual orientation than sexual role in anal intercourse.

We explored differences in personal grooming injuries and infections among MSM and MSW and by MSM sexual role during anal sex. As seen in Table 3, the majority of injuries for both MSM and MSW were to the scrotum, pubis, or penis, which mirrors the results from our previous study, which showed these sites as the most common male GU injury presenting to the ED from 2002 to 2010 [2]. These sites have thin, delicate skin with folds and surfaces that may be hard to visualize and makes these areas more prone to injury. We found that MSM had more injuries to the anus as well as more infections and abscesses due to their personal grooming (Table 3). This correlates with the finding that more than double the percentage of MSM groom the anal region compared with MSW, suggesting a potential connection between increased grooming frequency and injuries. However, we did not find increased injury rates in the other anatomic areas where MSM groom more. Perhaps a likely explanation for increased

incidence of anal grooming injuries is its posterior location, which is difficult to visualize and access. Further research is required to understand if frequency, grooming instrument, or other mechanism lead to more injury.

Increased frequency of grooming, in particular removing all pubic hair among MSM, is associated with increased prevalence of infections and abscesses. Removing pubic hair may lead to microscopic lacerations and abrasions, which could predispose an individual to infection. Although the number of grooming injuries between MSM and MSW did not differ, MSM did seek more medical attention for their injuries. Increased reported infections and abscesses due to pubic hair grooming in MSM might be a reason for seeking medical advice.

Male receptive partners groomed more frequently, groomed more for sex, and groomed the hair from penis to navel, scrotum, and between the scrotum and anus more than insertive partners. Receptive partners, especially Asian/Pacific Islander MSM, have been shown to be associated with more effeminate behaviors [15,16]. Receptive partners may have a particular desire to be hairless, and this may drive some of our findings. The receptive partners in our study were also younger, and age may influence depilatory practices. Newcomb et al. also found MSM bottoms (receptive partners) to be of a younger age [9]. No differences were found between receptive and insertive partners in terms of grooming injuries although this may be due to small sample size of pure male insertive partners (n = 42).

Increased infections and number of STI in MSM, particularly HIV, are well documented in the literature [17,18], and our results confirm this. MSM had higher rates of HIV, syphilis, and anal warts (Table 3). Receptive partners had higher rates of HIV and syphilis (Table 5). HIV has a high probability of transmission via receptive anal intercourse [18], and although higher rates among receptive partners were of borderline significance ($P = 0.05$), it supports this idea. Interestingly, more than four times as many MSM were grooming at the time of STI and using nonelectric blades to groom. This could result from the baseline increase in grooming in MSM that grooming might predicate riskier sexual behavior or that grooming actually increases the likelihood of an STI. Still, the use of nonelectric blades to groom in MSM may not be advisable. Going further, three times as many receptive partners reported grooming at the time of STI. As such, sexual role and grooming together may harbor an environment for an STI infection; however, given the small sample size, the results are inconclusive. The role of grooming and the risk of acquiring an STI are still uncertain and require further study with more robust controls with assessment of safe sex behavior. However, electric razors may be safer for anogenital grooming.

Labeling oneself as an insertive partner or receptive partners has been shown to be a common practice in the gay community [10,19,20]. The term MSM may be too vague and not accurately capture a patient's behavior and associated risks [21]. Our results further show that providers should be aware of their patient's sexual role preferences since sexual role, rather than just sexual orientation alone, may be a key influencer on grooming practices and thus will affect grooming injuries and infections. Although all men who present with a grooming injury or STI need counseling on prevention, receptive partners are the most likely group in need of this counseling.

This is the first study to compare grooming practice, injuries, and infections by sexual orientation and sexual role in men. Its strengths include a large, nationally representative sample from a well-validated source. Participants completed the survey via the Internet, which facilitates privacy and ease of access as the survey is of sensitive nature. Internet access was provided to all those without access. However, our study is not without limitations. All individuals contacted must have had a home address in the United States and be noninstitutionalized. Thus, these results may be difficult to generalize to an international population. Although some questions have been validated previously [13], the survey as a whole has not been validated. Given the sensitive nature of our survey, some participants may not have felt comfortable answering questions about sexual behavior and pubic hair grooming. We were also limited by the sample size of MSM for the sexual role analysis. A larger sample of MSM stratified by insertive partner, receptive partner only, and both may be more telling. Our study also defined insertive and receptive partners on the basis of self-reported sexual *practices*. Further research is necessary to uncover the role of sexual role *preference* on personal grooming. Only men who were sexually active were included in the sexual role analysis, and therefore, these results only apply to sexually active men. We also did not assess safe sex practice behavior. Despite these limitations, we do believe the findings in

this study add to the further understanding of how sexual orientation and sexual role influence grooming practices and how these practices are associated with injury and infection of the genital region.

Conclusions

Sexual orientation, and in particular sexual role during anal sex, may influence male grooming behavior and thus impact grooming-related injuries and infections. MSM groom more frequently and in different anatomical locations than MSW. Anogenital grooming may put one at risk for an STI. Healthcare providers should be aware of different grooming practices in order to better educate safe depilatory practices (i.e., the use of electric razors for anogenital grooming) in patients of all sexual orientations.

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Supporting Information

Additional Supporting Information may be found in the online version of this article at the publisher's website:

Appendix S1 The survey instrument assessing personal grooming characteristics and grooming-related injuries and infections.