Lesbian- and Bisexually-Identified Women's Use of Lubricant During Their Most Recent Sexual Event with a Female Partner: Findings from a Nationally Representative Study in the United States

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Abstract

Purpose: While previous research suggests that lubricant use may be common among lesbian- and bisexuallyidentified women, it remains unclear from this research whether lubricant was being used with a male or female partner. The present study explores the behavioral, emotional, situational, and relational aspects of lesbian- and bisexually-identified women's lubricant use during their most recent female-partnered sexual event.

Methods: Nationally representative data was collected as part of the 2012 National Survey of Sexual Health and Behavior (NSSHB). The 2012 NSSHB had an oversample of lesbian, gay, and bisexual (LGB) individuals. Participants were included in the present study if they identified as a lesbian or bisexual women and indicated that their most recent sexual partner was a female. Participants were asked a variety of questions about the context and experience of lubricant use during this event.

Results: Nearly a quarter (21.9%, n = 32) of the participants reported that they used a lubricant during their most recent female-partnered sexual event. The likelihood of lubricant use significantly differed based upon age, race/ ethnicity and sexual identity. The most commonly reported reason for lubricant use was to "make sex more comfortable," with half reporting use for clitoral stimulation (50.6%, n = 16). Overall, participants indicated that lubricant use enhanced their sexual experience.

Conclusion: Lubricant use may improve comfort and increase pleasure during certain sexual acts between women. The use of lubrication should be considered as a means of reducing pain and enhancing sexual pleasure during sexual behavior between women.

Key words: bisexual women, lesbian women, lubricant, probability sample, sexual behavior, women who have sex with women (WSW).

Introduction

LUBRICANT USE DURING SEXUAL ACTIVITY is widely recommended by health professionals and is used by women for varied reasons including increasing physical comfort, enhancing sexual pleasure, and heightening satisfaction during vaginal or anal penetration,¹ as well as orgasmic response during sexual activity.^{2,3} Lubricant may also be employed by women to ameliorate vaginal dryness and decrease pain.^{2,4,5} In addition to learning more about the benefits of lubricant use, understanding more about lubricant use is important given the number of women who report experiences with lubricant. Nationally representative studies revealed that over half of adult women in the United States (U.S.) reported using lubricant within their lifetime, with 20% reporting use within the past 30 days⁶ and more than 20% reporting lubricant use during their most recent sexual encounter.⁷ In a longitudinal study on women's daily

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lubricant use, participants indicated that lubricant was most commonly applied to their own or their partner's genitals using their own or their partner's fingers during penilevaginal or penile-anal intercourse.¹ Less, however, is known about the context and benefit of lubricant use during specific partnered sexual behaviors outside of penile penetration.

While understanding how lubricant is used during diverse behaviors may benefit any community of women, this information may be particularly beneficial for women who engage in sexual behavior with other women since penile penetration is unlikely to occur during these encounters. Emerging literature suggests that that up to 16% of women report having sex with another woman at some point in their lifetime, with variations in terms of sexual self-identity.^{8–12} According to nationally representative data from the U.S., rates of lifetime lubricant use are high among lesbian and bisexually-identified women, with one in four lesbian-identified women and 40% of bisexually-identified women reporting lubricant use in the past month.¹³ The percentage of lesbian- and bisexuallyidentified women who report lubricant use in the U.S. suggests that lubricants are commonly integrated into their sexual lives. However, as lesbian- and bisexually-identified women may engage in sexual behavior with men, it remains unknown from these studies whether their reported lubricant use occurred during a sexual encounter with a female or male partner. If used with a female partner, the behavioral context in which they were used remains unknown.

Considerable diversity exists in the types of behaviors women engage in during sexual encounters with other women.^{14–19} Gaining more information about lubricant use among lesbian- and bisexually-identified women may also help facilitate and guide conversations about sexual pleasure, pain and arousal between women during these behaviors. Further investigation into the context, reasons and experiences of lesbian- and bisexually-identified women who integrate lubricant into their sexual encounters with other women may yield unique sexual health implications.²³

Aims

The purpose of the current study was to analyze the behavioral, emotional, situational, and relational aspects of lesbian- and bisexually-identified women's lubricant use during their most recent partnered sexual event with a woman. We describe the specific sexual activities during which lubricant was used and to which body parts it was applied. We also explore lesbian- and bisexually-identified women's reasons for using lubricant as well as their perception of the quality and the rating of the sexual events in which lubricant was used.

Methods

Data were collected as part of the 2012 National Survey of Sexual Health and Behavior (NSSHB). The NSSHB was a U.S., population-based, cross-sectional survey of sexual behavior and related factors among adult women and men ages 18 and older. Data were collected during October and November 2012, via the KnowledgePanel of GfK Research (GfK) (Menlo Park, California). Research panels accessed through GfK are based on a national probability sample established using both random digit dialing (RDD) and an address-based sampling (ABS) frame. ABS involves the probability sampling of a frame of residential addresses in the U.S. derived from the U.S. Postal Service's Delivery Sequence File, a system which contains detailed information on every mail deliverable address in the U.S. Collectively, the sampling frame from which participants are recruited covers approximately 98% of all U.S. households. Randomly selected addresses were recruited to the research panel through a series of mailings and subsequently by telephone follow-ups to non-responders when possible.

Once the sample frame was established, all individuals within that frame received a recruitment message from GfK that provided a brief description of the NSSHB and invited them to participate. A total of 6,175 were included in the initial sampling frame, with 61.5% (n=4.020) viewing the informed consent. Of those viewing the informed consent, 81.7% (n=3,285) consented to participate, with a total of 3,138 of those individuals (95.5%) completing the survey. This resulted in a return rate from the original sample of just over 50%. However, from the data provided, post stratification weights were generated to correct for sources of sampling and non-sampling error using demographic distributions from the most recent data available from the Current Population Survey (CPS), and was applied to maximize generalizations to lesbian, gay and bisexual populations. The Institutional Review Board of Indiana University-Bloomington reviewed and approved all study protocols.

For the current paper, we retained individuals who indicated that they identified as homosexual/lesbian or bisexual women (n = 360). From here, we drew a subset (40.3%) of participants who reported that their most recent partnered sexual event (within the past year) was with a female partner (n = 145). Participants who reported that their sexual encounter involved two or more persons were also not included in the analyses. This inclusion criterion was chosen in order to ensure that questions about lubricant use at last event would all be in reference to an event that occurred with a female partner. Prior to assessing differences between the event characteristics and sexual experiences of participants based upon lubricant use, we further constrained (n=121)the subsample to participants reporting genital sexual behaviors during which lubricant use was frequently reported (e.g., toy use on and/or in the vagina).

Measures

Socio-demographic characteristics included age, education level, race/ethnicity and residence location (Table 1). Participants provided reasons for lubricant use (all "no/ yes": e.g., to make sex more comfortable, to reduce pain during sex, to increase pleasure during sex). Behavioral aspects of lubricant use included sexual activities during which lubricant use was used (all "no/yes": e.g., clitoral stimulation, vaginal intercourse, sex toy use), location of application (all "no/yes": e.g., on my vagina, on my partner's body), and who applied the lubricant (I did, my partner did, we both did). Evaluation of lubricant experience included sexual aspects improved by lubricant use (all "no/yes": e.g., ability to orgasm, quality of orgasm, duration of pleasure, reduced pain/discomfort).

Contextual aspects of lubricant use included partner type (spouse/partner, girlfriend/significant other, someone dating/ hanging out with or friend), partner feelings (we both loved

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		Lubricant use	No lubricant use	Lubricant use vs. no lubricant use	
Characteristics	Overall % (n)	% (n)		OR (95% CI)	
Age				1.04 (1.01-1.07)**	
18–24	15.2 (22)	13.6%	86.4%		
25–29	21.1 (30)	3.3%	96.7%		
30–39	15.2 (22)	27.3%	72.7%		
40-49	18.9 (27)	29.6%	70.4%		
50-59	24.6 (36)	31.4%	68.6%		
60+	5.0 (7)	14.3%	85.7%		
Education					
High school or less	27.8 (40)	17.5%	82.5%	(ref)	
Some college or associates degree	33.2 (48)	14.6%	85.4%	0.90 (0.29-2.79)	
College degree or higher	39.0 (56)	30.4%	69.6%	2.18 (0.80-5.91)	
Race/ethnicity					
White, Non-Hispanic	57.0 (82)	19.5%	80.5%	(ref)	
Black, Non-Hispanic	22.0 (32)	9.4%	90.6%	0.38 (0.10-1.47)	
Other, Non-Hispanic	3.0 (4)	75.0%	25.0%	12.43 (1.30–118.69)*	
Hispanic	10.9 (16)	31.3%	68.8%	1.66 (0.49–5.61)	
More than 2 races, Non-Hispanic	7.0 (10)	50.0%	50.0%	3.93 (1.02–15.06)*	
Sexual Identity					
Lesbian/homosexual	75.1 (109)	26.9%	73.1%	(ref)	
Bisexual	24.9 (36)	8.3%	91.7%	0.21 (0.05-0.79)*	
Metro Status					
Non-metro	5.1 (7)	0.0%	100.0%	(ref)	
Metro	94.9 (137)	22.6%	77.4%	9.16 (0.15–570.53)	

TABLE 1. PARTICIPANT SOCIO-DEMOGRAPHIC DISTRIBUTION OVERALL AND BY LUBRICANT USE AT LAST EVENT USING POST-STRATIFICATION WEIGHTS (n = 145)

 $*P \le .05, **P \le .01.$

Age is treated as a continuous variable.

each other, I love my partner or my partner loves me or, neither one of us was in love with the other), location of event (e.g., my home, hotel/motel), water environment (no/yes), and alcohol use (under the influence, not under the influence). Finally, we also examined sexual event ratings for last partnered events with and without lubricant (levels of desire, pleasure, and arousal).

Data analyses

Characteristics of the participants and their lubricant use (e.g., reasons for use and experiences during use) were explored using descriptive statistics. Predictors of lubricant use, including participant and event attributes, were investigated using logistic regression, adjusting for age and race/ ethnicity. In addition, variation between the mean sexual experience ratings (desire, pleasure, and arousal) of those participants who did and those participants who did not use lubricant were assessed with a multivariate analysis of covariance (MANCOVA).

Results

Overall characteristics of participants and lubricant use

Participants were diverse in terms of their age and educational background (Table 1). Although most of the participants identified as White/Non-Hispanic, 22.0% (n=32) identified as Black/Non-Hispanic and/or Hispanic (10.9%, n=16). Over three-quarters of the participants identified as lesbian/homosexual (75.1%, n = 109), with the remainder as bisexual.

Overall, about a fifth (21.9%; n=32) of the participants reported that they used a lubricant during their most recent female-partnered sexual event. In bivariate models, the likelihood of lubricant use significantly differed based upon age, race/ethnicity and sexual identity. Every one year increase in age was related to a 4% increase in lubricant use (OR = 1.04, 95% CI [1.01–1.07], P < .01). More lesbian (26.9%) than bisexually-identified women (8.3%) reported lubricant use (OR = .21, 95% CI [0.05–0.79], P < .05). However, in the multivariate model, only age and race/ethnicity remained significantly associated (P < .05) with lubricant use.

Reasons for lubricant use

As shown in Table 2, the most common reasons participants reported using lubricant during their most recent female-partnered sexual event were to "make sex more comfortable" (74.9%, n=24) and/or because they/their partner "did not produce enough natural lubrication" (53.4%, n=17). Slightly under half (43.5%, n=14) of the participants used lubricant to "reduce pain during sex," and about a third reported their use to "increase pleasure during sex" (31.0%, n=10).

Situational aspects of lubricant use

Participants also reported the sexual behaviors during which they used lubricant, the person who applied the

TABLE 2. REASONS FOR LUBRICANT USE REPORTED	
by Those Who Used Lubricant	
at Last Female-Partnered Sexual Event	
USING POST-STRATIFICATION WEIGHTS	

	Total sample % (n)
To make sex more comfortable	74.9 (24)
I or my partner did not produce enough natural lubrication	53.4 (17)
To reduce pain during sex	43.5 (14)
To increase pleasure during sex	31.0 (10)
To enhance foreplay	20.1 (6)
To make sex more fun	18.3 (6)
To enhance sex toy/vibrator use	16.1 (5)
Because we like sex to feel more wet	12.7 (4)
For unique warming, cooling or tingling sensations	7.1 (2)
To improve the taste during oral sex	6.4 (2)
To spice things up	5.4 (2)
Because the current medication I'm taking tends to make me/my partner dry	3.4 (1)
Make it easier to orgasm	2.4 (1)
Because my partner wanted to	1.4 (0)
To reduce the chances of the condom drying out	0.8 (0)
Other	0.0 (0)

lubricant, and the body location on which the lubricant was applied (Table 3). Over half of the participants (50.6%, n = 16) reported that they used lubricant for clitoral stimulation and close to a third of the participants reported that they used the lubricant for vaginal intercourse (34.8%, n = 11), sex

TABLE 3. BEHAVIORAL CHARACTERISTICS OF LUBRICANT USE AT LAST EVENT USING POST-STRATIFICATION WEIGHTS (n = 145)

Lubricant use	% (n)
Behaviors	
Clitoral stimulation	50.6 (16)
Vaginal intercourse	34.8 (11)
Sex toy use	33.5 (11)
Vaginal fingering	30.4 (10)
Stimulating partner's clitoris	30.3 (10)
Massage	20.2 (6)
Breast/nipple stimulation	8.3 (3)
Oral sex	5.8 (2)
Anal intercourse	4.4 (1)
Anal fingering	2.6 (1)
Other	0.8 (0)
Person Who Applied Lubricant	
I applied the lubricant	38.0 (12)
My partner applied the lubricant	36.4 (12)
We both applied the lubricant	25.7 (8)
Where Lubricant Was Applied	
In/on my vagina	49.5 (16)
On my hand/fingers or	42.4 (13)
my partner's hand/fingers	
On the sex toy/vibrator	36.1 (11)
On my partner's vagina	26.5 (8)
On my body or my partner's body	22.8 (7)
(if used for massage)	
On my anus	1.8 (1)
On my partner's anus	1.8 (1)

toy use (33.5%, n=11), vaginal fingering (30.4%, n=10)and/or stimulating their partner's clitoris (30.3%, n=10). Accordingly, slightly under half of the participants reported that they applied the lubricant on their own or their partner's vagina (49.5%, n=16), on their hand/the hand of their partner (42.4%, n=13), and/or on a sex toy (36.1%, n=11). Finally, similar percentages of participants reported that they (38.0%, n=12) or their partner (36.4%, n=12) applied the lubricant.

Predictors of lubricant use

Finally, we explored the contextual predictors of lubricant use, constraining analyses to participants reporting any manual-genital or sex toy use (n = 121), since these were the most commonly lube-associated behaviors (Table 4). Relative to participants who reported that both they and their partner loved one another, participants who reported that there was a discrepancy between their love for their partner and their partner's love for them were significantly more likely to report lubricant use (AOR=7.70, 95% CI [1.56-38.04], P < .01). Also, participants whose most recent partnered sexual encounter did not occur in a water environment were significantly less likely to use a lubricant than participants who engaged in sexual behavior within a water environment (AOR = .12, 95% CI [.02–0.69], P < .05). Partnership type, sexual event location, and consumption of alcohol prior to sex were not significantly associated with lubricant use.

Rating of sexual experience

Overall, participants reported aspects of their sexual experience improved with lubricant use (Table 5). About 65% of participants agreed or strongly agreed that lubricant use improved their ability to orgasm, the time it took to achieve orgasm and the quality of the orgasm at their most recent female-partnered sexual event. Nearly all of lesbian- and bisexually-identified women agreed to some extent that using lubricant improved their level of pleasure (96.9%, n=30) and reduced pain or discomfort (94.8%, n=30).

The mean sexual experience ratings (desire, pleasure, and arousal) of lubricant users were compared to participants who did not report using lubricant during their most recent partnered sexual event. After accounting for age and ethnicity, the mean arousal rating of participants who did not use a lubricant (M=4.2, SD=.02) was significantly higher than participants who did use a lubricant (M=2.7, SD=2.7) during their most recent partnered sexual event (F[1,99]=17.2; P < .001) (Table 6). There were no significant differences in sexual desire or sexual pleasure in participants who did use lubricant versus those who did not.

Discussion

This study examined aspects of lesbian- and bisexuallyidentified women's lubricant use during their most recent female-partnered sexual event. Previous data on women from U.S. nationally representative datasets have focused on lubricant use over extended periods of time without specific focus on the gender of women's sexual partners. In contrast to other literature, this paper focuses specifically on sex between women.

Although more than twice as many U.S. women identify as bisexual compared to the number who identify as lesbian,¹¹

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		Lubricant use	No lubricant use	Lubricant use vs. no lubricant use	
Characteristics	% (n)	%		AOR (95% CI)	
Partner Type					
My spouse or domestic partner	44.4 (54)	29.6%	70.4%	(ref)	
Girlfriend or significant other	39.5 (48)	22.9%	77.1%	1.74 (5.73)	
Someone I was dating/hanging out with	9.7 (12)	16.7%	83.3%	0.38 (0.05-2.83)	
Friend	6.0 (7)	0.0%	100.0%	-	
Partner Feelings					
We both loved each other	77.5 (94)	20.2%	79.8%	(ref)	
I love my partner or my partner loves me	10.6 (13)	61.5%	38.5%	7.70 (1.56–38.04)**	
Neither one of us was "in love" with the other	11.9 (14)	6.7%	93.3%	0.21 (0.01–3.37)	
Location of Event					
At home	77.4 (94)	23.4%	76.6%	(ref)	
My sex partner's home	16.9 (20)	28.6%	71.4%	2.49 (0.73-8.50)	
Hotel/Motel	4.9 (6)	0.0%	100.0%	(0.02 - 15.12)	
Other	0.9 (1)	0.0%	100.0%	-	
Water Environment					
In Water	6.1 (7)	50.0%	50.0%	(ref)	
Not in Water	93.9 (114)	21.1%	78.9%	0.12 (0.02-0.69)*	
Under Influence of Alcohol					
No	90.4 (110)	23.6%	76.4%	(ref)	
Yes	9.6 (12)	18.2%	81.8%	1.25 (0.25-6.33)	

 $*P \le .05, **P \le .01.$

Odds ratios adjusted for age and race/ethnicity.

lesbian-identified women were more likely to report that their most recent sexual partner was female. As a result, approximately 75% of the participants included in the present analyses self-identified as lesbian. About a fifth of lesbianand bisexually-identified in this study reported lifetime lubricant use. This estimate is generally consistent, but slightly lower than, nationally representative estimates of adult women's lubricant use.²⁰ Interestingly, while past work has suggested that recent lubricant use is generally more common among bisexual relative to lesbian women,¹³ we found that nearly three times the number of lesbian women reported using a lubricant when their sex occurred with another woman. This suggests that much of bisexual women's reported lubricant use in previous research may have been in the context of a sexual encounter with a male partner.

Our nationally representative results align with existing literature documenting the extent and patterns of lubricant use during sexual events reported by adult women, and in women who have sex with women (WSW).^{1,2,4,5,7,13,20} We

extend these studies by providing a behavioral understanding about when and how lesbian- and bisexually-identified women use lubricants with their female partners. In the context of sex with another woman, participants used lubricant for a variety of partnered and solo sexual behaviors, including clitoral stimulation, vaginal fingering and sex toy use.^{1,2,4,5} We did not examine the extent to which lubricant may have been used across multiple sexual behaviors in the same event. However, given the range of behaviors implicated in these data, our findings suggest that lubricant may facilitate transition from one behavior to another, particularly if both partners are actively involved in lubrication application.

Lesbian- and bisexually-identified women reported lubricant use for a variety of reasons during diverse sexual behaviors. These data parallel existing work suggesting that women are motivated to use lubricants for purposes of increasing comfort¹ or to supplement their, or their partner's, natural vaginal lubrication.^{2,3} While using lubricant to

TABLE 5. WEIGHTED EXPERIENCE OF LUBRICANT AT LAST EVENT

	Strongly disagree	Disagree	Agree	Strongly agree	
Lubricant improved the	% (N)				
Ability to orgasm	22.3 (5)	13.0 (3)	44.0 (10)	20.7 (5)	
Quality of orgasm	24.1 (5)	18.7 (4)	42.1 (9)	15.1 (3)	
Time it took to achieve orgasm	24.4 (5)	10.9 (2)	41.1 (9)	23.6 (5)	
Improve pleasure	0.5 (0)	2.5(1)	53.3 (17)	43.6 (13)	
Duration of pleasure	0.5 (0)	35.4 (9)	18.0 (5)	46.0 (12)	
Reduced pain/discomfort	0.5 (0)	4.7 (1)	47.2 (15)	47.6 (15)	

TABLE 6. WEIGHTED SEXUAL EXPERIENCES OF PARTICIPANTS WHO DID AND DID NOT USE LUBRICANT DURING THEIR LAST PARTNERED SEXUAL EVENT

	Lubricant use		ANCOVA	MANCOVA
C	No	Yes	F (1,99)	F (3,97)
Sexual experiences	М ((SE)		
				14.7****
Desire	4.1 (0.2)	3.8 (0.3)	0.7	
Pleasure	4.2 (0.2)	3.8 (0.3)	1.4	
Arousal	4.2 (0.2)	2.7 (0.3)	17.2****	

**** $P \le .001$.

Higher scores indicate higher ratings of desire, pleasure, and arousal.

Means and analyses include age and ethnicity as a covariate.

Multivariate F ratios are reported based upon Wilk's approximation of F.

increase the wet quality of sex or to achieve orgasm are not reasons commonly provided in prior literature on women's reasons for lubricant use,^{1–5} in the current study, these two reasons were reported as aspects of the sexual experiences that improved as a result of using lubricant. Such findings are consistent with studies associating lubricant use with more pleasurable and satisfying sex,¹ and the role that lubricant use could play in enhancing vaginal wetness and orgasm during sex.³

Participants in the present study reported that sexual arousal was significantly higher among those who had not used lubricant. Although we are unable to examine the causal relationships between the variables, women may have lubricant in order to increase wetness as a result of lower sexual arousal. This understanding has implications for women for whom using lubricant is an important means of dealing with reduced sexual enjoyment around occurrence of vaginal pain or discomfort.⁴ Relative to the percentage of participants who reported lubricant use to increase comfort and pleasure, few reported that lubricant was used to enhance sexual safety. This may be because our assessment of sexual safety was limited, because lubricant is not used for this purpose between women, or because our particular sample was primarily (over 85%) comprised of a number of women in relationships.

Emerging literature documenting diverse sexual behaviors between women (e.g., genital-to-genital contact, anal fingering) suggests the need for behaviorally relevant and culturally congruent messages. Due to a lack of data, healthcare providers and sex educators can only provide limited guidance on ways to increase sexual pleasure and reduce pain during sexual encounters between women.¹⁶ Knowledge of the previously documented benefits of lubricant use^{1–5} in combination with the participants' frequency and perceptions of lubricant use in the present study may encourage healthcare providers to recommend lubricant use to lesbian/bisexual women who report concerns about their sexual health maintenance.

Limitations of the present study are similar to those of other web-based studies including the fact that participants were not able to clarify survey items that may not have been clear. For instance, a definition of the term "vaginal intercourse" was not provided in order to be inclusive of the varied ways women might engage in penetrative sex with one another. As a result, participants may have varied in their behavioral definition of this item with some referring to toy use, vaginal fingering, and/or a host of other sexual behaviors. In addition, the number of fingers used during vaginal/anal fingering along with the type of toy used (e.g., dildo for vaginal penetration or vibrator for external stimulation) remains unknown. Future research should consider asking about lubricant use during specific behaviors in order to better inform sexual health recommendations. Finally, although the sampling methods were designed to ensure similarity between responders and non-responders on key socio-demographic variables, we are unable to assess the extent to which participants differed from those who opted not to participate.

These limitations notwithstanding, the strengths of this study include the use of nationally representative sampling techniques (including a lesbian-, gay-, and bisexuallyidentified [LGB] oversample) and detailed questions to generate population estimates of lesbian- and bisexuallyidentified women's lubricant use. Since the ability to design and implement health promotion or prevention programs specifically targeting sexual minority women is contingent upon data that reliably documents the context of risk and/ or protective sexual activity,¹⁶ these estimates provide important in-depth information about how and when lubricant use occurs among lesbian- and bisexually-identified women when they have sex with other women. They highlight the marked diversity in lesbian- and bisexually-identified motivations for lubricant use, the behaviors during which they use lubricant, and the aspects of sex that improve as a result of lubricant use.

Conclusion

Most existing sexual health information for WSW has been modified from those provided to heterosexual dyads.¹² The elicitation of event-level data about lubricant use between women may have direct bearing on the design of interventions and reinforces the need to be attentive to the unique sexual health needs of lesbian- and bisexually-identified women who have sex with women.²⁴

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