

Italian women who have sex with women: prevalence and co-occurrence of sexual practices

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Abstract

Background: Sexuality research on the sexual practices of women who have sex with women (WSW) has thus far mostly centered on risk factors and addressed a limited number of practices, with a focus on oral sex and insertive vaginal sex.

Aim: This study arises from the need to fill such a significant gap, which prevents researchers, clinicians, and policy makers from being adequately up-to-date on the sexual habits and tendencies of this population.

Methods: A multiple-choice questionnaire was completed by 723 WSW with a mean (SD) age of 29.14 (6.94) years.

Outcomes: The survey included closed questions on sexual practices, including genital and oral sex, but also nongenital sexual contact (petting and intercrural sex), anal sex, and kinky practices.

Results: The most common sexual practices were self-masturbation (99.03%), oral sex (performed or received, 98.20%), and insertive genital sex (performed or received, 89.07%). Half of our sample had tried kinky practices at least once in a lifetime (51.31%). Respondents tended to experiment sexually more with stable partners rather than with casual ones. Comparisons among practices in the lesbian and bisexual population are presented.

Clinical Implications: Providers should be aware that sexual orientations have their own specificities, including sexuality and practices, which should increase their knowledge and comfort in working with sexual minorities.

Strengths and Limitations: The novel topic of the study addresses the gap in sexuality research among WSW. Strengths include the sex-positive approach, the inclusion of an array of sexual practices, and the consideration of the specificities of the group. Limitations in the generalization of the results are the cross-sectional design and the explicit topic, which may have kept some persons from responding.

Conclusion: We propose the framing of sex as going beyond genital contact, and we invite clinicians and researchers who come into contact with WSW to be aware that sexual orientation can be associated with specificities regarding sexuality and sexual practices.

Keywords: lesbian; bisexual; sexuality; sexual practices; kink.

Introduction

Sexual research concerning women who have sex with women (WSW) is on the rise after the field had been predominantly focused on men who have sex with men, who have long been known to be a population at high risk for sexually transmitted diseases.^{1,2} Although efficacious strategies for sexually transmitted disease prevention among WSW are still underinvestigated, several studies have been conducted addressing the sexuality of WSW from a risk behavior perspective.³⁻¹⁰ It is paramount that clinicians and researchers be aware of the risk factors and safe sex practices concerning WSW sexuality.¹¹ However, insights into WSW sexual life can ultimately have a broader clinical and social goal. For instance, Frederick et al¹² investigated the occurrence of specific sexual acts in a study that did not address risk but rather aimed at unpacking similarities and differences between heterosexual and lesbian women in sexual and relationship satisfaction, attitudes, and behaviors. Other studies^{13,14} examined WSW sexual practices and reflected on their link with sexual health care for this population.

Practices

The majority of studies that included an assessment of WSW have addressed a limited number of sexual practices, focusing primarily on oral sex and insertive vaginal sex. Considering vaginal penetration as the only means of sexual activity for women expresses strong heteronormativity and does not correctly represent WSW sexual realities.^{11,15} In the last decade, more studies addressed a wider range of practices.^{11,16,17} Schick et al¹⁶ found that the most common sexual behaviors among WSW are genital rubbing (99.8%), vaginal fingering (99.2%), genital scissoring (90.8%), cunnilingus (98.8%), and vibrator use (74.1%). In 2015, the website Autostraddle conducted a survey of its readership, collecting >8000 responses. (Available at <https://www.autostraddle.com/welp-here-you-are-some-things-the-2016-autostraddle-survey-told-us-about-you-383173/>) Based on open-ended questions, the results showed that the 3 most common sexual acts of WSW are clitoral stimulation (99%), oral sex (95%), and frottage or body rubbing (80%). Few studies have focused on the prevalence of practices such

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as anal sex^{16,18} or practices including bondage, discipline, sadism, and masochism (BDSM).¹⁹ Several studies noted that WSW show lower rates of engagement in health care and preventive screenings than women who have sex exclusively with men^{10,13,20} and that the lack of detailed WSW sexual behavior data poses a challenge to the development of safer sex recommendations for WSW.¹⁵ We argue that this paucity also prevents researchers and clinicians from capturing sexual habits and tendencies of the WSW population, which may in turn be connected to their broader well-being.

Present research

In the present work, we intentionally focus on WSW to refer to cisgender women who have had or currently have sex with other women, regardless of their sexual identity,^{20,21} and we subsequently ask them how they label themselves. By choosing to focus on behavior, we do not intend to undermine sexual identities; rather, we aim at the representation of the WSW group and its specificity, which has largely been overlooked when it comes to experiences within typical health care systems and policies.²² This study builds on our earlier research, which focused on the sexual practices that WSW perform with their female partners²³. This work arises from the need to also shed light on sexual practices performed by WSW, regardless of the gender of the partner.

The present study presents the data gathered on sexual practices performed by WSW, regardless of the gender of the partner, and aims to address the following questions: What is the diffusion of sexual practices among Italian lesbian and bisexual women? Do the sexual practices performed differ between lesbian and bisexual women? Which sexual practices occur with one another?

We estimate the incidence of an array of sexual practices and compare mono- vs nonmonosexual behavior to assess potential differences. Although no similar studies have been conducted in Italy, we hypothesize that the incidence of the most investigated sexual behaviors in our sample will be similar to those resulting from recent studies in other countries.^{2,11,16}

The study has mostly an exploratory character, which offers the possibility of continuing with more specific studies to enhance knowledge on the particularities of these groups' sexual health and needs.

Research has often treated lesbian and bisexual women as a monolithic group, thus not differentiating between monosexual (eg, lesbian, heterosexual) and nonmonosexual (eg, bisexual, pansexual). On one hand, from our clinical practice, we have come to observe that there are some specificities in these groups that should not be flattened. On the other, we believe that there may be commonalities in terms of sexual practice.

In literature there is no defined consensus regarding which behaviors constitute sex among WSW.²⁴ Dion and Boislard^{25,26} argue that sex among WSW can include and be defined by a wider array of genital stimulations. In the present research, we choose to frame sex as going beyond genital contact.²⁷ We argue that it is necessary to explore and describe the sexual practices carried out by groups within their particular contexts. By assessing sexual practices, we aim to gather knowledge on WSW sexuality. The ultimate goal of the present study is to expand this line of investigation and gather data on sexual practices for clinical and educational

purposes, by moving away from a risk behavior perspective and promoting a sex-positive approach for researchers and clinicians toward all gender, sexuality, and relationship diversity (GSRD). Finally, we hope that this research will pose the basis for further investigating and identifying the broader needs of WSW.

Methods

Participants and procedure

All the data were collected through a questionnaire available online from February to June 2022. Participants were recruited online, and recruitment entailed identifying groups on different social media (eg, Facebook and Instagram) whose members might be interested in participating in studies that deal with topics related to being lesbian or bisexual. Profiles of activists or organizations that create and share content, information, and services useful to lesbian and bisexual people also were used to select participants through snowball sampling. The selected people and organizations were sent a message that introduced the research plan, the study's aims, the researchers' positionality, and the questionnaire's content, with a link to access it. They were asked to share the link on their social media pages and with people who may be available. Inclusion criteria for the study were being a cisgender woman, being ≥ 18 years old, and having ever had sexual contact with another woman.

Ethics

To grant inclusion and representation, a draft of the questionnaire was shared and discussed with GSRD researchers and clinicians and their feedback integrated. The study received approval from the ethics committee of the University of Milan - Bicocca. A brief description of the project's content and objectives, as well as its ethical guidelines and privacy policy, was provided to participants. Before starting the questionnaire, the participants provided their informed consent.

Measures

The survey consisted of sociodemographic data collection, followed by closed questions on sexual practices created specifically for this study. Participants' romantic and sexual attraction was recorded with a Kinsey-type scale (Table 2). They were asked to indicate whom they are romantically and sexually attracted to, on a continuum from "attracted exclusively to women/feminine individuals" to "attracted exclusively to men/masculine individuals." The rationale for adding the "feminine individuals" to the label is that not all feminine people are women. We also included the possibility to state that they are attracted to neither, that gender is not relevant, or that they prefer not to state.

Subsequently, regarding sexual orientation, they were asked to write down if they used other labels to define it. Finally we asked them to, despite the definitions being narrow, choose the category with which they most identify via a closed answer (lesbian, bisexual, heterosexual).

Participants were then presented with questions on the following sexual practices:

- Insertive genital sex: performed or received
- Oral sex: performed or received
- Masturbation/autoeroticism
- Other masturbation: stimulation of the partner's genitals

- Anal sex: performed or received
- Heavy petting: as a stand-alone practice or as foreplay
- Intercrural sex: sexual contact between genitals and thighs
- Kink, BDSM, or unconventional sexual practices

For each of these, participants indicated via closed answer whether they had ever practiced it. If not, they could specify if they would do so if they had the chance. If yes, they could specify whether they had used sex toys, lubricant, or safe sex methods/devices (condoms, gloves, dental dam) during this practice and if they had practiced it with a stable or occasional partner as well as with a female partner. Regarding kinky practices, the participants who responded that they had tried it were presented with a list of 29 kinky, BDSM, or atypical practices to which they could select if they had tried any or not.

Analysis

Statistical analyses were performed with R software version 4.3.1. We investigated the diffusion of sexual practices among WSW in several steps. First, we explored and presented descriptive statistics related to such practices within our sample. In this step, the emphasis was on assessing the limitations of our sample and delimiting the scope of the inferences that we can draw.

Second, we grouped the participants on the basis of their sexual orientation (lesbian, bisexual, or heterosexual), and we estimated the incidence of each practice in the target populations, relying on a bayesian estimation framework through the package *bayestestR* 0.13.1. As our participants provided a *yes/no* answer regarding whether they had engaged in each practice and as the target estimation is the incidence (proportion bounded between 0 and 1), we computed the posterior probability distribution based on 100 000 draws from a beta distribution characterized by the number of “successes” (*yes* answers) and the number of “failures” (*no* answers) detected by our data collection. Then, we focused on describing such a posterior by means of its most likely value, interpreted as the estimated incidence in the population, and the 95% highest posterior density interval, interpreted as the range encompassing 95% of the most likely values in the population. This approach assumed a noninformative prior as suggested by the principle of insufficient reason.^{28,29} We devised this analytical strategy as it allows us to make inference on the practices’ incidence in the target populations characterized by a point estimate and a range of most plausible values, a capability not offered by classical null hypothesis significance testing.

Third, we compared the posteriors of each practice’s incidence across sexual orientations to detect which practice, if any, occurs more often in one population than the other. Specifically, we subtracted the posterior distribution of the incidence of every practice in one group (sexual orientation) from the same posterior regarding the other population. Again, we described the posterior difference in terms of a point estimate, interpreted as the difference in incidence between the populations, and the 95% highest posterior density interval, interpreted as the range encompassing 95% of the most likely difference values. The rationale behind this pairwise-comparison procedure is the same motivating our decision in the previous step. Additionally, we were able to quantify the evidence supporting the hypothesis that 1 of the 2 incidences in each pairwise comparison is greater than the other by computing Bayes factors.^{30,31} Specifically, we

Table 1. Descriptive statistics: sociodemographic characteristics of the sample ($N = 723$).

Variable	No. (%)
Age, y	
Mean \pm SD	29.1 \pm 6.9
Range	18-70
Education level	
Lower than high school	24 (2.3)
High school diploma	227 (31.4)
University degree or postgraduate education	454 (62.8)
Other	15 (2.1)
I prefer not to answer	3 (0.4)
Self-label	
Lesbian	217 (30)
Bisexual	469 (64.9)
Heterosexual	37 (5.1)
Relationship status	
Monogamous relationship	386 (53.4)
Consensual nonmonogamy (open relationship, polyamory, etc)	115 (15.9)
Nonconsensual nonmonogamy relationship	16 (2.2)
Single (monogamous)	107 (14.8)
Single (consensual nonmonogamous)	58 (8)
Not interested in dating someone	17 (2.4)
Other	24 (3.3)

computed Bayes factors by dividing the proportion of the posterior difference that falls above zero by the proportion of the posterior difference that falls below zero. Here, a Bayes factor of 1 means that half of the posterior difference lays above zero while the other half lays below zero. Hence, there is no evidence supporting the hypothesis that 1 of the 2 incidences differs from the other. Yet, a Bayes factor of 10 suggests that the hypothesis that the first incidence is greater than the second is 10 times more likely than the opposite. This implies that a Bayes factor of 0.1 brings the same amount of evidence for the opposite hypothesis (ie, it is 10 times more likely that the second incidence is greater than the contrary). For ease of interpretability, we reported 2 series of Bayes factors: one estimating the evidence supporting the hypothesis that the first incidence is greater than the second and the other estimating the evidence supporting the hypothesis that the second incidence is greater than the first.

Finally, we exploratively investigated the co-occurrence of practices across sexual orientations by estimating co-occurrence networks within all populations using R package *IsingFit* 0.3.1. Then, we tested whether the networks’ global connectivity or each edge differed across networks³² using the R package *NetworkComparisonTest* 2.2.1. However, this additional analysis is fairly exploratory and should be interpreted with caution: the data collection was not explicitly designed for this purpose, and further research explicitly addressing this issue should be conducted.

Participants

Of the 989 recorded responses, 723 (73.1%) were complete and could be included in the analysis. As shown in Table 1, the mean age of the sample was 29.1 years (SD, 6.9), and the majority of respondents had a university degree or a postgraduate education (62.8%). Most respondents reported being in a monogamous relationship (53.4%) or in consensual nonmonogamous relationships (15.9%), as well as being single (14.8%). The majority of the sample identified as bisexual (64.9%) or lesbian (30%), and only 5.12% identified as

Table 2. Sexual and romantic attraction (*N* = 723).

	Attraction, % (No.)	
	Sexual	Romantic
Exclusively by women/individuals on the feminine spectrum	19.2 (139)	26.4 (191)
Mostly by women/individuals on the feminine spectrum, occasionally by men/individuals on the masculine spectrum	16.5 (119)	14.4 (104)
Mostly by women/individuals on the feminine spectrum, frequently by men/individuals on the masculine spectrum	10.4 (75)	5.5 (40)
Equally by women/individuals on the feminine spectrum and men/individuals on the masculine spectrum	17.6 (127)	15.5 (112)
Mostly by men/individuals on the masculine spectrum, often by women/individuals on the feminine spectrum	10.4 (75)	6.7 (48)
Mostly by men/individuals on the masculine spectrum, occasionally by women/individuals on the feminine spectrum	8.9 (64)	8.7 (63)
Exclusively by men/individuals on the masculine spectrum	0.8 (6)	4.2 (30)
Neither	0.1 (1)	0.1 (1)
Gender is not relevant	15.5 (112)	17.0 (123)
Other	0.4 (3)	0.6 (4)
I prefer not to answer	0.3 (2)	1.0 (7)

heterosexual. For this study, WSW are defined as women who self-reported having sex with women at least once in their lifetime.

Results

For a more thorough description of the sample, we collected data investigating different aspects of sexual orientation. Regarding sexual attraction, participants show high rates of sexual attraction exclusively (19.2%) or mostly (26.8%) to individuals in the feminine spectrum, with variable grades of interest toward people in the masculine spectrum (20.1%). Regarding sexual attraction to men or masculine individuals, a minority reported sexual attraction exclusively to them (0.8%), and some reported being attracted mostly to them (19.2%). Regarding romantic attraction, more than half of WSW stated a romantic interest mostly toward feminine people (46.1%) or equally to feminine and masculine people (17.6%). Interestingly, a substantial part of the sample declared that gender is not relevant for sexual (15.5%) or romantic (17%) attraction. Further details on sexual and romantic orientation are available in [Table 2](#).

Descriptive results

As an initial step, we discuss the descriptive results obtained while exploring our sample. The first descriptive result worth mentioning is the presence of self-identified heterosexual women in our sample. Thirty-seven women (5.12%) identified as heterosexual while having had sexual encounters with other women, per our definition of WSW.

Regarding the sexual practices ever performed by the respondents regardless of the gender of the partner, the most common were self-masturbation (99%), oral sex (performed or received, 98.2%), and insertive genital sex (performed or received, 89.1%). We also found a high prevalence of intercrural sex (82.9%), a sexual practice involving the contact between genitals and thighs. Curiously, other masturbation was less prevalent in our total sample (82%). Sixty-two percent of the overall sample (62.4%) had tried anal sex (performed or received), but this sexual practice seems more prevalent in WSW who identified as heterosexual (81.8%).

Half our sample had tried BDSM, kinky, or atypical practices at least once in a lifetime (51.3%). The most common kinky activities were spanking (38.3%), bondage (38.2%), choking (32.0%), domination (28.5%), submission (28.2%), and edge play/orgasm control (27.0%). It appears that self-identified bisexual women seem to have engaged in more BDSM and kinky activities than self-identified lesbians or heterosexuals. Further details of the sample about BDSM and kinky practices are available in [Appendix 1](#).

The majority of women who had tried kinky practices in our sample (59%) responded that they engaged in these practices with another woman, whereas 37.5% indicated that they had engaged in kinky practices but not with another woman.

Participants mentioned widespread use of sex toys, especially in genital insertive sex (77.9%), self-masturbation (73.9%), and BDSM and kinky practices (73.2%). The use of lubricants was common, especially for anal sex (75.4%), followed by insertive genital sex (59.5%) and BDSM and kinky practices (56.6%). The use of safer sex methods in WSW was generally low and more frequent during anal sex (45.1%) and BDSM and kinky practices (43.2%) rather than insertive genital sex (38.7%). The sample reported having tried all the investigated sexual practices more with stable partners than with casual ones. For all detailed frequencies, see [Appendix 2](#).

Inference on the incidence within the population

Our second step involves estimating the incidence of each practice within the categories defined by the self-identification of our participants. Given our first descriptive result (ie, the presence of heterosexual women), we had to decide how to deal with such an unbalanced sample. As the low, although relevant, presence of heterosexual women is likely to produce unreliable estimates, we decided to exclude such a group from further analysis and to compare lesbian and bisexual respondents.

Following the procedure described in the Analysis section, we estimated the expected prevalence of each practice and its 95% credible interval (95% CrI). Results are reported in [Table 3](#) and [Figure 1](#).

Consistent with our descriptive results, self-masturbation, oral sex, and insertive genital sex remained the most common

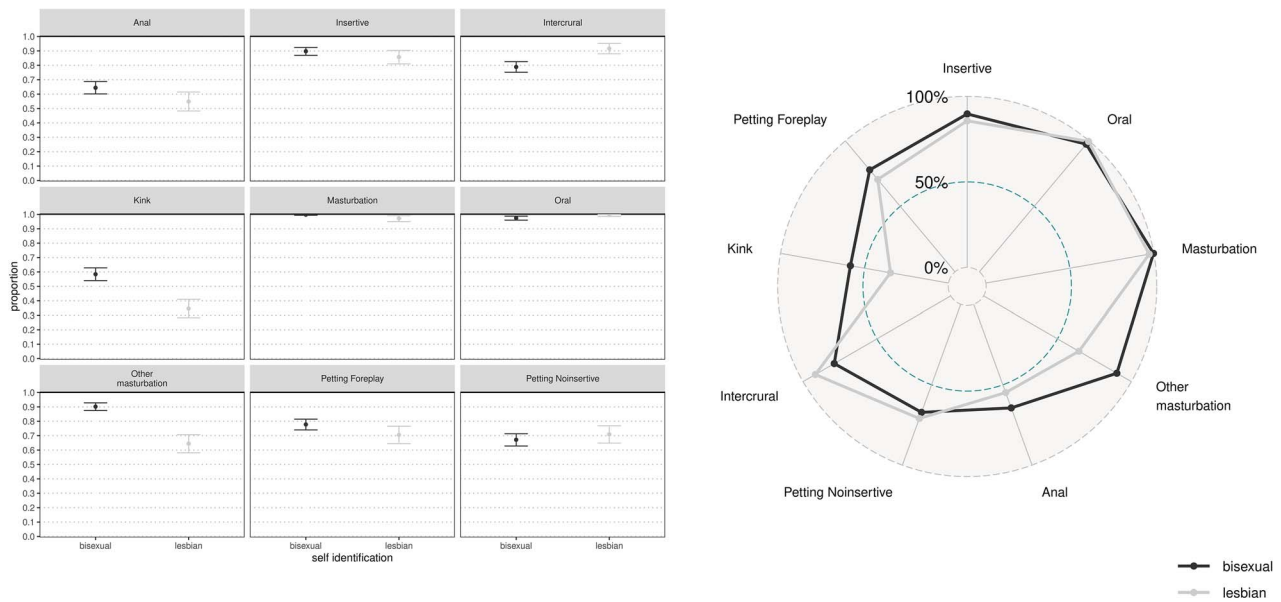


Figure 1. Error bars represent 95% CrI, dots represent values with the maximum a-posteriori probability.

Table 3. Sexual practices frequency by orientation.

Sexual practice	Sexual orientation, % (No.)	
	Lesbian (n = 217)	Bisexual (n = 469)
Insertive genital sex	85.7 (186)	89.8 (421)
Oral sex	99.5 (216)	97.4 (457)
Masturbation		
Self	97.2 (211)	99.8 (468)
Other	64.5 (140)	90.2 (423)
Cuddles/kisses on top of clothes		
Without genital contact: petting	71 (154)	67.2 (315)
With genital contact: foreplay	70.5 (153)	77.8 (365)
Anal sex	54.8 (119)	64.4 (302)
Intercrural sex	91.7 (199)	78.9 (370)
BDSM, kinky, or atypical practices	34.6 (75)	58.4 (274)

Abbreviation: BDSM, bondage, discipline, sadism, and masochism.

sexual practices across both groups. Interestingly, intercrural sex seems to be more common among WSW who identify as lesbian (91.71%; 95% CrI, 87.97%-95.19%) than among those who identify as bisexual (78.89%; 95% CrI, 75.16%-82.55%). Other masturbation was less prevalent among lesbian women (64.52%; 95% CrI, 58.13%-70.77%) than bisexual women (90.19%; 95% CrI, 87.46%-92.80%). Another apparent difference in incidence is related to kinky practices, which seem to be more common among bisexual women (58.42%; 95% CrI, 53.98%-62.84%) than lesbian women (34.56%; 95% CrI, 28.35%-40.94%). A possible explanation for these relative asymmetries—namely, that women of one group engaging in one practice do not engage in the other—is explored by analyzing practice co-occurrence between groups (see below).

Comparisons among groups

To compare the incidence of practices between the populations, we subtracted the posterior distribution of the incidence of every practice in one group from the same posterior regarding the other population. We focused on

describing the difference between posteriors in terms of central tendency and credible interval (Appendix 3), and we computed Bayes factors supporting the hypothesis that the incidence is greater in one group (Bisexual) than the other (Lesbian). Given these comparisons, we see that the 3 practices with the greatest difference between lesbian and bisexual women are other masturbation, kink, and intercrural sex (Bayes factors > 100 000). The only practices that do not seem to vary between the groups are insertive sex and petting. It seems that lesbian women engage in slightly less insertive sex than bisexual women (−4%; 95% CrI, −0.1% to 0.01%), although little evidence supports this claim (Bayes factor = 13.91). Similarly, a trend suggests that lesbian women engage in more noninsertive foreplay (4%; 95% CrI, −0.04% to 0.11%). However, this trend is descriptive at best, as evidence is inconclusive (Bayes factor = 0.19).

Network analysis

To explore the co-occurrence of practices among populations, we estimated co-occurrence networks for each population and tested whether global connectivity differs across networks using a network comparison test (Appendix 4). Such a test can show whether the global connectivity or the specific co-occurrence (ie, partial correlation among practices) differs across populations. To avoid losing statistical power and inflating a type 1 error, we limited our exploration to those practices that differ the most across the target population of lesbian and bisexual women—namely, other masturbation, kink, and intercrural sex. However, it is worth reminding that this exploratory step should be interpreted with caution and further research conducted before making conclusive statements.

Discussion

This study provides a large, contemporary, cross-sectional account of sexual practices and their co-occurrence in a population of Italian WSW of various sexual orientations,

as well as a comparison of the occurrence of such practices between lesbian and bisexual women.

To help improve research around the sexual well-being and functioning of WSW, it is first and foremost important to establish what behaviors they are involved in. Health care providers should ask patients if they engage in any sexual activities and, if so, whether the practices are solo or involve a partner. If patients are sexually active with others, it is important to discern the number and types of partners. Our study showed that for WSW, sexuality may involve a large number of activities, including insertive and oral sex, foreplay, anal and intercrural sex, self- and other masturbation, kinky practices, and more. The prevalence of practices shown in Table 3 are comparable to recent studies that assessed the sexuality of WSW.^{11,14} As shown in Appendix 2, WSW tend to experiment sexually more with stable partners than with casual ones all the sexual practices and acts that were assessed.

Even though heterosexual women were excluded from our comparison due to the unbalanced samples, we can conclude that women who endorse an heterosexual orientation may have sexually explored with other women, per our definition of WSW, indicating that sexual identity is not necessarily consistent with sexual partner sex.^{3,33}

Regarding the comparison between lesbian and bisexual women, intercrural sex appears to be more prevalent in the lesbian group. The prevalence of intercrural sex in the general population is not well assessed. Available prevalence studies have described this practice among heterosexual women and men who have sex with men, but specific studies in lesbian and bisexual women are lacking.³⁴ For a long time, it was believed that this practice could not be applied to people without a penis, but a report conducted on female sexuality showed that some adult women are able to enjoy such intercourse and reach orgasm through intercrural stimulation of the clitoris.³⁵ Our result confirms that this sexual practice is widespread among WSW, especially lesbians.

Our results show that the WSW group is somewhat diverse in terms of prevalence of sexual practices if we consider reported sexual orientation. Kinky or atypical practices appear to be more common among bisexual women, with casual and stable partners. This result is in agreement with a report on kinky practices conducted on 347 urban WSW³⁶ that found bisexual women to be more likely to have engaged in any kinky sexual behavior and photo/video exhibitionism. This difference could be attributed to the engagement in kinky behaviors with male partners or may simply reflect a preference for variety or more willingness to explore alternative practices in bisexual women's sexuality. In 2015 Autostraddle conducted a survey of its readership, collecting >8000 responses. Based on open-ended questions, the 3 most common sexual acts were clitoral stimulation (99%), oral sex (95%), and frottage or body rubbing (80%). About half the respondents commonly incorporated spanking into their sexual practice, and around 20% engaged in BDSM practice.

Regarding practice co-occurrence, we found that for lesbian and bisexual women, the practice of intercrural sex does not occur with other masturbation. This can be attributed to a personal preference, as there may be some women who prefer to use their hands to pleasure the partner and others who prefer to stimulate the partners through contact with the thighs or legs.

Our results suggest that WSW can be considered a group that includes a multitude of behavior and preferences, since it

is clear from prior reports, as well as our own data set, that no sexual act is exclusive to a particular sexual orientation.³³ Our data also show similarities and shared characteristics and point toward the framing of WSW as a category that deserves its own line of research.

Our study may shed light on understudied aspects that are relevant for building educational programs and professional training, since it provides researchers and clinicians coming into contact with WSW an up-to-date account of the practices of Italian WSW, in the attempt to address the significant gaps in sexuality research among WSW. This can also be relevant for training providers and increasing sensitivity and awareness about GSRD sexuality. These preliminary findings have relevant implications for clinical practice with sexual minority women, particularly in the Italian context: providers who come into contact with WSW should be aware that sexual orientation, as well as having stable or casual partners, can be associated with specificities regarding their sexuality and the sexual practices that they prefer and perform. Providers' knowledge and comfort with sexual minorities can increase patient comfort, disclosure, and care^{3,37} as well as offer an affirming perspective of all sexualities. Providers, researchers, and educators who hold a positive and inclusive approach to sexuality may foster a real cultural and health revolution that produces new knowledge, new practices, and new possibilities, in line with GSRD persons' needs. For GSRD individuals, access to centers and services related to sexuality and sexual health may increase if they expect to find knowledgeable and nonjudgmental providers, which in turn can improve their sexual health.³⁸

A strength of the present study is to differentiate between monosexual and nonmonosexual orientations, as opposed to considering lesbian and bisexual women as a monolithic group,³⁹ by recruiting WSW who may have been excluded from literature on lesbian or bisexual individuals, such as women who are attracted mostly to men or for whom gender is not relevant. Furthermore, we propose a sex-positive approach to the study of sex, encouraging the willingness of researchers and providers to criticize their personal attitudes, beliefs, and knowledge about sexuality.⁴⁰ For instance, in our assessment, we propose the framing of sex as inclusive of an array of practices, ranging from petting to various kinky activities, thus broadening the definition of sexual practices that is often reduced to genital sex. This study has several limitations, such as its cross-sectional nature and the fact that some people may not have agreed to participate in it due to the explicit topic, posing a limitation to the generalization of our findings to WSW who are not at ease in filling in a sexuality survey. In addition, the respondents have on average a high educational level, are relatively young, and were recruited online through pages and profiles dedicated to GSRD content, which tend to reach people who are already involved in GSRD groups. Therefore, the results of this study cannot be generalized to WSW who have a low educational level, are older, or are not in touch with online GSRD or lesbian and bisexual communities.

Sexual health surveys are susceptible to errors, including recollection bias and social desirability bias. Additionally, closed questions about sexual behavior may be understood in subtly different ways by respondents.² Another limitation is the lack of assessment of ethnicity or other sociodemographic variables, which could be relevant to the individuals' sexuality.

Finally, the data presented here are a preliminary description of practices performed by WSW with partners of all genders, thereby preventing us from drawing conclusions on specific sexual relations. Future studies could further untangle bisexual women's sexuality, assessing what sexual behavior they are engaging in and if it differs according to their partners' gender. Regarding individual variables, future research could include assessment of the relationship between sexual practices performed and outcomes such as sexual satisfaction or sexual quality of life. Regarding dyadic variables, future research could recruit couples or individuals who are in sexual relationships with one another so that their responses can be investigated jointly. Qualitative research could explore what are WSW's needs in terms of sexual health and sexuality.

Most studies on WSW do not adequately consider gender diversity.¹³ We have learned from our clinical practice and recent literature⁴⁰ that trans sex has its own uniqueness; thus, we decided not to invite trans women to take part in our survey. However, future research should focus on trans women and their preference in navigating sexual practices,

to fill the gap in the knowledge of health care experiences of transgender, nonbinary, and genderqueer individuals who may also hold an identity as women and as WSW.

Funding

None declared.

Conflicts of interest

None declared.

Data availability

Data, headlines, and additional online materials are openly available online at <https://github.com/solstice10/WSW/tree/main>.

Appendix 1. Kinky practices frequency by orientation.

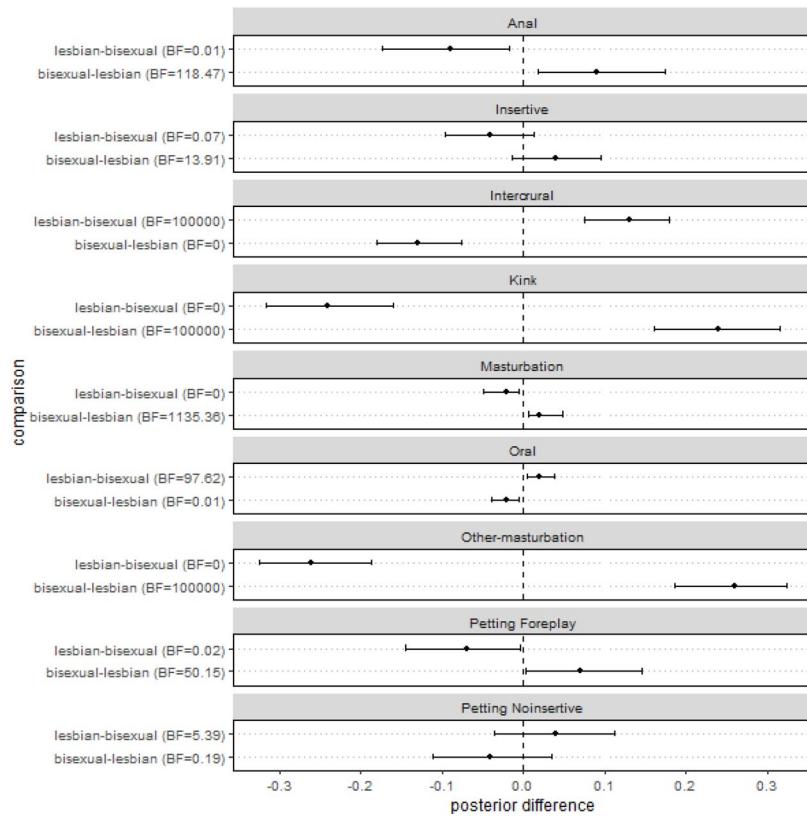
BDSM/kinky practice	Sexual orientation	
	Lesbian (N=217) % (N)	Bisexual (N=469) % (N)
Tried BDSM - Yes	34.6% (75)	58.4% (274)
Tried BDSM - No	65.4% (142)	41.6% (195)
Age play/infant baby	1.8% (4)	3.8% (18)
Bondage (shibari, kinbaku)	25.3% (55)	43.9% (206)
Choking	16.6% (36)	39.0% (183)
Edgeplay/orgasm control	17.5% (38)	31.1% (146)
Cuckolding	2.8% (6)	7.2% (34)
Domination	16.1% (35)	33.5% (157)
Electroplay/Erotic electrostimulation	1.4% (3)	2.3% (11)
Body part fetishes	5.1% (11)	16.6% (78)
Clothing fetishes	6.9% (15)	15.1% (71)
Other object fetishes	2.8% (6)	5.1% (24)
Fisting (anal and/or vaginal)	6.5% (14)	9.0% (42)
Furry play	0% (0)	2.8% (13)
Gagging	10.6% (23)	24.1% (113)
Impact play/erotic flagellation	11.1% (24)	28.4% (133)
Masochism	7.8% (17)	19.2% (90)
Money slave/findom	0.5% (1)	3.0% (14)
Pet play	1.4% (3)	8.1% (38)
Erotic roleplay	13.8% (30)	24.5% (115)
Voyeurism	7.4% (16)	11.1% (52)
Exhibitionism	11.5% (25)	25.4% (119)
Pissing/golden shower	3.2% (7)	9.2% (43)
Sadism	4.6% (10)	11.3% (53)
Scat play	0% (0)	0.4% (2)
Group sex (gangbang, bukkake)	2.3% (5)	11.1% (52)
Tickling	2.8% (6)	6.4% (30)
Submission	15.2% (33)	34.3% (161)
Spanking	24.0% (52)	44.6% (209)
Erotich humiliation	3.7% (8)	14.7% (69)
Wax play	10.1% (22)	16.0% (75)

Appendix 2. Specific information regarding sexual practices.

Sexual practice performed/received	Lesbian	Bisexual
Insertive genital sex:	% (N)	% (N)
<i>Sex toys use</i>	63.1% (137)	71.2% (334)
<i>Lubricant use</i>	47.0% (102)	54.6% (256)
<i>Safer sex methods use</i>	16.6% (36)	41.4% (194)
<i>Done with casual partner</i>	30.9% (67)	53.9% (253)
<i>Done with stable partner</i>	78.8% (171)	82.1% (385)
<i>Done with a woman</i>	70.5% (153)	67.7% (317)
Oral sex:		
<i>Sex toys use</i>	24.0% (52)	26.2% (123)
<i>Lubricant use</i>	6.5% (14)	7.7% (36)
<i>Safer sex methods use</i>	4.6% (10)	9.8% (46)
<i>Done with casual partner</i>	48.8% (106)	65.9% (309)
<i>Done with stable partner</i>	96.8% (210)	92.5% (434)
<i>Done with a woman</i>	82.5% (179)	85.7% (402)
Self-masturbation:		
<i>Sex toys use</i>	58.1% (126)	79.5% (373)
<i>Lubricant use</i>	22.1% (48)	37.5% (176)
<i>Safer sex methods use</i>	4.1% (9)	5.3% (25)
<i>Done with casual partner</i>	28.6% (62)	51.2% (240)
<i>Done with stable partner</i>	68.7% (149)	80.2% (376)
<i>Done with a woman</i>	65.4% (142)	75.7% (355)
Other-masturbation:		
<i>Sex toys use</i>	35.9% (78)	43.5% (204)
<i>Lubricant use</i>	28.1% (61)	27.7% (130)
<i>Safer sex methods use</i>	4.1% (9)	9.0% (42)
<i>Done with casual partner</i>	34.1% (74)	61.6% (289)
<i>Done with stable partner</i>	63.1% (137)	75.3% (353)
<i>Done with a woman</i>	61.8% (134)	87.8% (412)
Petting:		
<i>Sex toys use</i>	11.5% (25)	15.8% (74)
<i>Lubricant use</i>	6.0% (13)	3.8% (18)
<i>Done with casual partner</i>	59.9% (130)	75.3% (353)
<i>Done with stable partner</i>	96.8% (210)	94.5% (443)
<i>Done with a woman</i>	82.9% (180)	93.0% (436)
Anal sex:		
<i>Sex toys use</i>	21.2% (46)	36.0% (169)
<i>Lubricant use</i>	31.3% (68)	52.9% (248)
<i>Safer sex methods use</i>	9.7% (21)	35.4% (166)
<i>Done with casual partner</i>	14.7% (32)	20.3% (95)
<i>Done with stable partner</i>	48.8% (106)	61.4% (288)
<i>Done with a woman</i>	41.5% (90)	19.2% (90)
Intercrural sex:		
<i>Sex toys use</i>	11.5% (25)	8.5% (40)
<i>Lubricant use</i>	10.1% (22)	6.8% (32)
<i>Done with casual partner</i>	42.9% (93)	46.3% (217)
<i>Done with stable partner</i>	88.5% (192)	72.5% (340)
<i>Done with a woman</i>	75.1% (163)	67.0% (314)
BDSM, kinky, or atypical activities:		
<i>Sex toys use</i>		
<i>Lubricant use</i>	22.6% (49)	43.5% (204)
<i>Safer sex methods use</i>	15.2% (33)	34.5% (162)
<i>Done with casual partner</i>	4.6% (10)	29.4% (138)
<i>Done with stable partner</i>	10.6% (23)	23.2% (109)
<i>Done with a woman</i>	30.4% (66)	53.7% (252)
	31.3% (68)	31.1% (146)

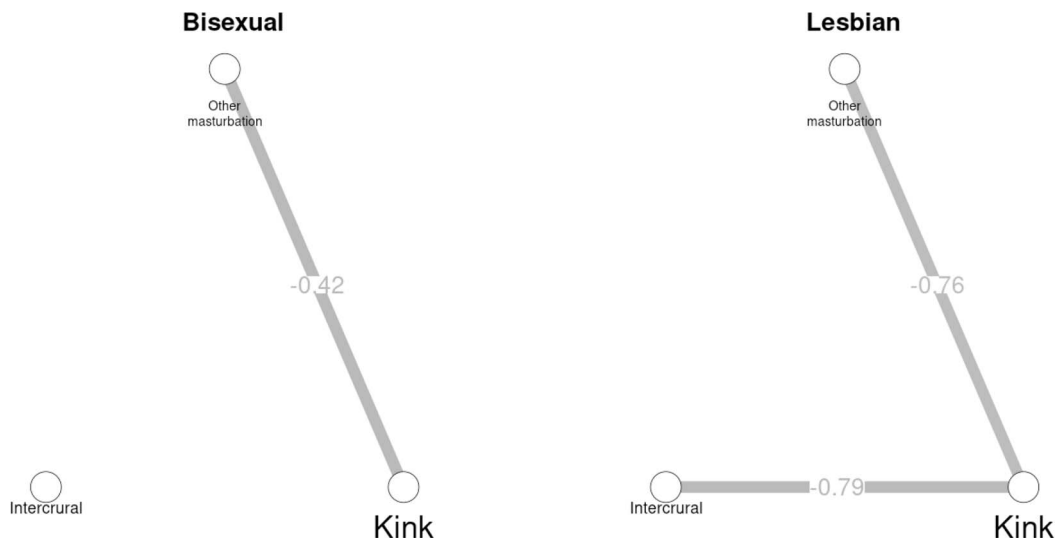
Note: Participants who have tried the practice in conjunction with the 8 sexual acts, by sexual orientation.

Appendix 3.



Note: Posteriors of the differences in incidence between populations (lesbian and bisexual) for each sexual practice. Error bars represent 95% credible intervals, while dots mark values with the maximum a-posteriori probability. Based on these comparisons, we can see that the three practices with the greatest difference between lesbian and bisexual women are other-masturbation, kink, and intercrural sex (BFs > 100000). Specifically, bisexual women practice other-masturbation 26% more than lesbian women (CI_{95%}=[0.32, 0.16]), and kink sex 24% more than lesbian women (CI_{95%}=[0.32, 0.16]), while the latter practice intercrural sex 13% more than the former (CI_{95%}=[0.08, 0.18]). The only practices that do not seem to vary between the two groups are insertive sex and petting. It seems that lesbian women engage in slightly less insertive sex than bisexual women (-4%, CI_{95%}=[-0.1, 0.01]), although little evidence supports this claim (BF_{BL}=13.91). Similarly, a trend suggests that lesbian women engage in more non-insertive foreplay (4%, CI_{95%}=[-0.04, 0.11]). However, this trend is descriptive at best, as evidence is inconclusive (BF_{LB}=5.39).

Appendix 4. Networks comparing practices' co-occurrence between populations.



Note: The network representing practices' co-occurrence in bisexual women is displayed on the left, and the one representing practices' co-occurrence in lesbian women on the right. The practices are represented as nodes of the network, while the links show practices co-occurrence (the values overlaid on the links can be interpreted as partial correlations). Based on visual inspection of the networks, it seems that intercrural sex is unrelated to other-masturbation in both populations. Similarly, the negative relationship between other-masturbation and kink sex is shared across networks. The only difference seems to be the negative relationship between intercrural and kink which is absent in the network of bisexual respondents. However, all three relationships do not differ significantly across networks, $p_s > .28$. This similarity across networks is supported by the network comparison test which suggests that global connectivity does not differ across networks, $S=0.76, p=.28$.

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