



# Few Differences in Sexual Talk by Gender/Sex and Dyad Type: A Retrospective and Daily Diary Study with Couples

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Received: 22 March 2021 / Revised: 6 June 2022 / Accepted: 6 June 2022 / Published online: 26 July 2022  
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## Abstract

Sexual talk is a type of verbal communication that occurs exclusively *during* sexual activity and that is specific to the sexual activity itself. Previous research has identified two types of sexual talk: individualistic (i.e., self-focused) and mutualistic (i.e., sharing/partner-focused), which have generally been linked to greater sexual and relationship well-being. Whether sexual talk use varies by gender/sex (i.e., men, women, gender/sex diverse individuals; GSD) or dyad type (i.e., same- vs. mixed-gender/sex) has not been examined. Given initial evidence that the types of sexual talk may contribute differently to sexual and relationship well-being, it is important to identify factors (e.g., gender/sex) that may be associated with the amount of sexual talk used. We examined differences by gender/sex and dyad type in the average sexual talk use among long-term couples ( $N = 229$ ; 69 same-gender/sex) using retrospective cross-sectional dyadic data. We also examined these differences in the same sample ( $N = 217$ ) using a 35-day dyadic daily diary study. Retrospectively, but not daily, women reported using more mutualistic talk than men, especially when partnered with a woman. There were no significant gender/sex or dyad type differences in use of individualistic talk retrospectively or daily. Exploratory analyses with the GSD couples suggested that there may be gender/sex and dyad type differences retrospectively and daily, for individualistic and not mutualistic talk; however, these analyses must be interpreted with caution due to the small subsample size of GSD couples.

**Keywords** Sexual talk · Sexual communication · Couples · Gender · Sex differences · Gender/Sex diverse

## Introduction

Sexual communication, which includes verbal and non-verbal interactions concerning sexual matters, such as sharing sexual likes/dislikes or facial expressions that convey pleasure, is important in romantic relationships (e.g., Byers & Demmons, 1999; MacNeil & Byers, 2009). Through sexual communication, couples are able to negotiate important aspects of their sexual relationship (e.g., sexual frequency, consent, safer sex practices) and to establish mutually satisfying sexual scripts (i.e., a shared set of expectations about

their sexual relationship; Gauvin & Pukall, 2018). Both individual and dyadic cross-sectional studies have found that community and clinical couples alike report greater sexual and relationship satisfaction when they engage in more open verbal sexual communication (Coffelt & Hess, 2014; Greene & Faulkner, 2005; Pazmany et al., 2015).

Most prior research has focused on sexual communication that occurs outside of sexual activity, with limited attention to sexual talk—i.e., verbal sexual communication that occurs exclusively *during* sexual activity and that is specific to the sexual activity itself (Jonason et al., 2016; Merwin & Rosen, 2020). Yet, sexual talk is common and thought to influence how satisfied each member is with that sexual encounter or with their relationship in general (e.g., Jonason et al., 2016; Merwin & Rosen, 2020), making it an important and distinct component of sexual scripts. Based on sexual script theory, sexual talk can be viewed as a sexual behavior that is likely to vary depending on gender and sexual orientation, or dyad type. Yet, there are few studies examining sexual talk in romantic relationships, particularly the role of gender/sex and dyad type therein.

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Sexual script theory suggests that there are differences in the ways men and women think about and approach sexuality, based on the different societal and cultural messages they have received (Simon & Gagnon, 1986, 2003; Wiederman, 2005). The traditional sexual script (TSS) is highly gendered and rigid; it positions men as the initiators who focus on their own sexual pleasure, and women as the gatekeepers who focus on emotional intimacy above sexual pleasure (Gagnon, 1990; Masters et al., 2013). While there is some evidence that TSS adherence has decreased over time (e.g., Eaton & Rose, 2011), it is still the prevailing cultural sexual script in North America (e.g., Klein et al., 2019; Masters et al., 2013). Sexual script theory would suggest that the type and amount of sexual communication will differ between men and women. For example, women may be more likely to engage in sexual communication that focuses on increasing intimacy in the relationship, whereas men may be more likely to engage in sexual communication that focuses on increasing sexual pleasure; indeed, there is some empirical evidence to support this assertion (e.g., MacNeil & Byers, 2005). The TSS also tends to be hetero- and cis-normative and thus may be less applicable to those in same-gender/sex relationships and those who identify as gender/sex diverse (GSD). Accordingly, these individuals may be compelled to develop their own alternative sexual scripts that rely less on gender/sex and are more flexible, including with respect to sexual communication (Gabb, 2019; Gauvin & Pukall, 2018). There are no prior studies examining how sexual talk might differ depending on gender/sex or dyad type, nor have any utilized a rigorous multi-method study design necessary to do so. The present study focuses on gender/sex and dyad type differences in sexual talk among same- and mixed-gender/sex couples at both a retrospective and daily level.

Considering that sex and gender are neither dichotomous nor independent of each other, and that their specific impacts on sexual behavior, attitudes, and emotions are rarely separable, we adopted the recently recommended term *gender/sex* within this paper. Gender/sex is an umbrella term that encompasses both sex and gender, and is appropriate for use in contexts in which gender and sex cannot be easily or at all disentangled (for a review of this topic, see: van Anders, 2015).

### Gender/Sex, Dyad Type, and Sexual Communication

Several studies that have explored gender/sex differences in general sexual communication largely support the idea that both the type and amount of sexual communication differ between men and women (e.g., Jozkowski & Peterson, 2013; Willis & Jozkowski, 2018; Willis et al., 2019). Specifically, there is evidence that women communicate more about sexual topics than men (Byers & Demmons, 1999; Greene & Faulkner, 2005), although women also report

greater difficulty communicating about some sexual topics (e.g., verbal communication about consent) and are less likely to believe that their communication will lead to concrete changes (e.g., different sexual behaviors; Greene & Faulkner, 2005; Willis et al., 2019). However, in a sample of mixed-gender/sex couples in long-term relationships, MacNeil and Byers (2009) found that men and women did not differ in the extent to which they shared sexual preferences with their partner.

Sexual communication research has largely excluded people in same-gender/sex relationships, as well as individuals who identify as GSD (for a review see Blair & Goldberg, 2016). In a mixed-methods study with LGBTQ-identified (lesbian, gay, bisexual, transgender, and queer) individuals in relationships, Rubinsky and Hosek (2020) found no gender/sex differences in sharing sexual preferences. The only study to our knowledge which examined dyad type (i.e., same- vs. mixed-gender/sex) differences in sexual communication also found no differences (Holmberg & Blair, 2009). There is, however, some qualitative evidence of differences between GSD and non-GSD individuals in the type and amount of sexual communication used (Kosenko, 2010, 2011; Rubinsky & Hosek, 2020). For example, one study found that GSD individuals reported modifying either the type or amount of sexual communication they used to avoid feelings of gender dysphoria (e.g., when uncomfortable talking about specific body parts; Rubinsky & Hosek, 2020). Similarly, Kosenko (2010, 2011) reported that the unique challenges in sexual communication that GSD individuals experience may make engaging in this type of communication both more difficult and more risk-laden (e.g., lack of language to talk about bodies that is not medicalized or vulgar, fear of bringing a partner's attention to genitalia); this may lead GSD individuals to use less of certain types of sexual talk, or even less sexual talk overall, compared to men and women.

Overall, there are mixed findings for gender/sex and dyad type differences in both the frequency and type of sexual communication. However, the existing literature has largely been limited in terms of study design (e.g., single-occasion, retrospective, intra-individual rather than dyadic) and sample (e.g., young, cis gender, heterosexual, mixed-gender/sex couples, no GSD participants). Additionally, only one study has used a daily diary methodology (Vannier & O'Sullivan, 2011) meaning that findings to date are limited by the accuracy of participants' retrospective reporting. Daily diary methodology reduces recall biases (Graham et al., 2003) and may better reflect daily variability in sexual communication. Further, using methodological triangulation (e.g., utilizing a combination of retrospective and daily diary methods) allows increased confidence in the robustness of the results (Mertens & Hesse-Biber, 2012; Thurmond, 2001). Addressing these gaps in the sexual communication literature may inform research-based interventions aimed at helping different types

of couples (e.g., older, same-gender/sex, GSD) maintain or enhance their sexual and relationship well-being.

## Sexual Talk

Considering the importance of sexual communication for couples' sexual and relationship well-being, it is striking that so few studies have examined sexual talk—a type of sexual communication that occurs exclusively *during* sexual activity and that is specific to the sexual activity itself (Babin, 2012; Blunt-Vinti et al., 2019; Brogan et al., 2009; Jonason et al., 2016; Merwin & Rosen, 2020). In a cross-sectional study with individuals, Blunt-Vinti et al. (2019) found that—consistent with sexual script theory—women reported higher levels of nonverbal communication during sex than men, but—in contrast to what might be expected based on sexual script theory—found no gender/sex differences for verbal communication during sex. However, Blunt-Vinti et al. (2019) only examined the communication during sex that was verbal or non-verbal and did not examine the *content* of the verbal sexual communication.

In the first study to examine the content of sexual talk, Jonason et al. (2016) used a mixed-methods design to identify two types of sexual talk: *individualistic* talk, which consists of statements of dominance (e.g., “who’s my sex toy?”), submission (e.g., “I’m all yours”), sexual ownership (e.g., “whose pussy/cock is this?”), and talking about sexual fantasies (e.g., “I’m imagining people are watching us fuck”); and *mutualistic* talk, which includes short exclamations of excitement/pleasure (e.g., “yes/yeah!”), instructional statements (e.g., “go harder/faster/slower”), positive feedback/compliments (e.g., “you taste so good”), and statements of intimacy/bonding (e.g., “I feel so close to you”). The authors found that using more mutualistic talk (theorized to be focused on sharing the sexual experience with one’s partner) was associated with greater sexual and relationship satisfaction, whereas using more individualistic talk (theorized to be focused on one’s own sexual pleasure) was associated with greater sexual—but not relationship—satisfaction (Jonason et al., 2016). In a cross-sectional study among individuals in committed relationships, Merwin and Rosen (2020) found that when women—but not men—engaged in more mutualistic talk, they reported higher sexual functioning, and that both men and women reported lower relationship satisfaction when they reported engaging in more individualistic talk. These results suggest that the two types of sexual talk contribute differently to sexual and relationship well-being, although directionality and causality have yet to be confirmed. Understanding factors (such as gender/sex and dyad type) that may influence the type and amount of sexual talk used is important for informing future research examining the effects of sexual talk on sexual outcomes, as well as potential future interventions aimed to improve sexual well-being, such as

cognitive-behavioral interventions for low desire, which may benefit from targeting sexual talk.

Based on sexual script theory, one might expect men to use more individualistic talk, which focuses on a person’s own sexual pleasure, and women to use more mutualistic talk, which focuses on intimacy and sharing the experience with one’s partner, since these are more consistent with their gendered roles and beliefs in the TSS. Indeed, Jonason et al. (2016) found that women reported using a sub-type of mutualistic talk (i.e., statements of intimacy/bonding) more than men. Further, the authors found no gender/sex differences in the overall use of mutualistic and individualistic talk; however, their sample included single individuals and it is possible that sexual talk use may be different within long-term relationships as partners develop a couple-level sexual script. Merwin and Rosen (2020) did not examine gender/sex differences in the use of sexual talk among a sample of people in long-term relationships; however, a secondary analysis of their publicly archived data (Merwin & Rosen, 2019) revealed that men used more individualistic talk than women and that there were no gender/sex differences for mutualistic talk (see Supplementary Syntax 1 of current study for syntax of these analyses). Thus, while empirical findings are mixed, the only research with a sample of individuals in long-term relationships indicates that there may be gender/sex differences in the use of individualistic but not mutualistic sexual talk. Finally, while the sexual talk literature has not included GSD individuals or examined whether dyad type differences exist, individuals in same-gender/sex relationships or those identifying as GSD may—in lieu of the TSS—develop their own script, resulting in different uses of sexual talk compared to those in mixed-gender/sex relationships and those who do not identify as GSD.

## Current Study

The objective of this two-part study was to examine whether there are gender/sex or dyad type (i.e., same- vs. mixed-gender/sex) differences in the use of mutualistic and individualistic sexual talk among a sexual and gender/sex diverse sample of community couples. We pursued this objective with the same sample of participants but utilizing two datasets. First, average use of sexual talk was examined using dyadic cross-sectional data (i.e., when recalling general use of sexual talk in the relationship, retrospectively). Next, average *daily* use of sexual talk was examined (i.e., use of sexual talk on days of sexual activity) using data from a 35-day dyadic daily diary study. Based on prior research and sexual script theory, we hypothesized that (1) men would report using more individualistic talk than women, both retrospectively and at an average daily level; and (2) there would be no gender/sex differences for mutualistic talk in general or at a daily level. There is no existing research on sexual talk with GSD individuals, and as

such we had no specific hypotheses regarding gender/sex differences between GSD individuals and men or women; thus, these analyses were exploratory. Additionally, prior research has not examined the role of gender/sex in sexual talk in a dyadic context or taken dyad type into account, so we did not have any specific hypotheses about how a partner's gender/sex or dyad type would be associated with an individual's use of mutualistic or individualistic sexual talk in general or at a daily level. The largely descriptive information provided in the current study regarding *who* uses sexual talk may inform future sexual talk research, as well as provide valuable information about whether sexual script theory is a relevant theoretical framework for sexual talk. For instance, if no gender/sex or dyad type differences are observed it may suggest that both types of sexual talk are used similarly among people of all genders/sexes. In contrast, if gender/sex or dyad type differences are observed, this would indicate that it is important to account for differences in gender/sex when considering how sexual talk functions in relationships.

## Retrospective Study

### Methods

The present study was part of a larger, multi-site, longitudinal research project of factors associated with the sexual well-being of couples in long-term relationships; three previous papers have been published utilizing this dataset. Two studies examined pornography use and sexual and relationship outcomes (Vaillancourt-Morel et al., 2020, 2021) and one examined sexual desire discrepancies and sexual distress (Jodouin et al., 2021). The present study utilizes data from the baseline (retrospective survey) and daily diary portion of this larger project.

### Participants

Recruitment occurred from April 2017 to June 2018. Couples were recruited from across Canada and the United States using print and online advertisements, by contacting past participants of other studies in the two laboratories associated with this project, and via word of mouth. To ensure sufficient diversity in the sample in terms of gender/sex and dyad type, recruitment also specifically targeted the LGBTQ+ community (e.g., posting on LGBTQ+ Facebook groups, poster advertisements at local LGBTQ+ businesses). Couples ( $N=352$ ) were screened via telephone to confirm eligibility. The inclusion criteria were as follows: (1) both members 18 years of age or older; (2) in a committed romantic relationship and living together for at least 1 year; (3) sexually active with each other at least once a month over the past three months; (4) fluent in English and/or French; (5) currently residing in Canada or the United States. Exclusion criteria

included: (1) presence of a self-reported major medical and/or psychiatric illness that significantly interfered with sexual activity or functioning and (2) current pregnancy or breastfeeding. Participants were not required to be in a monogamous relationship but were asked to complete the study measures based on their relationship with the partner who was also participating in the study.

Of the 352 couples screened for eligibility, 48 (13.6%) were deemed ineligible for the following reasons: 12 reported the presence of a major medical and/or psychiatric illness that significantly interfered with sexual activity or functioning, 17 reported current pregnancy or breastfeeding, 18 did not meet the relationship and/or sexual activity criteria, and one did not reside in North America. Of the 304 eligible couples, 23 (7.6%) declined participation after eligibility screening and 16 (5.3%) agreed to participate but did not complete the consent form or survey (no reason provided). A total of 238 couples were enrolled in the study and nine (3.8%) were subsequently withdrawn for the following reasons: one or both members of the couple failed at least two of the three attention checks embedded within the survey ( $n=5$ ), one member of the couple did not complete the survey ( $n=3$ ), or the couple dropped out ( $n=1$ ).

The final sample included 229 couples. An a priori power analysis using effect sizes from prior studies of sexual talk (Jonason et al., 2016; Merwin & Rosen, 2020), an alpha of 0.05, and accounting for a 20% attrition rate at the end of the larger longitudinal study indicated that 198 couples were sufficient to achieve a power of 0.80 for both actor and partner effects (Ackerman & Kenny, 2016).

The final sample consisted of 160 (69.9%) mixed-gender/sex couples (138 women coupled with men, nine men coupled with GSD partners, and 13 women coupled with GSD partners) and 69 (30.1%) same-gender/sex couples (20 men coupled with men, 46 women coupled with women, and three GSD coupled with GSD). This sample included 243 women (53.1%), 187 men (40.8%), and 28 GSD individuals (6.1%). The 28 GSD participants included individuals who self-identified as the following: agender ( $n=10$ ), genderfluid and/or gender queer ( $n=7$ ), non-binary ( $n=6$ ), androgyne ( $n=1$ ), butch ( $n=1$ ), non-binary with a transmasculine history ( $n=1$ ), transmasculine non-binary ( $n=1$ ), and transmasculine gender queer ( $n=1$ ).

Approximately half of the sample identified as heterosexual ( $n=251$ ; 54.8%), while the other half identified with sexually diverse identities ( $n=207$ , 45.2%): 18.6% ( $n=85$ ) identified as gay/lesbian, 10.7% ( $n=49$ ) as bisexual, 9.2% ( $n=42$ ) as queer, 4.1% ( $n=19$ ) as pansexual, 0.9% ( $n=4$ ) as uncertain or confused, 0.2% ( $n=1$ ) as asexual, and 1.5% ( $n=7$ ) as 'other.'<sup>1</sup> Participants ranged in age from 18 to

<sup>1</sup> Participants who did not identify with any of the provided sexual orientation labels were able to select 'Other' and provide a written response with their sexual orientation. These responses included:



70 years ( $M = 30.40$ ,  $SD = 8.42$ ) and on average, participants reported 16.64 years of education ( $SD = 2.92$ ). Couples reported being in their current relationship from 1 to 38 years ( $M = 5.98$ ,  $SD = 5.10$ ) and most described their current relationship status as cohabiting without being married (39.9%;  $n = 91$ ) or cohabiting and common-law (33.3%;  $n = 76$ ), and 26.8% of couples ( $n = 61$ ) were married. Additional demographic information for the sample can be found in Table 1.

## Procedure

Couples participated in a structured telephone interview with a research assistant to determine eligibility. Eligible participants were emailed a link to complete an online survey through Qualtrics Research Suite, a secure online survey program. The links expired after 4 weeks. Participants provided their informed consent online and then proceeded to complete online questionnaires of the study measures independently from one another. The online survey consisted of a demographic questionnaire and a standardized measure of sexual talk, as well as additional measures that are not within the scope of this paper. Following recommendations for enhancing the validity of online data collection, three attention-check questions were embedded within study measures to verify that participant's attention was engaged during the study (Thomas & Clifford, 2017). Participants were sent emails reminders through Qualtrics at 1 and 2 weeks if they had not completed the survey. Each participant received a \$10 (CAD) Amazon gift card to compensate them for their time. The study was approved by both institutional research ethics boards.

## Measures

**Demographics** Both members of the couple completed questions about their age, sexual orientation, level of education, income, number of children, cultural identity, relationship status, and relationship length.

**Gender/Sex** Gender identity was assessed with one question (*What is the gender identity with which you most identify?*) with the following response options: *man*, *woman*, *trans-identify as man*, *trans-identify as woman*, *agender*, and an 'other' option that prompted participants to specify their gender identity in an open textbox. Participants were also asked to self-report their biological sex with the following response options: *male*, *female*, and *intersex*. These two questions are

**Table 1** Descriptive characteristics of the sample for retrospective data (Baseline;  $N = 458$  individuals; 229 couples)

Variable	$M$ (SD) or $n$	Range	% of final sample
Age	30.43 (8.42)	18–70	
Gender/sex			
Woman	243	–	53.1
Man	187	–	40.8
GSD <sup>a</sup>	28	–	6.1
Dyad type (number of couples)			
Total same-gender/sex couples	69	–	30.1
Man–Man	20	–	8.7
Woman–Woman	46	–	20.1
GSD–GSD	3	–	1.3
Total mixed-gender/sex couples	160	–	69.9
Man–Woman	138	–	60.3
Man–GSD	9	–	3.9
Woman–GSD	13	–	5.7
Language (for study)			
English	280	–	61.1
French	178	–	38.9
Place of birth			
Canada	345	–	75.3
United States	59	–	12.9
Western Europe	27	–	5.9
Latin America/South America	8	–	1.7
Asia	7	–	1.5
Africa	3	–	0.7
Eastern Europe	3	–	0.7
Caribbean	2	–	0.4
Other <sup>b</sup>	4	–	0.9
Personal annual income			
\$0–9999	80	–	17.5
\$10,000–39,999	200	–	43.7
\$40,000–69,999	125	–	27.3
\$70,000–99,999	38	–	8.3
\$100,000 and over	15	–	3.3
Number of children at home	0.43 (0.96)	0–5	–

GSD Gender/sex diverse

<sup>a</sup>Participants identified as: Agender ( $n = 10$ ), Gender-queer/fluid ( $n = 7$ ), Non-binary ( $n = 6$ ), Androgyne ( $n = 1$ ), Butch ( $n = 1$ ), Non-binary with a transmasculine history ( $n = 1$ ), Transmasculine gender-queer ( $n = 1$ ), and Transmasculine non-binary ( $n = 1$ )

<sup>b</sup>Participants who did not identify with any of the provided locations were able to select 'Other' and provide their place of birth in an open textbox. These responses included the following: Romania ( $n = 2$ ) and Vietnam ( $n = 2$ )

Footnote 1 (continued)

mostly straight ( $n = 1$ ), homoromantic demisexual ( $n = 1$ ), homoflexible ( $n = 1$ ), dyke ( $n = 2$ ), demisexual ( $n = 1$ ), and bisexual but designation is irrelevant given the length of the marriage ( $n = 1$ ).

similar to the two-step method for assessing gender/sex outlined in Bauer et al., (2017; see also The GenIUSS Group, 2014). The question about gender identity was added to the survey after data had been collected for 64 individuals. To

avoid excluding these participants (Streiner, 2002), we used their responses from the same item at the 6-month timepoint of the larger longitudinal study.

Participants were assigned to one of three gender/sex categories (i.e., woman, man, GSD) based on their self-reported responses to the questions about sex and gender at baseline. Cis and trans women were grouped together, cis and trans men were grouped together, and individuals that self-reported other gender identities (e.g., agender, non-binary, gender-queer) were grouped together in a third category: gender/sex diverse individuals (GSD). The decision to group trans men and women with cis men and women (respectively), rather than with the GSD individuals, was based on existing empirical and theoretical research suggesting that, for example, there are more differences between trans women and cis men (who share a birth-assigned sex) and more similarities between cis and trans women (e.g., for a review see Shibley Hyde et al., 2019; see also Jacobson & Joel, 2019; Tate et al., 2014).

**Sexual Talk** The sexual talk during sexual activity measure (SexTalk) assessed participant's general use of individualistic and mutualistic talk during sexual activity in their current relationship (Jonason et al., 2016). For the purposes of the current study, participants were asked to report retrospectively on their general use of sexual talk in their current relationship (no time-frame was specified). The measure contains eight items, which assess how frequently a person uses two types of sexual talk: the individualistic sexual talk subscale consists of four items (i.e., sexually dominant statements, sexually submissive statements, messages of 'sexual ownership', and talking about sexual fantasies) and the mutualistic sexual talk subscale consists of four items (i.e., short exclamations of excitement or pleasure, positive feedback or compliments, instructive statements, and messages that strengthen the intimate/emotional bond with one's partner). Participants report on the frequency with which they engage in each type of sexual talk with their current romantic partner during sexual activity on a 5-point Likert scale ranging from 1 (*Never*) to 5 (*All the time*). Each subscale score can range from 4 to 20, with higher scores indicating more frequent use of sexual talk.

Two previous exploratory factor analyses (EFAs) have supported the two factor structure of the measure (Jonason et al., 2016; Merwin & Rosen, 2020). However, since the SexTalk measure is still novel and the French language version has not previously been validated, we conducted an EFA for the French-speaking participants according to the best practices recommended in Sakaluk and Short (2017) and a confirmatory factor analysis (CFA) for the entire sample using best practices (e.g., Jackson et al., 2009; Worthington & Whittaker, 2006). The EFA for French-speaking couples and the CFA for all couples supported the two-factor structure of

the SexTalk measure. A full description of the method and results of the EFA and the CFA can be found in the supplemental materials on the OSF page (Supplementary Methods 1 and 2). Mutualistic and individualistic sexual talk were positively correlated ( $r = 0.47$ ,  $p < .001$ ).

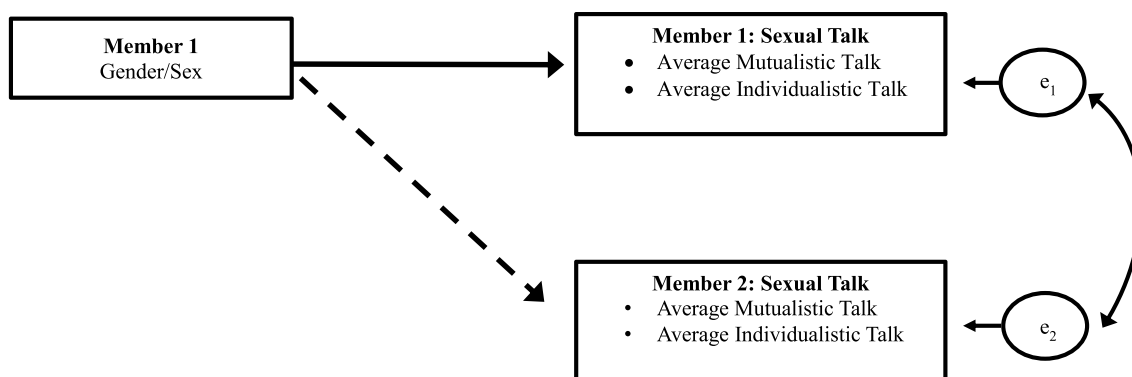
Reliability of the SexTalk measure was evaluated using the greatest lower bound (glb; Sijtsma, 2009) approach instead of Cronbach's alpha, because the measure violated the first assumption of Cronbach's alpha (i.e., that the scale adheres to tau equivalence; McNeish, 2017). The glb is an estimate of the lowest possible value that a scale's reliability can have and the 'true' scale reliability is by definition in the interval [glb, 1] (Sijtsma, 2009). There was good internal consistency for both of the subscales of the SexTalk measure for women (mutualistic glb = 0.73; individualistic glb = 0.73), men (mutualistic glb = 0.75; individualistic glb = 0.79), and GSD individuals (mutualistic glb = 0.78; individualistic glb = 0.77).

## Data Analyses

Online supplemental material (including data, associated syntax, supplemental materials, and study measures) can be found on the OSF page: [https://osf.io/dcnvw/?view\\_only=447b0753ddbc4809903f73840ecc0f88](https://osf.io/dcnvw/?view_only=447b0753ddbc4809903f73840ecc0f88).<sup>2</sup> Data were analyzed using SPSS (version 25.0; for the primary and exploratory study analyses, and the EFA) and MPlus (8.0; Muthén & Muthén, 2017; for the CFA). Internal consistency was calculated in R (version 3.6.2; RCoreTeam, 2019) using the glb algebraic function from the 'psych' package (Revelle, 2020). Of the 458 participants (229 couples) in this study, minimal data were missing for the sexual talk measure (< 3% at an item-level). Expectation maximization was therefore used to impute item-level missing data. Spearman's and point-biserial correlations were conducted to examine intercorrelations among study variables, and to evaluate potential demographic covariates (i.e., age, culture, survey language, personal income, relationship status, relationship duration, sexual orientation, and number of children). No demographic variables were correlated with the outcome variables (i.e., mutualistic and individualistic sexual talk) at  $r \geq 0.30$  (Supplementary Table 1); no demographic variables were included as covariates in the primary analyses (Frigon & Laurencelle, 1993).<sup>3</sup>

<sup>2</sup> Data file is password protected and to be used for research purposes only. Please contact the corresponding author for access.

<sup>3</sup> Based on reviewer feedback we re-ran all analyses controlling for relationship satisfaction, relationship duration, and age; the pattern of statistical significance remained the same. The estimated marginal means changed on average 0.24 points after including covariates.



**Fig. 1** Depiction of actor-partner interdependence model (APIM) with indistinguishable dyads. *Note* This indistinguishable APIM shows associations between Member 1's gender/sex and their own

and their partner's use of sexual talk. The bold line represents the actor effect, and the dotted line represents the partner effect

**Indistinguishability and Nonindependence** Given the mixed sample of same- and mixed-gender/sex couples in the study, the dataset was comprised of indistinguishable dyads because there was no variable to distinguish between members within a couple across all dyads (Kenny et al., 2006; Mustanski et al., 2014). Nonindependence was assessed by computing the intraclass correlations (Kenny et al., 2006). The intraclass correlations were all positive and moderate in size, ranging from 0.46 to 0.54, supporting the hypothesis of nonindependence of the data (West et al., 2008). To account for this, we used multilevel modeling guided by the actor-partner interdependence model (APIM) to test our hypotheses (Kenny et al., 2006). Conducting APIMs with indistinguishable dyads results in one overall actor effect and one overall partner effect (see Fig. 1).

**Gender/Sex** Analyses were conducted for couples in which both members identified on the gender/sex binary (i.e., identified as women or men; primary analyses) and separate analyses were conducted for the full sample—including couples in which at least one member identified as GSD. Due to the small sample size of GSD individuals, analyses including both binary and GSD couples were exploratory. Gender/sex was treated as a categorical variable and main effects and interactions were calculated using Type III Sums of Squares F-tests.

**Primary Analyses** To address the objective of the first part of this study—that is, to examine whether there were gender/sex or dyad type (i.e., same- vs. mixed-gender/sex couples) differences in the use of sexual talk using retrospective reports of general sexual talk use—we conducted two multilevel mixed regression models guided by the APIM (i.e., individuals nested within couples). Separate models were conducted for each outcome variable (i.e., mutualistic sexual talk, individualistic sexual talk). To estimate gender/sex and

dyad type effects in our indistinguishable dataset we utilized the factorial method developed by West et al. (2008). This approach requires the inclusion of three gender/sex terms in a given model: (a) gender/sex of individual, (b) gender/sex of partner, and (c) interaction between individual's gender/sex and partner's gender/sex (i.e., dyad type). Essentially, this analysis conducts a 2 (actor's gender/sex: woman, man)  $\times$  2 (partner's gender/sex: woman, man) factorial ANOVA but in a multilevel regression guided by the APIM. The factorial method thus allows us to examine all possible combinations of actor's gender/sex and partner's gender/sex (i.e., the four possible dyad types): women partnered with women (i.e., women in same-gender/sex dyads), women partnered with men (i.e., women in mixed-gender/sex dyads), men partnered with men (i.e., men in same-gender/sex dyads), and men partnered with women (i.e., men in mixed-gender/sex dyads). The interaction effect in the model tests the 'mean difference in differences' (e.g., do the actor effects differ depending on partner's gender/sex?) and is calculated as follows:  $M_{\text{difference in differences (DiD)}} = (M_1 - M_2) - (M_3 - M_4)$ . These analyses were conducted using only the 'binary couples'—those in which both members identified on the gender/sex binary (i.e., as men or women;  $n = 204$  couples). Mean differences and Cohen's  $d$  values with 95% confidence intervals were calculated for the main effect of actor gender/sex, main effect of partner gender/sex, and the interaction of actor and partner gender/sex. To examine effect sizes, we used the 'effectsize' R package (Ben-Shachar et al., 2020) to calculate test statistic approximations of Cohen's  $d$  (mean difference in standard deviation units) and  $\omega_p^2$  (percentage of the variance accounted for, after correcting for sample size bias). Because of an adjustment for small-sample bias,  $\omega_p^2$  can be negative when effect sizes are small; we report the negative values consistent with recommendations from Okada (2017), but they should be interpreted as near-zero effect sizes.

**Table 2** Estimated marginal means, standard errors, and 95% confidence intervals for sexual talk subscales for each gender/sex and dyad type combination (retrospective)

Group	<i>n</i> <sup>a</sup>	Mutualistic sexual talk			Individualistic sexual talk		
		<i>M</i> (SE)	95% CI		<i>M</i> (SE)	95% CI	
			LB	UB		LB	UB
Women partnered with women	92	14.71 (0.44)	13.85	15.58	7.76 (0.44)	6.90	8.63
Men partnered with men	40	13.51 (0.67)	12.19	14.82	8.35 (0.66)	7.05	9.66
Women partnered with men	138	13.79 (0.30)	13.21	14.38	7.36 (0.29)	6.80	7.92
Men partnered with women	138	12.42 (0.30)	11.84	13.00	7.65 (0.29)	7.08	8.21
GSD partnered with men	9	13.22 (1.16)	10.94	15.51	6.22 (1.12)	4.02	8.43
GSD partnered with women	13	15.54 (0.97)	13.63	17.44	9.31 (0.93)	7.47	11.14
GSD partnered with GSD	6	14.83 (1.73)	11.43	18.23	10.00 (1.71)	6.63	13.37
Women partnered with GSD	13	14.54 (0.97)	12.64	16.44	7.65 (0.93)	5.82	9.49
Men partnered with GSD	9	14.11 (1.16)	11.83	16.40	9.78 (1.12)	7.57	11.98

*GSD* Gender/sex diverse, *CI* Confidence interval, *LB* Lower bound, *UB* Upper bound, *SE* Standard error

<sup>a</sup>Number of individuals (not couples)

**Exploratory Analyses** Exploratory analyses were the same as the primary analyses, but also included the ‘GSD couples’—a subsample of couples in which one or both members identified as GSD ( $n = 25$  couples). Due to the small sample size, as well as the fact that previous sexual talk literature has not examined sexual talk in individuals identifying as GSD, these analyses were exploratory. Essentially, this analysis conducts a 3 (actor’s gender/sex: woman, man, GSD)  $\times$  3 (partner’s gender/sex: woman, man, GSD) factorial ANOVA but in a multilevel regression guided by the APIM. The factorial method thus allows us to examine all nine possible combinations of actor’s and partner’s gender/sex: women partnered with GSD, women partnered with men, women partnered with women, men partnered with GSD, men partnered with men, men partnered with women, GSD partnered with GSD, GSD partnered with women, and GSD partnered with men. Significant interactions were not followed up with effect sizes and 95% CIs for pairwise comparisons due to low power; in such small subsamples, the confidence interval widths would be much too imprecise for accurate effect size estimation and error rates would be greatly inflated by many possible post-hoc tests. Thus, in these exploratory analyses we are limited to using weak directional null hypothesis significance testing with omnibus tests. However, we did inspect the visual depiction of these results to describe the overall pattern. Despite this limitation, given equity/diversity concerns, we believe it is better to analyze data from the GSD participants than to exclude them.

## Results

### Descriptive Statistics

Estimated marginal means, standard errors, and 95% confidence intervals for mutualistic and individualistic talk subscales for gender/sex and dyad type are provided in Table 2.

### Primary Analyses

#### Individualistic Sexual Talk

For binary couples, no significant main effects or interactions were observed for individualistic talk (Table 3). There were no significant gender/sex or dyad type differences in the use of individualistic sexual talk. The mean differences for actor’s gender/sex revealed that men scored 0.44 points higher than women on the individualistic talk subscale; however, this was not significant ( $p = .301$ ), and the effect size was trivial ( $d = 0.13$ , 95% CI  $[-0.12, 0.38]$ ;  $\omega_p^2 = 0.0003$ ). The mean differences for partner’s gender/sex revealed that people with a woman partner scored 0.15 points lower than those with a man partner on the individualistic talk subscale; however, this was not significant ( $p = .720$ ), and the effect size was trivial ( $d = 0.05$ , 95% CI  $[-0.20, 0.29]$ ;  $\omega_p^2 = -0.003$ ), and the percentage of variance in sexual talk explained by gender/sex was small ( $\omega_p^2 = -0.003$ ). Additionally, the mean differences for the interaction between actor and partner gender/sex found that the actor effect for men was larger for those in same-gender/sex couples ( $M_{\text{difference}} = 0.99$ ,  $p = .174$ ) than those in mixed-gender/sex couples ( $M_{\text{difference}} = -0.12$ ,  $p = .822$ ). However, the interaction ( $M_{\text{DiD}} = 1.11$ ,  $p = .243$ ) was not significant and the effect was small ( $d = 0.16$ , 95%



**Table 3** Type III tests of fixed effects from multilevel mixed linear regression models for gender/sex, dyad type, and sexual talk (retrospective)

Variable	Mutualistic sexual talk	Individualistic sexual talk
Primary analyses: binary couples model ( $n=204$ )		
Actor's gender/sex	$F(1, 261.73)=8.95, p=.003$ $B=-1.29, SE=0.43, 95\% CI [-2.14, -0.44]$ $d=-0.37, 95\% CI [-0.61, -0.13]$ $\omega_p^2=0.03$	$F(1, 249.07)=1.07, p=.301$ $B=0.44, SE=0.42, 95\% CI [-0.40, 1.27]$ $d=0.13, 95\% CI [-0.12, 0.38]$ $\omega_p^2=0.0003$
Partner's gender/sex	$F(1, 261.73)=0.04, p=.849$ $B=0.08, SE=0.43, 95\% CI [-0.77, 0.93]$ $d=0.02, 95\% CI [-0.22, 0.27]$ $\omega_p^2=-0.004$	$F(1, 249.07)=0.13, p=.720$ $B=0.15, SE=0.42, 95\% CI [-0.68, 0.98]$ $d=0.05, 95\% CI [-0.20, 0.29]$ $\omega_p^2=-0.003$
Dyad type (actor's gender/sex $\times$ partner's gender/sex)	$F(1, 204)=4.42, p=.037$ $B=2.01, SE=0.96, 95\% CI [0.12, 3.89]$ $d=0.29, 95\% CI [0.02, 0.57]$ $\omega_p^2=0.02$	$F(1, 204)=1.37, p=.243$ $B=1.11, SE=0.95, 95\% CI [-0.76, 2.98]$ $d=0.16, 95\% CI [-0.11, 0.44]$ $\omega_p^2=0.002$
Exploratory analyses: all couples model (GSD couples: $n=25$ ; binary couples: $n=204$ )		
Actor's gender/sex	$F(2, 366.42)=1.87, p=.155$ $\omega_p^2=0.005$	$F(2, 342.65)=1.79, p=.168$ $\omega_p^2=0.005$
Partner's gender/sex	$F(2, 366.42)=1.09, p=.337$ $\omega_p^2=0.0005$	$F(2, 342.65)=3.10, p=.046$ $\omega_p^2=0.01$
Dyad type (actor's gender/sex $\times$ partner's gender/sex)	$F(4, 229)=2.23, p=.067$ $\omega_p^2=0.02$	$F(4, 229)=3.56, p=.008$ $\omega_p^2=0.04$

GSD, Gender/sex diverse;  $B$ , Unstandardized regression coefficient, which represents the mean difference, or in the case of the interaction term, the mean difference of differences;  $d$ , Cohen's  $d$  (effect size);  $\omega_p^2$ , Partial omega squared (effect size). The first model was run with only binary couples (i.e., couples in which both members of the couple identified as either a man or woman). The second model was run with all couples (i.e., included both binary and GSD couples).

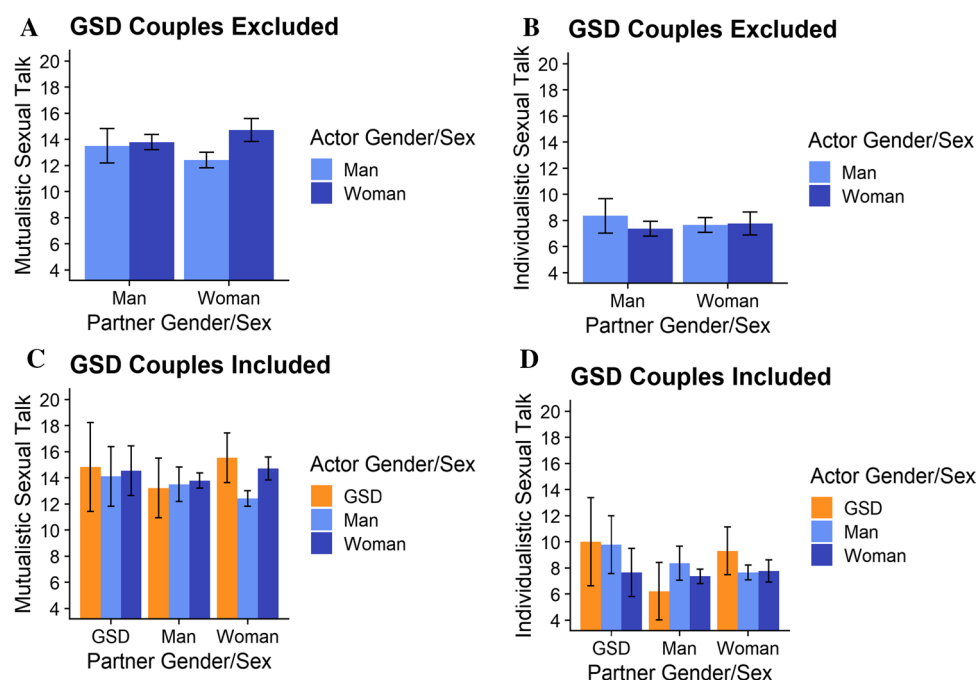
CI  $[-0.11, 0.44]$ ;  $\omega_p^2=0.002$ ). See Fig. 2b for a visual depiction.

### Mutualistic Sexual Talk

For binary couples, a significant main effect was observed for actor's gender/sex for mutualistic talk (Table 3). Specifically, women actors scored 1.3 points higher than men on the mutualistic sexual talk subscale ( $p=.003$ ); the effect was medium in magnitude ( $d=-0.37, 95\% CI [-0.61, -0.13]$ ;  $\omega_p^2=0.03$ ). The mean differences for partner's gender/sex showed that people with a woman partner scored 0.08 points lower than those with a man partner on the mutualistic talk subscale ( $p=.849$ ). However, the main effect for partner's gender/sex was non-significant and the effect size was trivial ( $d=0.02, 95\% CI [-0.22, 0.27]$ ;  $\omega_p^2=-0.004$ ). Additionally, there was a statistically significant two-way interaction between actor's gender/sex and partner's gender/sex (i.e., dyad type;  $M_{DiD}=2.01, p=.037$ ); the effect was small in magnitude ( $d=0.29, 95\% CI [0.02, 0.57]$ ;  $\omega_p^2=0.02$ ). The mean differences showed that the actor effect for women was larger for those in same-gender/sex couples ( $M_{\text{difference}}=2.3, p<.001$ ) than for those in mixed-gender/sex couples ( $M_{\text{difference}}=0.3, p=.698$ ). See Fig. 2a for a visual depiction.

### Exploratory Analyses

For the exploratory multilevel models that included the GSD couples, no significant actor or partner main effects were observed for mutualistic talk (Table 3). The two-way interaction between actor's gender/sex and partner's gender/sex was nonsignificant but close to the cut-off ( $p=.067$ ) and the effect size was small ( $\omega_p^2=0.02$ ). The visual depiction of the results (Fig. 2c) suggests that GSD individuals partnered with women used more mutualistic talk than men partnered with women. For individualistic talk, a significant main effect for partner's gender/sex was observed (Table 3); however, the effect size was small ( $\omega_p^2=0.04$ ). The visual depiction of the results (Fig. 2d) suggests that those with a GSD partner reported using more individualistic talk compared to those with a man partner. The main effect for actor's gender/sex was non-significant ( $\omega_p^2=0.005$ ). There was a statistically significant two-way interaction between actor's gender/sex and partner's gender/sex; however, the effect size was small ( $\omega_p^2=0.04$ ). The visual depiction of the results (Fig. 2d) suggests that GSD individuals reported using more individualistic talk when partnered with a woman or GSD individual, compared to when partnered with a man.



**Fig. 2** Estimated marginal means of sexual talk for different gender/sex and dyad type combinations (retrospective). *Note* Estimated marginal means for sexual talk for women, men, and GSD individuals in same- and mixed-gender/sex couples. Error bars show 95% confidence intervals (CI). GSD=gender/sex diverse. Panel **a** Estimated means for mutualistic sexual talk for only binary couples. Panel **b** Estimated means for individualistic sexual talk for only binary couples. Panel **c** Estimated means for mutualistic sexual talk for full sample. Panel **d** Estimated means for individualistic sexual talk for full sample. Mean difference comparison tests were not conducted for analyses with all couples (Panels **c** and **d**) due to the small subsample of GSD couples. Mean differences conducted for the analyses

with only binary couples (Panels **a** and **b**) found a statistically significant difference in the use of mutualistic talk based on the interaction between actor's gender/sex and partner's gender/sex (i.e., dyad type; Panel **a**), no statistically significant differences in the use of individualistic talk based on actor's gender/sex, partner's gender/sex, or dyad type (Panel **b**), and a statistically significant difference in the use of mutualistic talk based on the interaction between actor's gender/sex and partner's gender/sex (i.e., dyad type; Panel **a**). Specifically, women reported using significantly more mutualistic talk than men, and this effect was larger for women partnered with women than women partnered with men

## Daily Diary Study

The objective of the second part of this study was to examine whether gender/sex and dyad type differences would be observed in the average *daily* use of sexual talk in the same sample of long-term couples, using event-level data from a 35-day dyadic daily diary. Our hypotheses remained the same as for the retrospective survey (i.e., that men would report using more daily individualistic talk than women, and there would be no differences between men and women for daily mutualistic talk).

## Methods

### Participants

Of the 229 couples that completed the retrospective survey, eight (3.5%) dropped out before being enrolled in the daily diaries for the following reasons: three were unwilling to make the time commitment, two were unreachable, two

couples declined because they found the daily questions too personal, and one couple ended their relationship, rendering them ineligible. A total of 221 couples were enrolled in the daily diaries and four (1.7%) were removed before analyses: three couples dropped out in the first two days of the daily diaries for various reasons (i.e., time commitment, illness in family, survey items too personal) and one couple was removed due to researcher error in data collection. This resulted in a final sample of 217 couples: 153 (70.5%) mixed-gender/sex couples (133 women coupled with men, seven men coupled with GSD partners, and 13 women coupled with GSD partners) and 64 (29.5%) same-gender/sex couples (20 men coupled with men, 42 women coupled with women, and two GSD coupled with GSD). The demographics of the sample largely remained the same as the retrospective sample (full descriptive characteristics for daily diary sample can be found in Supplementary Table 2).

## Procedure

Participants were recruited as described for the retrospective data. Following completion of the retrospective study, couples were contacted via telephone to begin a 35-day daily diary study. The daily questionnaires were hosted through Qualtrics Research Suite, a secure online survey program, and took an average of 8.71 min to complete ( $SD = 31.50$ ), including measures unrelated to the current study. Both members of each couple were sent an email containing a link to their daily diary for 35 consecutive days. Participants were instructed to complete the survey at the end of each day without consulting their partner and considering their experiences in the past 24 h. Daily diaries were available for a 12-h period (i.e., 6 pm one day to 6 am the next day). Both members of each couple were contacted by a research assistant via telephone or email once a week to encourage high completion rates, and to provide participants with the opportunity to address any questions or concerns with a member of the research team. Participants were compensated with an Amazon gift card based on the proportion of diaries they completed: less than 18 diaries received \$20 each, between 18 and 22 diaries received \$32 each, between 23 and 25 diaries received \$37 each, between 26 and 29 diaries received \$42 each, and those who completed at least 30 received \$50 each. This study was approved by both institutional research ethics boards.

## Measures

### Sexual Activity Days

A single item identified the days when participants had engaged in any sexual activity (“*I have had sexual activity within the last 24 h*”) and participants who endorsed this item were given a second item to determine whether that sexual activity was with the partner who was also participating in the study. Sexual activity was defined as: “...*can include (but is not limited to): kissing, fondling, caressing, foreplay, vaginal penetration (with penis, fingers, sex-toys, etc.), anal penetration (with penis, fingers, sex-toys, etc.), manual stimulation, oral sex, using sex-toys, etc.*” In the present study, “sexual activity day” refers to days on which participants engaged in sexual activity with their partner and only data from these days were utilized in analyses. If participants had engaged in sexual activity more than once in the last 24 h, they were instructed to answer questions about their most recent sexual activity.

### Sexual Talk

To assess the use of mutualistic and individualistic sexual talk on sexual activity days, we administered the same validated

measure of sexual talk utilized in the retrospective study (SexTalk measure; Jonason et al., 2016). The measure was adapted so that participants reported on the frequency with which they engaged in each type of sexual talk with their current romantic partner during sexual activity *in the previous 24 h* on a 5-point Likert scale ranging from 1 (*Never*) to 5 (*All the time*). Given that the SexTalk measure had not previously been utilized at a daily level, a multilevel confirmatory factor analysis (CFA) was conducted and supported the two-factor structure of the daily SexTalk measure. A full description of the method and results of the multilevel CFA can be found in the supplemental materials (Supplementary Methods 3). Daily total scores for the mutualistic and individualistic sexual talk subscales were calculated by summing all items in the measure. Mutualistic and individualistic sexual talk were positively correlated ( $r = 0.48, p < .01$ ). There was good internal consistency for both of the SexTalk subscales for women (mutualistic  $glb = 0.76$ ; individualistic  $glb = 0.76$ ), men (mutualistic  $glb = 0.81$ ; individualistic  $glb = 0.77$ ), and GSD participants (mutualistic  $glb = 0.78$ ; individualistic  $glb = 0.79$ ). Retrospective sexual talk was moderately positively correlated (ranged from 0.31 to 0.64) with daily aggregated sexual talk.

## Data Analyses

To examine differences in sexual talk use across a 35-day period, aggregate scores were calculated for mutualistic and individualistic sexual talk, resulting in scores that reflected a person’s average daily use of mutualistic (or individualistic) sexual talk. Missing data was handled using the maximum likelihood method.

The primary analyses were conducted using only couples in which both members identified on the gender/sex binary (binary couples;  $n = 195$  couples). As in the retrospective study, we used the factorial method (West et al., 2008) with two multilevel mixed linear regression models (with individuals nested within couples) to examine the effects of own gender/sex, partner’s gender/sex, and dyad type on average daily use of mutualistic and individualistic sexual talk.<sup>4</sup> Since data were aggregated across days prior to analysis, effect sizes were calculated with the test-statistic approximation method (Ben-Shachar et al., 2020), in a similar fashion to the retrospective data.

Exploratory analyses examined data from all couples, including the GSD couples ( $n = 22$  couples). We used Type III Sums of Squares F-tests for main effects and interactions

<sup>4</sup> Based on reviewer feedback we also re-ran all analyses controlling for relationship satisfaction, relationship duration, and age; the pattern of statistical significance remained the same. The estimated marginal means changed on average 0.28 points after including covariates.

**Table 4** Estimated marginal means, standard errors, and 95% confidence intervals for average daily sexual talk subscales for each gender/sex and dyad type combination (daily diary)

Group	<i>n</i> <sup>a</sup> (number of daily observations)	Mutualistic sexual talk			Individualistic sexual talk		
		<i>M</i> (SE)	95% CI		<i>M</i> (SE)	95% CI	
			LB	UB		LB	UB
Women partnered with women	84 (2391)	10.28 (0.47)	9.36	11.20	5.17 (0.31)	4.57	5.77
Men partnered with men	40 (1239)	9.21 (0.66)	7.91	10.51	5.34 (0.43)	4.48	6.19
Women partnered with men	133 (4077)	9.39 (0.29)	8.82	9.96	5.14 (0.19)	4.77	5.50
Men partnered with women	133 (3908)	9.31 (0.30)	8.73	9.89	5.49 (0.19)	5.12	5.86
GSD partnered with men	7 (217)	8.92 (1.25)	6.47	11.37	4.85 (0.81)	3.26	6.44
GSD partnered with women	13 (312)	9.65 (0.98)	7.72	11.58	5.78 (0.63)	4.53	7.02
GSD partnered with GSD	4 (136)	8.72 (2.07)	4.63	12.80	7.91 (1.36)	5.23	10.59
Women partnered with GSD	13 (337)	10.52 (0.95)	8.65	12.40	5.87 (0.62)	4.66	7.09
Men partnered with GSD	7 (186)	11.28 (1.25)	8.83	13.73	7.97 (0.81)	6.39	9.56

*GSD* Gender/sex diverse, *CI* Confidence interval, *LB* Lower bound, *UB* Upper bound, *SE* Standard error

<sup>a</sup>Number of individuals (not couples)

in the exploratory analyses, in a similar fashion to the retrospective study. As in the retrospective data, significant interactions in the exploratory analyses were not followed up with effect sizes and 95% CIs for pairwise comparisons due to low power; in such small subsamples, the confidence interval widths would be much too imprecise for accurate effect size estimation and error rates would be greatly inflated by many possible post-hoc tests. However, we did inspect the visual depiction of these results to describe the overall pattern.

## Results

### Descriptive Statistics

Overall, data were collected for 13,134 (86.5%) of the total possible daily diaries (15,554 possible daily diaries). Only data from days where (1) both partners completed the survey and (2) both partners reported a sexual activity day were included in the current analyses. Almost all couples reported at least one sexual activity day during the 35-day period (95.9%,  $n = 208$ ) and both partners reported engaging in sexual activity with each other on the same day 97.8% of the time (disagreement occurred 2.2% of the time), resulting in a total of 2562 entries for sexual activity days to be included in analyses. The average number of sexual activity days was 6.61 (SD = 4.56) per couple, ranging from 1 to 26. Estimated marginal means, standard errors, and 95% confidence intervals for mutualistic and individualistic talk subscales for each gender/sex and dyad type combination are provided in Table 4.

## Primary Analyses

### Individualistic Sexual Talk

For binary couples, no significant main effects or interactions were observed for the individualistic sexual talk model (Table 5). The mean differences for actor's gender/sex revealed that men scored 0.26 points higher than women on the individualistic talk subscale; however, this was not significant ( $p = .338$ ), and the effect size was trivial ( $d = -0.13$ , 95% CI  $[-0.39, 0.13]$ ;  $\omega_p^2 = -0.0004$ ). The mean differences for partner's gender/sex revealed that people with a woman partner scored 0.09 points higher than those with a man partner on the individualistic sexual talk subscale; however, this was not significant ( $p = .729$ ), and the effect size was trivial ( $d = -0.05$ , 95% CI  $[-0.31, 0.21]$ ;  $\omega_p^2 = -0.004$ ). Additionally, the mean differences for the interaction between actor and partner gender/sex showed that the actor effect for men was larger for those in mixed-gender/sex couples ( $M_{\text{difference}} = 0.32$ ,  $p = .366$ ) than those in same-gender/sex couples ( $M_{\text{difference}} = 0.20$ ,  $p = .663$ ). However, the interaction was not significant ( $M_{\text{DiD}} = -0.12$ ,  $p = .848$ ) and the effect size was trivial ( $d = -0.03$ , 95% CI  $[-0.31, 0.25]$ ;  $\omega_p^2 = -0.005$ ). There were no significant differences in the daily average use of individualistic talk based on actor's gender/sex, partner's gender/sex, or dyad type. For a visual depiction see Fig. 3b.

### Mutualistic Sexual Talk

For binary couples, no significant main effects or interactions were observed for the mutualistic sexual talk model (Table 5). The mean differences for actor's gender/sex revealed that women scored 0.57 points higher than men; however, this



**Table 5** Type III tests of fixed effects from multilevel mixed linear regression models for gender/sex, dyad type, and sexual talk (daily diary)

Variable	Mutualistic sexual talk	Individualistic sexual talk
Primary analyses: binary couples model ( $n=204$ )		
Actor's gender/sex	$F(1, 232.07)=1.74, p=.188$ $B=-0.57, 95\% \text{ CI} [-1.42, 0.28]$ $d=-0.17, 95\% \text{ CI} [-0.43, 0.08]$ $\omega_p^2=0.003$	$F(1, 226.41)=0.92, p=.338$ $B=0.26, 95\% \text{ CI} [-0.27, 0.79]$ $d=-0.13, 95\% \text{ CI} [-0.39, 0.13]$ $\omega_p^2=-0.0004$
Partner's gender/sex	$F(1, 232.07)=1.32, p=.251$ $B=-0.50, 95\% \text{ CI} [-1.34, 0.35]$ $d=-0.15, 95\% \text{ CI} [-0.41, 0.11]$ $\omega_p^2=0.001$	$F(1, 226.41)=0.12, p=.729$ $B=-0.09, 95\% \text{ CI} [-0.63, 0.44]$ $d=-0.05, 95\% \text{ CI} [-0.31, 0.21]$ $\omega_p^2=-0.004$
Dyad type (actor's gender/sex $\times$ partner's gender/sex)	$F(1, 192.45)=0.65, p=.422$ $B=0.78, 95\% \text{ CI} [-1.13, 2.70]$ $d=0.12, 95\% \text{ CI} [-0.17, 0.40]$ $\omega_p^2=-0.002$	$F(1, 192.36)=0.04, p=.848$ $B=-0.12, 95\% \text{ CI} [-1.33, 1.09]$ $d=-0.03, 95\% \text{ CI} [-0.31, 0.25]$ $\omega_p^2=-0.005$
Exploratory analyses: all couples model (GSD couples: $n=25$ ; binary couples: $n=204$ )		
Actor's gender/sex	$F(2, 301.07)=0.62, p=.541$ $\omega_p^2=-0.003$	$F(2, 290.51)=2.79, p=.063$ $\omega_p^2=0.01$
Partner's gender/sex	$F(2, 302.91)=0.82, p=.441$ $\omega_p^2=-0.001$	$F(2, 292.25)=7.10, p=.001$ $\omega_p^2=0.04$
Dyad type (actor's gender/sex $\times$ partner's gender/sex)	$F(4, 208.90)=0.63, p=.640$ $\omega_p^2=-0.01$	$F(4, 209.18)=2.39, p=.052$ $\omega_p^2=0.03$

GSD, Gender/sex diverse;  $B$ , Unstandardized regression coefficient, which represents the mean difference, or in the case of the interaction term, the mean difference of differences;  $d$ , Cohen's  $d$  (effect size);  $\omega_p^2$ , Partial omega squared (effect size). The first model was run with only binary couples (i.e., couples in which both members of the couple identified as either a man or woman). The second model was run with all couples (i.e., included both binary and GSD couples)

was not significant ( $p=.188$ ) and the effect size was trivial ( $d=-0.17, 95\% \text{ CI} [-0.43, 0.08]; \omega_p^2=0.003$ ). The mean differences for partner's gender/sex revealed that people with a woman partner scored 0.50 points higher than those with a man partner on the mutualistic sexual talk subscale; however, this was not significant ( $p=.251$ ), and the effect size was trivial ( $d=-0.15, 95\% \text{ CI} [-0.41, 0.11]; \omega_p^2=0.001$ ). Additionally, the mean differences for the interaction between actor and gender/sex showed that the actor effect for women was larger for those in same-gender/sex couples ( $M_{\text{difference}}=0.96, p=.087$ ) than those in mixed-gender/sex couples ( $M_{\text{difference}}=0.18, p=.807$ ). However, the interaction was not significant ( $M_{\text{DiD}}=0.78, p=.422$ ), and the effect size was small ( $d=0.12, 95\% \text{ CI} [-0.17, 0.40]; \omega_p^2=-0.002$ ). There were no significant differences in the daily average use of mutualistic talk based on actor's gender/sex, partner's gender/sex, or dyad type. For a visual depiction see Fig. 3a.

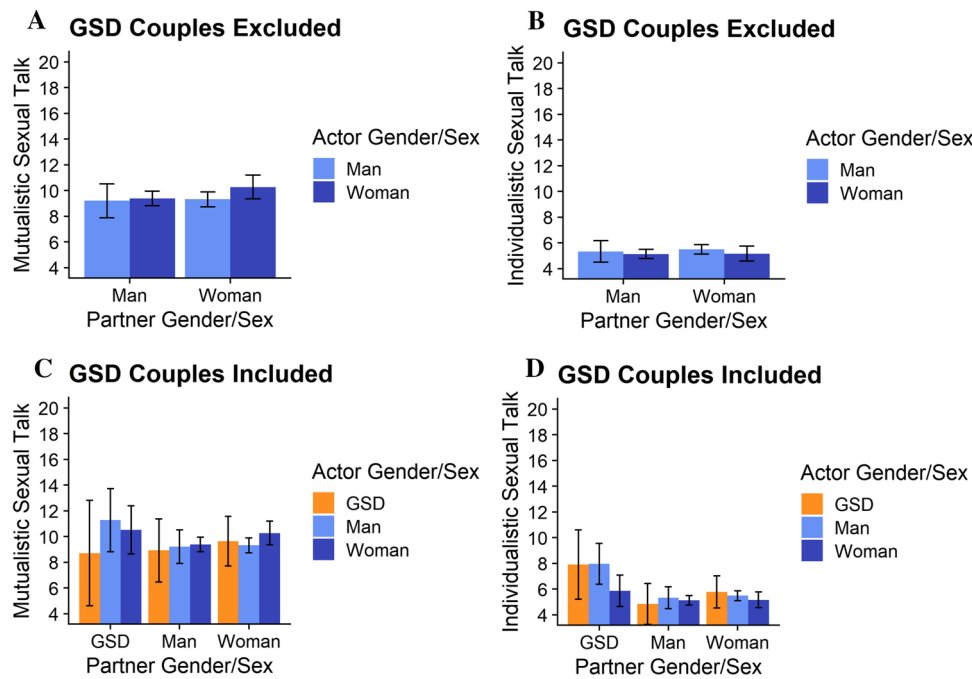
### Exploratory Analyses

For the exploratory multilevel models that also included the GSD couples, no significant actor or partner main effects were observed for mutualistic talk (Table 5; for visual depiction see Fig. 3c). For individualistic talk, there was a significant main effect of partner's gender/sex (Table 5); however, the effect size was small ( $\omega_p^2=0.04$ ). The visual depiction of

the results (Fig. 3d), suggests that people with a GSD partner scored higher on the individualistic sexual talk subscale, compared to those who had a man or woman partner. The main effect for actor's gender/sex and the two-way interaction between actor's gender/sex and partner's gender/sex were nonsignificant with small effect sizes ( $p=.063; \omega_p^2=0.01, p=.052; \omega_p^2=0.03$ , respectively), though the pattern of means suggested some modest trends. While mean differences were not calculated for these effects, the visual depiction of the results (Fig. 3d) suggests that (a) GSD actors report using more individualistic talk when partnered with a GSD individual, compared to when partnered with a woman or man; and (b) when they have a GSD partner, women use less individualistic talk compared to men and GSD individuals.

### Discussion

The present two-part study examined whether there were gender/sex or dyad type differences in the use of sexual talk among a sexual and gender/sex diverse sample of community couples in long-term relationships. We hypothesized that (1) men would use more individualistic talk than women, both in general (retrospectively) and at the daily level, and that (2) there would be no gender/sex differences in the use of



**Fig. 3** Estimated marginal means of sexual talk for different gender/sex and dyad type combinations (daily diary). *Note* Estimated marginal means for sexual talk for women, men, and GSD individuals in same- and mixed-gender/sex couples. Error bars show 95% confidence intervals. GSD = gender/sex diverse. Panel **a** Estimated means for mutualistic sexual talk for only binary couples. Panel **b** Estimated means for individualistic sexual talk for only binary couples. Panel **c** Estimated means for mutualistic sexual talk for full sample. Panel **d**

Estimated means for individualistic sexual talk for full sample. Mean differences were not conducted for analyses with all couples (Panels **c** and **d**) due to the small subsample of GSD couples. Mean differences conducted for the analyses with only binary couples (Panels **a** and **b**) found no statistically significant differences in the use of mutualistic talk (Panel **a**) or individualistic talk (Panel **b**) based on actor's gender/sex, partner's gender/sex, or dyad type

mutualistic talk, either retrospectively or at the daily level. We had no specific hypotheses regarding the effects of partner's gender/sex or dyad type, or regarding differences between GSD individuals and men or women, given that there was no prior sexual talk research to guide these hypotheses.

When considering their average *general* use of sexual talk in their relationship, women used more mutualistic talk compared to men, and this effect was larger for women partnered with women than women partnered with men; this result is contrary to our original hypotheses. Consistent with our hypotheses, we found no evidence of a statistically significant gender/sex difference in the average *daily* use of mutualistic talk. Further, inconsistent with our hypotheses, there was no evidence of statistically significant gender/sex differences in use of individualistic talk at the retrospective or daily level. When couples in which at least one partner identified as GSD were included in the analyses, there was no evidence of statistically significant differences in the average general or daily use of mutualistic sexual talk based on actor's or partner's gender/sex or dyad type. However, there were some gender/sex and dyad type differences in the average general and daily use of individualistic talk. When considering their average general and daily use of sexual talk, people partnered with a

GSD individual tended to use more individualistic talk compared to those partnered with a man (both general and daily) or woman (daily only). Additionally, GSD individuals tended to use more *general* individualistic talk when partnered with a woman or GSD individual, compared to GSD individuals partnered with a man; there was a similar pattern for *daily* individualistic talk, however it was not statistically significant. Further, all effects when GSD couples were included in the analyses were trivial to small in magnitude, regardless of statistical significance.

In contrast to our original hypotheses, we found that women reported using more mutualistic talk than men and that this difference was larger when partnered with a woman compared to when partnered with a man. There is some evidence that individuals in same-gender/sex relationships may adhere more strongly to the TSS (Courtice & Shaughnessy, 2018; Klinkenberg & Rose, 1994), which might help explain why women reported using more mutualistic talk compared to men, but only when they were in a same-gender/sex dyad. Surprisingly, we only found this dyad type difference when mutualistic talk was assessed retrospectively and not when it was assessed daily. While it is possible that the women in same-gender/sex dyads and/or the men in mixed-gender/sex

dyads in this study changed their use of mutualistic talk over time, a more parsimonious explanation may be that the dyad type difference in the retrospective study is an artifact of when or how sexual talk was measured (i.e., it may reflect the influence of gender stereotypes on recall and/or observation biases; Fisher, 2013). Prior studies have found that people who believe strongly in gender stereotypes are more likely to be biased in their recall of autobiographical information, such that it is more consistent with their gender beliefs than their actual history (e.g., Chatard et al., 2007). Thus, according to sexual script theory, women may be more likely to recall sexual talk that focuses on increasing intimacy in the relationship (i.e., mutualistic talk; Masters et al., 2013) than men. Indeed, McCall et al. (2007) found that women were more likely than men to recall love and emotional bonding details of a story, whereas men were more likely to recall the erotic or explicit details of a story. Further, Fisher (2013) found that gender/sex and acceptance of traditional gender roles influenced men's and women's reports of sexual but not non-sexual behaviors. It is therefore possible that women—especially those in same gender/sex dyads—were more likely to recall or report information consistent with their gendered role in traditional sexual scripts, resulting in women reporting greater use of mutualistic sexual talk than men when reporting retrospectively on their relationship in general (retrospectively); this recall and/or observation bias would arguably be less salient when reporting on events having happened within the last 24 h (daily level). The effect sizes for mutualistic talk in both the retrospective data and daily data were trivial. However, the 95% CIs for the effect sizes for the retrospective data indicated that women may use more mutualistic talk than men but that this difference may range from medium favoring women to trivial favoring men and the 95% CI for the effect sizes for the daily data indicated that women may use more mutualistic talk than men but that this difference may range from trivial to small favoring women. Additionally, the retrospective results indicated that women partnered with women used more mutualistic talk than women partnered with men and that this difference may range from trivial to medium (favoring women partnered with women); while the daily findings indicated no dyad type difference, the CI was quite wide, indicating that this lack of a difference was inconclusive. Overall, data slightly favor the notion that women utilize mutualistic talk more than men, regardless of when it is assessed; however, if an effect exists, it is small, and its magnitude is highly uncertain based on these data. In addition, there was no evidence of statistically significant differences in mutualistic talk based on partner's gender/sex for the binary couples and no evidence of statistically significant actor or partner gender/sex differences in mutualistic talk when GSD couples were included in the analyses; this was not unexpected as the lack of dyadic sexual talk and/or GSD-inclusive literature meant we had no specific

hypotheses for partner gender/sex differences for the binary couples and the analyses which included the GSD couples were exploratory in nature.

In contrast to our hypotheses and prior research, we did not find any statistically significant gender/sex differences in the use of individualistic sexual talk for the binary couples, nor did we find any statistically significant dyad type differences. However, the effect sizes and 95% CIs for the effect sizes indicated that men may use more individualistic talk than women but that this difference may range from trivial favoring women to small favoring men (retrospectively) and from small favoring women to small favoring men (daily). Additionally, the retrospective findings indicated that those with men partners may use more individualistic talk than women but that this difference may range anywhere from small favoring women to small favoring men; in contrast, the daily findings indicated that those with women partners may use more individualistic talk than those with men partners but that this difference may range from small favoring those with women partners to small favoring those with men partners. Overall, while there may be a small difference between men and women and between those with a man or woman partner in the use of individualistic talk, it is also possible that no differences exist. When GSD couples were included in the retrospective and daily analyses for individualistic talk, there was a significant main effect of partner's gender/sex and a significant two-way interaction between actor's gender/sex and partner's gender/sex. Specifically, people partnered with a GSD individual used more individualistic talk than people partnered with a woman (daily only) or a man (retrospective and daily). Additionally, GSD individuals used more individualistic talk when partnered with a woman or GSD individual than GSD individuals partnered with a man (retrospective only). However, we strongly caution the interpretation of the results involving GSD participants because the small subsample size means that the observed differences may not be generalizable beyond the present sample and the effect sizes ranged from trivial to small.

Given that we found the same results for individualistic sexual talk both retrospectively and at the daily level for binary couples, it appears that regardless of when and how we assessed the use of individualistic talk, there are no statistically significant gender/sex or dyad type differences for men and women in long-term relationships. While previous research found that men used more individualistic talk than women, participants in that sample were, on average, older and had longer relationship duration compared to those in the present sample (Merwin & Rosen, 2019, 2020). Perhaps couples in the present study were less likely to adhere to the TSS due to generational differences in gender/sex beliefs. Indeed, prior research has found that beliefs about gender/sex roles and conformity to societal norms differ across generations, with younger cohorts being more likely to

challenge traditional gender/sex roles (Lyons et al., 2005; Passuth Lynott & McCandless, 2000; Shen Johfre & Saperstein, 2019). Thus, it is possible that there is a cohort effect, such that women and men from older generations are more likely to conform to the TSS, whereas those from younger generations—such as those in the present study—may rely less heavily on the TSS, resulting in similar frequency of both mutualistic and individualistic sexual talk. However, it should be noted that when relationship duration and age were controlled for in the present study all results remained the same, suggesting that there may be an alternative explanation for these discrepant results. Further, based on the effect sizes and 95% CIs of the effect sizes, the retrospective and daily findings are inconclusive about whether any gender/sex or dyad type differences exist and whether there is a *lack* of differences is equally inconclusive. However, if they exist, it is unlikely that the effects are large in magnitude, since the upper bounds of the CIs were generally no larger than  $d=0.50$ .

Finally, while some of our findings were contrary to hypotheses, they do not necessarily contradict sexual script theory. Even though gender/sex and dyad type were largely not associated with the *amount* of sexual talk used, it is still possible that the associations between sexual talk and sexual well-being may be different depending on a person's gender/sex, their partner's gender/sex, or the dyad type. Indeed, several studies, including a meta-analysis by Mallory et al. (2019), have found that the importance of general sexual communication for a person's sexual and relational well-being differs based on gender/sex. Future research should examine whether the types of sexual talk used are associated with sexual well-being for couples in long-term relationships, as well as whether these associations might differ according to gender/sex or dyad type. Additionally, some of our findings when GSD couples were included in the analyses suggest that there may be some differences between GSD individuals/people partnered with GSD individuals and people in binary relationships. However, it is important to interpret this with caution due to the exploratory and underpowered nature of these analyses. Future research should seek to replicate the results with an adequate sample of GSD individuals and couples.

## Strengths and Limitations

This study was the first to our knowledge to examine the use of sexual talk from a dyadic perspective, using daily diary methodology, and with a large sample of community couples in long-term relationships. Further, this study was the first to examine whether a person's use of mutualistic or individualistic talk depended on their own gender/sex, their partner's gender/sex, or the dyad type (i.e., same- or mixed-gender/sex couple). The use of a daily diary methodology reduced

recall biases and increased the ecological validity of our findings, while using both daily diary and retrospective methods provided conclusions that are likely to be more reliable (Williamson et al., 2002). Utilizing a dyadic design allowed us to examine both actor and partner effects of gender/sex, while accounting for the interdependence of the data. Additionally, we also included a subsample of same-gender/sex couples and GSD individuals who are frequently understudied and excluded from research. The analyses with the GSD couples were exploratory due to the small subsample; however, while concerns over low power often lead researchers to exclude GSD participants from analyses, as Fraser (2018) and Fraser et al. (2020) emphasize, this practice hinders the advancement of scientific knowledge and there is value to including these participants, even if only for exploratory analyses. Further, we utilized participant responses from the 6-month timepoint of the larger longitudinal study to avoid excluding the 64 participants who were not given the demographic question about gender identity in the retrospective study. While this is an imperfect methodology given that gender identity can change over time (Bauer et al., 2017; Kuper et al., 2012, 2018; Richards et al., 2016; van Anders, 2015), we felt this was a better option than excluding these participants (Streiner, 2002).

The demographics of our sample may limit the generalizability of the findings. Our sample was largely young, well educated, childless, unmarried, French- and/or English-speaking, living in North America, required access to technology, and we had relatively low cultural diversity. Further, while we over-sampled GSD individuals (6.1% vs. 0.15–1.14% based on population-based estimates in Canada and the US; Barr et al., 2016; Flores et al., 2016; James et al., 2016; Mikalson et al., 2013), the small subsample meant that the analyses were exploratory due to power concerns. Given the small sample size for the GSD analyses, we caution the interpretation of these results; any significant findings with the GSD couples only indicates that a difference may exist but provide no information regarding how large or meaningful these differences may be, as more accurate CIs would have required a larger subsample of GSD couples. The GSD findings may not be generalizable beyond the present sample and further research with more adequate sample sizes needs to be conducted. However, we hope that the data and/or descriptive statistics reported can be included in future meta-analyses to aid in the development of a more coherent picture of sexual talk among people of all genders/sexes. Further, given that an exclusion criterion for this study was the presence of a self-reported major medical and/or psychiatric illness that significantly interfered with sexual activity or functioning, the results of this study may not generalize to those with sexual dysfunctions associated with serious illness. Another limitation of the present study is that—at least for men and women in same- and mixed-gender/sex couples—individualistic



sexual talk was infrequently reported at the daily level. Future research examining associations between daily sexual talk and sexual outcomes might consider utilizing zero-inflated regression models in their analyses for individualistic talk. Additionally, as the present study was focused on examining gender/sex and dyad type differences in the use of sexual talk, we did not address some potentially important covariates or moderators that future research should consider examining. For example, belief in gender stereotypes or in the TSS may affect the type of sexual talk that people choose to use in their relationships. Another important area for future research is to examine motivations and reasons for engaging in sexual talk, as this has not yet, to our knowledge, been studied. Finally, it is important to note that this study was correlational, thus, directionality and causality cannot be determined.

## Conclusions

Overall, findings of the present study suggest that for men, women, and GSD individuals in long-term relationships, the use of sexual talk may be fairly similar regardless of a person's gender/sex, their partner's gender/sex, or dyad type. This study provided evidence that both same-gender/sex and mixed-gender/sex couples, as well as binary couples and GSD couples, may be more similar than different when it comes to their use of sexual talk. However, some of the effect sizes and confidence intervals—especially with respect to individualistic talk—indicated that some of these null findings were not necessarily conclusive, emphasizing the importance of continued research about gender/sex and dyad type differences in sexual talk use.

**Supplementary Information** The online version contains supplementary material available at <https://doi.org/10.1007/s10508-022-02363-y>.

**Acknowledgements** The authors would like to thank Mylène Desrosiers, Myriam Bosisio, Gillian Boudreau, as well as the couples who participated in this research project.

**Author Contributions** KEM, SB, J-FJ, and NOR author contributed to the study conception and design. Material preparation and data collection were performed by KEM and J-FJ. Data analyses were conducted by KEM and SPM. The first draft of the manuscript was written by KEM and all authors commented on previous versions of the manuscript. All authors read and approved the final manuscript.

**Funding** This research was supported by a Joseph-Armand Bombardier—Canada Graduate Scholarship from the Social Sciences and Humanities Research Council (SSHRC) (Grant No. 767-2017-1826) awarded to the first author, a fellowship from the Fonds de Recherche du Québec—Société et Culture (FRQSC) awarded to the third author, and by an operating Grant from the SSHRC awarded to the second and last authors (Grant No. 435-2016-0668).

**Data Availability** De-identified data are available on the OSF page for this Project ([https://osf.io/dcnvw/?view\\_only=447b0753ddbc480](https://osf.io/dcnvw/?view_only=447b0753ddbc480)

9903f73840ecc0f88). This file is password protected and to be used for research purposes only. Please contact the corresponding author for access.

**Code Availability** Syntax files for all analyses are available on the OSF page for this Project ([https://osf.io/dcnvw/?view\\_only=447b0753ddbc4809903f73840ecc0f88](https://osf.io/dcnvw/?view_only=447b0753ddbc4809903f73840ecc0f88)).

## Declarations

**Conflict of interest** The authors have no conflicts of interest or competing interests to declare that are relevant to the content of this article.

**Ethics Approval** The materials and methodology for this study were approved by the Human Research Ethics committees of Dalhousie University (Ethics approval number: 2017-4291) and Université de Montréal (Ethics approval number: CERAS-2016-17-232-D).

**Consent to Participate** Informed consent was obtained from all individual participants in the study.

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