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## Female Sexual Satisfaction and Sexual Identity

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### ABSTRACT

This study addressed three goals related to better understanding the factors that contribute to female sexual satisfaction: (a) exploring differences in factors that contribute to perceptions of sexual satisfaction among women with varying sexual identities, (b) evaluating an existing measure of sexual satisfaction among women with diverse sexual identities, and (c) developing potential items for a future expanded measure of the factors contributing to sexual satisfaction. Participants were 996 heterosexual women, 333 bisexual women, and 204 lesbians. They completed an online survey that included a demographic questionnaire, an item measuring sexual satisfaction, an open-ended question about factors contributing to sexual satisfaction, the newly-developed Potential Sexual Satisfaction Factors, and the New Sexual Satisfaction Scale (NSSS). A multinomial regression, an internal consistency analysis, and qualitative analyses were performed to examine the three research questions. Several important differences in factors related to sexual satisfaction were found as a function of sexual identity. In particular, several of the factors that contributed to bisexual women's sexual satisfaction were different than those that contributed to heterosexual and lesbian women's satisfaction. These findings point to the importance of considering sexual identity when researching sexual satisfaction and when providing interventions to improve sexual satisfaction.

Greater sexual satisfaction is associated with better physical and emotional well-being and more stable relationships. For example, sexual well-being is positively related to both physical and mental health (Rosen & Bachmann, 2008). Participants in an econometric study of subjective happiness rated sex as generating the most happiness of all activities studied (Kahneman et al., 2004). Sexual satisfaction also has been shown to be a vital component of stable relationships (Sprecher & Cate, 2004). In long-term relationships, sexual satisfaction is positively related to orgasm likelihood and intimacy, and negatively related to conflict within the relationship (Haning et al., 2007). In addition, people who report feeling less sexually satisfied are more likely to experience unsatisfying and unstable relationships than those who report higher sexual satisfaction (Yeh et al., 2006). In summary, sexual satisfaction makes lifelong, valuable contributions to the well-being of individuals within a relationship and to the relationship itself. However, these contributions and the nature of sexual satisfaction can vary across genders.

Several studies have highlighted gender differences in the factors that contribute to sexual satisfaction. For example, in one study, men who experienced more frequent sex and who had fewer lifetime partners were more likely to report being sexually satisfied, whereas no such trend has been found in women (Heiman et al., 2011). In another study, the use of sexually explicit media and placing a high importance on sex were directly related to physical sexual satisfaction for men,

whereas for women, this connection was indirect—the relation between use of sexual materials was mediated by the variety of sexual techniques used in their sexual relationships (Haavio-Mannilla & Kontula, 1997). Given the observed differences between men and women's sexual satisfaction and the associated factors, it is important to study each gender's sexual satisfaction separately. The current study focused on female sexual satisfaction.

For women, sexual satisfaction is consistently associated with relationship satisfaction, overall happiness, and overall quality of life (Rosen & Bachmann, 2008). Women who rate their sexual relationships as active and satisfying also report higher ratings of emotional and relationship satisfaction. These beneficial relations for women between sexual satisfaction and general well-being, happiness, and overall life satisfaction are lifelong; they do not diminish as a woman ages (Woloski-Wruble et al., 2010).

Despite the demonstrated importance of female sexual satisfaction, the construct of sexual satisfaction has not been consistently defined or measured (Rosen & Bachmann, 2008). Of the 17 existing measures of sexual satisfaction, 14 ask participants about their "sexual satisfaction" without providing any definition of that term. Sexual satisfaction is often conflated with the presence of orgasm or sexual function, which is particularly problematic given the number of sexually satisfied women who are anorgasmic, as well as those who report no sexual dysfunction but are not highly sexually

satisfied (Byers & MacNeil, 2006; Hudson et al., 1981; Meston & Trapnell, 2005; Philippsohn & Hartmann, 2009; Rust, 1985; Sprecher & Cate, 2004). Given the personal and subjective nature of sexual satisfaction, it seems important to define the construct using input from the target population. Only one measure, the Monash Women's Health Program Female Sexual Satisfaction Questionnaire (Davison et al., 2008) was developed using any input from focus groups of women; the rest were based solely on clinical experiences, literature, or theory.

In addition to problems with construct definitions, the study of sexual satisfaction is fraught with issues related to measurement. Some researchers based their measure of female sexual satisfaction on measures designed for men (Davison et al., 2008), under the assumption that the same factor structure would be found for both genders. This is problematic given the gender differences that have been found in sexual satisfaction and its correlates (Leigh, 1989; Offman & Matheson, 2005; Taylor et al., 1994). Some measures simply asked participants to rate their satisfaction or answer if they were satisfied or not, which is only useful if all women are defining sexual satisfaction in similar ways (Davison et al., 2008; Derogatis & Melisaratos, 1979; Dundon & Rellini, 2010). Unfortunately, some measures, including the Monash questionnaire, used very few questions to assess sexual satisfaction and offered no results of a factor analysis to demonstrate that the components of the scale were consistent with and representative of the intended underlying construct, which limits the conclusions that can be drawn about the validity of the measure (Davison et al., 2008). Some measures differentiated between the physical and emotional aspects of sex (Haavio-Mannila & Kontula, 1997), whereas others concentrated exclusively on the emotional context (Henderson-King & Veroff, 1994) or the physical acts associated with satisfaction (Philippsohn & Hartmann, 2009). Other studies were vague about the measures used, making it even more difficult to determine whether the measures were valid and reliable (Brody & Costa, 2009; Nowosielski et al., 2010).

In addition to precisely defining and operationalizing sexual satisfaction, it is important to measure the construct using an instrument that is appropriate for the participants assessed. However, most of the existing measures were designed for heterosexual women, which is problematic because some research suggests women in same-gender relationships may even conceptualize "sex" differently than heterosexual women (Horowitz & Spicer, 2013; Sewell et al., 2017). There is even less research with bisexual women than lesbians, and it is unclear whether the research on heterosexual persons applies to lesbian and bisexual women. Only three of the existing measures were developed, used, or later validated for use with lesbian women. The Brief Index of Sexual Functioning for Women (BISF-W) was developed using items from an assessment of male sexual functioning (Taylor et al., 1994). Although the BISF-W was conceptualized as a measure of sexual functioning, it does include a satisfaction subscale. It was initially evaluated using a sample in which 3.3% of participants identified as "entirely homosexual" based on their past experiences, but the authors noted that further studies with gay and lesbian participants are required to establish the

reliability and validity of the BISF-W with those groups. They also suggested that the modest internal consistency and reliability of the instrument could be due to its basis on the original male measure of sexual functioning. The Index of Sexual Satisfaction (ISS; Holmberg & Blair, 2009) has been used with gay and lesbian participants, but no data were offered regarding the validity and reliability of the measure with these groups specifically.

Stulhofer et al. (2010) sought to develop a universally applicable measure with their New Sexual Satisfaction Scale (NSSS). To that end, they evaluated the NSSS using seven samples of Croatian or American men and women, including a sample composed of 360 non-heterosexual Croatians. Although the authors' factor analysis failed to support the five-factor model on which the assessment was based, results suggested a two-dimensional structure focusing on self and partner domains, each containing items from all five factors. The assessment exhibited moderately high convergent validity with a single-item measure of sexual satisfaction ( $r = .44-.67$ ). A discriminant analysis revealed that 80.3% of overall cases were correctly classified into groups based on the presence or absence of sexual difficulties. Stulhofer et al. called for further clinical validation of the NSSS.

The limited research on sexual satisfaction among lesbian and bisexual women, and the lack of attention to measurement of sexual satisfaction among these groups, represent an important gap in research. Notably, at least two comparative studies (Kuyper & Vanwesenbeeck, 2011; Matthews et al., 2003) have revealed no differences in overall sexual satisfaction between heterosexual women and lesbians. Byers and Cohen (2017) validated the Interpersonal Exchange Model of Sexual Satisfaction with a sample of lesbian, bisexual, and queer women, revealing that the women in their study appraised their sexual satisfaction by assessing the relative sexual rewards and costs in their relationship in the same way heterosexual women do.

Despite many similarities, some previous research also revealed some areas of variance among women of differing sexual identities. For example, if overall scores on measures of sexual satisfaction are similar among women of differing sexual identities, the factors that contribute to the perception of sexual satisfaction may differ as a function of sexual identity. An ecological model of sexual satisfaction among lesbian/bisexual and heterosexual women revealed a similar set of correlates for both groups (social support, relationship satisfaction, sexual function, and depression), whereas internalized homophobia was a significant and inversely related factor for lesbian/bisexual women only (Henderson et al., 2009).

Across studies, stronger associations with sexual satisfaction were found for frequency of genital touching, frequency of orgasm, sexual frequency, strength of desire for sex, emotional intimacy, and sexual intimacy (feelings of closeness and comfort during and after sex) with women in same-gender relationships than women in mixed-gender couples (Birnie-Porter & Lydon, 2013; Cohen & Byers, 2014; Scott et al., 2018; Tracy & Junginger, 2007). Blair and Pukall (2014) found that, compared to women in heterosexual relationships, women in same-gender relationships gain more sexual satisfaction from the quality or intensity of sex rather than the frequency of sex.

In conclusion, while similarities have been found in degree of sexual satisfaction among women of differing sexual identities, in some cases the factors that contribute to perceptions of sexual satisfaction seem to differ.

The purposes of this study were to (a) explore differences in factors that contribute to sexual satisfaction among women with varying sexual identities, (b) evaluate an existing measure of sexual satisfaction (NSSS) among women of diverse sexual identities, and (c) develop potential items for a future measure of factors associated with sexual satisfaction based on both literature and direct input from women. To address these purposes, we identified the following research questions:

- (1) Are there any differences among women of different sexual identities with regard to the factors that contribute to sexual satisfaction?
- (2) Is the New Sexual Satisfaction Scale applicable across bisexual, heterosexual, and lesbian women?
- (3) What novel factors do women identify as being related to their sexual satisfaction that are not yet accounted for in literature?

## Method

### Participants and Procedure

A sample of female participants was recruited to complete a battery of online measures. With Henderson et al. (2009) as a guide, a power analysis using the G\*Power program (Faul et al., 2007) indicated each group of bisexual, heterosexual, and lesbian women should contain at least 202 participants in order to detect possible differences, assuming a medium effect size among the groups based on sexual identity. Our sample included 996 heterosexual women, 333 bisexual women, and 204 lesbian women, meeting the expectations from the power analysis.

Participants had to be at least 18 years of age and currently in a sexual relationship to be eligible for this study. They were recruited via posts on the Kinsey Confidential website, Facebook social network, lesbian and bisexual women websites and forums, and the American Psychological Association listservs of Division 35 (Society for the Psychology of Women) and Division 44 (Society for the Psychological Study of Lesbian, Gay, Bisexual, and Transgender Issues). Additionally, in order to recruit a more balanced sample, special effort was exerted to recruit conservative and religious women. We specifically chose to target conservative and religious women for recruitment because they were likely to be missed from our other recruitment strategies and because they are likely to have been excluded from other studies of sexual satisfaction that have typically relied on convenience samples of college students and/or volunteer samples interested in participating in research on a topic related to sexuality. This targeted recruitment was attempted via posts to women's religious groups' online forums. Unfortunately, we have no way to determine whether these specific recruitment efforts were effective, but we are hopeful that the

diverse recruitment resulted in a more diverse sample. The recruitment post or e-mail detailed the nature, objective, and procedure for the study and potential participants were invited to click a link that took them to a SurveyMonkey survey. The first page at the site displayed the informed consent statement, and the participants needed to indicate consent in order to proceed. The survey took about 15–20 minutes to complete, and upon completion, participants were offered an opportunity to enter to win one of four 25 USD Amazon gift cards.

Out of 2,710 women who volunteered to participate in this study, 1,598 completed the entire battery (58.97%). Only participants who completed the entire battery were included in the final analyses. Of the participants who quit after beginning the survey, 440 quit when they encountered the question about transgender status (although, notably, that question came at the start of a new page of the survey), 180 quit when asked to rate 25 items on a 5-point Likert scale regarding how important each factor is to their sexual satisfaction, 125 quit when asked to rate their sexual satisfaction on a Likert scale, and 112 quit while completing the final measure: a 20-item measure of sexual satisfaction. Chi-square tests for independence revealed no significant associations between survey completion and participant ethnicity  $\chi^2(5, n = 2176) = 9.06, p = .11, \phi = .065$ ; sexual identity  $\chi^2(4, n = 2176) = .212, p = .71, \phi = .11$ ; high school completion status with Yates Continuity Correction  $\chi^2(1, n = 2176) = .80, p = .66, \phi = -.01$ ; college attendance with Yates Continuity Correction  $\chi^2(1, n = 2176) = .00, p = .997, \phi = .001$ ; or sexual problems  $\chi^2(4, n = 2172) = .497, p = .29, \phi = .05$ .

In order to combat the volunteer bias encountered in sexuality research using convenience samples of college students (Wiederman, 1999), attention was paid to recruit a balanced sample of non-college students. These efforts were successful, as 97.9% of the participants reported they had completed high school and 96.5% reported they had attended college, technical school, or university, and only 29.8% indicated they were still attending college. Complete demographic details of the sample are presented in Table 1.

### Measures

Participants completed a battery of demographic questions including biological sex at birth, gender identity, age, race/ethnicity, education, work status, total household income, sexual identity and experience, and information about current romantic/sexual relationship (Janssen et al., 2009; Rehman et al., 2011). They also completed a Likert scale of sexual satisfaction (developed for this study), a qualitative measure of sexual satisfaction (developed for this study), the Potential Sexual Satisfaction Factors (developed for this study), and the New Sexual Satisfaction Scale (Stulhofer et al., 2010).

### Likert Scale of Sexual Satisfaction

In order to measure participants' subjective assessment of their sexual satisfaction, each participant was asked to answer the question, "How sexually satisfied are you?" on a 7-point Likert scale with 1 = Not at all satisfied to 7 = Very satisfied.

**Table 1.** Demographics of participants.

	Bisexual (n = 333)	Heterosexual (n = 996)	Lesbian (n = 204)	Total Sample (n = 1533)
Ethnicity	2 (0.6%)	5 (0.5%)	2 (1.0%)	9(0.6%)
American Indian/Alaska Native				
Asian American	3 (0.9%)	14 (1.4%)	1 (0.5%)	18 (1.2%)
Black or African-American	5 (1.5%)	16 (1.6%)	17 (8.3%)	38 (2.5%)
Latina American	14 (4.2%)	47 (4.7%)	13 (6.4%)	74 (4.8%)
Multiracial	8 (2.4%)	19 (1.9%)	4 (2.0%)	31 (2%)
Native Hawaiian/Pacific Islander	1 (0.3%)	3 (0.3%)	1 (0.5%)	5 (0.3%)
White (not Hispanic)	300 (90.1%)	892 (89.6%)	166 (81.4%)	1358 (88.6%)
Average age	31.23 (SD = 7.98)	32.51 (SD = 8.35)	34.51 (SD = 9.88)	32.50 (SD = 8.54)
Completed high school	321 (96.4%)	983 (98.7%)	199 (97.5%)	1503 (98%)
Attended college	317 (95.2%)	971 (97.5%)	195 (95.6%)	1483 (96.7%)
Still attending college	144 (34.2%)	269 (27%)	72 (35.3%)	455 (29.7%)
Employment status	172 (51.7%)	514 (51.6%)	119 (58.3%)	805 (52.5%)
Full time				
Part time	88 (26.4%)	235 (23.6%)	43 (21.1%)	366 (23.9%)
Temporary/Seasonal	5 (1.5%)	20 (2.0%)	5 (2.5%)	30 (2%)
Unemployed	68 (20.4%)	227 (22.8%)	37 (18.1%)	332 (21.7%)
Most sexually attracted to	1 (0.3%)	1 (0.1%)	115 (56.4%)	117 (7.6%)
Only women				
Mainly women but sometimes men	45 (13.5%)	2 (0.2%)	76 (37.3%)	123 (8%)
Could be equally men or women	138 (41.4%)	6 (0.6%)	12 (5.9%)	156 (10.2%)
Mainly men but sometimes women	149 (44.7%)	457 (45.9%)	1(0.5%)	607 (39.6%)
Only men	0 (0%)	530 (53.2%)	0 (0%)	530 (34.6%)
Relationship status	202 (60.7%)	885 (88.9%)	173 (84.8%)	1260 (82.2%)
Monogamous				
Nonmonogamous	77 (23.1%)	85 (8.5%)	23 (11.3%)	185 (12.1%)
Open	54 (16.2%)	26 (2.6%)	8 (3.9%)	88 (5.7%)
Frequency of sexual activity (past 12 months)	14 (4.2%)	34 (3.4%)	11 (5.4%)	59 (3.8%)
Not once				
Once a month or less	49 (14.7%)	152 (15.3%)	46 (22.5%)	247 (16.1%)
Several times a month	80 (24%)	256 (25.7%)	52 (25.5%)	388 (25.3%)
Once or twice a week	95 (28.5%)	289 (29%)	50 (24.5%)	434 (28.3%)
Several times a week	82 (24.6%)	239 (24%)	42 (20.6%)	363 (23.7%)
At least once a day	13 (3.9%)	26 (2.6%)	3 (1.5%)	42 (2.7%)
Orgasm with partner (past 12 months)	16 (4.8%)	52 (5.2%)	6 (2.9%)	74 (4.8%)
Never				
Occasionally	33 (9.9%)	130 (13.1%)	21 (10.3%)	184 (12%)
Less than half the time	32 (9.6%)	125 (12.6%)	11 (5.4%)	168 (11%)
Most of the time	248 (74.5%)	681 (68.4%)	162 (79.4%)	1091 (71.2%)
Not applicable	2 (0.6%)	3 (0.3%)	4 (2%)	9 (0.6%)
Arousal difficulties (past 12 months)	101 (30.3%)	302 (30.3%)	93 (45.6%)	496 (32.4%)
Never				
Occasionally	178 (53.5%)	536 (53.8%)	94 (46.1%)	808 (52.7%)
Less than half the time	24 (7.2%)	65 (6.5%)	9 (4.4%)	98 (6.4%)
Most of the time	30 (9%)	93 (9.3%)	8 (3.9%)	131 (8.5%)
Sexual problems	158 (47%)	475 (47.7%)	117 (57.4%)	750 (48.9%)
Not at all				
A little	120 (36%)	369 (37%)	61 (29.9%)	550 (35.9%)
Moderately	35 (10.5%)	100 (10%)	19 (9.3%)	154 (10%)
Strongly	14 (4.2%)	33 (3.3%)	6 (2.9%)	53 (3.5%)
Very strongly	6 (1.8%)	18 (1.8%)	1 (0.5%)	26 (1.6%)

The participants were instructed that sexual satisfaction means “how well your needs are being met, how well you and your partner’s expectations are being fulfilled, and how you feel about your sexual relationship overall” (Offman & Matheson, 2005).

### Qualitative Measure of Sexual Satisfaction

After submitting her response to the 7-point Likert scale of sexual satisfaction, each participant was asked to answer, via text-entry box, “When you answered the previous question, how did you decide your level of sexual satisfaction? That is, what did you think about to guide your decision?” Given that not every woman may define sexual satisfaction the same way,

it was hoped that the answers to this question would produce data unfettered by theory regarding the relationship qualities, partner qualities, sexual or relationship components, or other variables that contribute to sexual satisfaction.

### Potential Sexual Satisfaction Factors

The Potential Sexual Satisfaction Factors (PSSF) was a new measure developed for this study to address concerns related to existing sexual satisfaction assessments. Four items were written for this study; the other 18 items were derived from existing literature as related to sexual satisfaction (Haavio-Mannila & Kontula, 1997; Heiman et al., 2011; Henderson-King & Veroff, 1994; La France, 2010; Lawrance & Byers,

1995; Young et al., 1998). The purpose of developing this measure was to reveal possible differences in subjective assessment of the important factors contributing to sexual satisfaction among women. Participants were asked to rate 25 items on a 5-point Likert scale regarding how important each factor was to her sexual satisfaction (1 = *not at all important*, 5 = *very important*). Reliability analysis performed on the PSSF based on the current sample revealed a Cronbach's alpha of .80.

### New Sexual Satisfaction Scale

The New Sexual Satisfaction Scale (NSSS) is a 20-item measure based on sexual health counseling and therapy literature (Stulhofer et al., 2010). Participants responded to questions using a 5-point Likert scale (1 = *not at all satisfied* to 5 = *extremely satisfied*) to describe their satisfaction with their sex life over the previous 6 months. Mean scores across all items are used, with higher scores indicating higher levels of sexual satisfaction. Mean total scores for participants with self-reported or clinically diagnosed sexual difficulties were reported to range from 59.84 ( $\sigma = 12.95$ ) to 76.18 ( $\sigma = 14.52$ ), while the mean total score for participants with no reported sexual difficulties was 84.01 ( $\sigma = 12.30$ ). The NSSS was reported to have moderately high convergent validity with a global single-item measure ( $r = .44$  to  $.67$ ), discriminant validity (80.3% of cases classified correctly as sexually dysfunctional or functional), high internal consistency ( $\alpha = .90$  to  $.96$ ), and satisfactory test-retest reliability ( $r = .72$  to  $.84$ ), based on a sample that included sexual minority men and women (Stulhofer et al., 2010). Reliability analysis performed on the NSSS based on the current sample revealed a Cronbach's Alpha of .95.

## Results

To address the first research question evaluating whether the factors that contribute to experiences and conceptualizations of sexual satisfaction differ as a function of sexual identity, a multinomial regression was used to determine which of the 25 PSSF items could predict participants' sexual identity. In the initial model, 14 items were identified as non-significant, and were thus removed from each iteration of the model, beginning with the least significant factor, until the model

consisted of the 11 remaining significant items (see Table 2). This model explained 18.2% of the variance (Nagelkerke pseudo R-square). The final significant items were the importance placed on sexual activity, use of sex materials, frequency of physical intimacy/sexual activity NOT including intercourse, how often I have an orgasm, my perception of my relationship's strength and longevity, my feeling that my sexual activity is morally correct and/or fits my religious beliefs, my feelings of acceptance and comfort with my sexual identity, my masturbatory activities/solo sex, my experiences with partners in addition to my primary partner, how often my partner and I communicate about sex, and how often my partner and I communicate about topics other than sex.

Odds ratios representing the significant change in odds of a participant being bisexual, heterosexual, or lesbian given an increase in the value of a predictor variable (Table 3) revealed how the factors differed across women of different sexual identities by comparing two groups' members' estimation of each factor's importance to their sexual satisfaction. Positive odds ratios suggest a greater likelihood of being categorized in the group being contrasted with the reference group. Conversely, negative odds ratios suggest a higher likelihood of being in the reference group rather than the group being contrasted with the reference group. Based on this analysis, heterosexual women were more likely to endorse the importance placed on sexual activity (Bisexual reference group OR = 1.17, 95% CI [1.02, 1.35]; lesbian reference group OR = 0.82, 95% CI [0.70, 0.97]) and how often they have an orgasm (Bisexual reference group OR = 1.20, 95% CI [1.05, 1.37]; lesbian reference group OR = 0.80, 95% CI [0.68, 0.93]) as more relevant to their sexual satisfaction than bisexual and lesbian women. The heterosexual and lesbian groups endorsed their perception of the relationship's strength or longevity (Heterosexual reference group OR = 1.34, 95% CI [1.18, 1.52]; lesbian reference group OR = 1.31, 95% CI [1.10, 1.56]) and their feeling that their sexual activity is morally correct and/or fits their religious beliefs (Heterosexual reference group OR = 1.28, 95% CI [1.14, 1.43]; lesbian reference group OR = 1.16, 95% CI [1.00, 1.35]) as more important to their sexual satisfaction than bisexual women. When compared to the lesbian group, the heterosexual and bisexual groups endorsed the frequency they communicate with their partners about topics other than sex to be more important to

**Table 2.** Likelihood ratio tests of importance of factors related to sexual satisfaction (PSSF).

Effect	Model Fitting Criteria		Likelihood Ratio Tests		
	-2 Log Likelihood of Reduced Model		Chi-Square	Df	Sig.
Intercept	2475.264		34.274	2	.000
The importance placed on sexual activity	2449.153		8.164	2	.017
Use of sex materials	2482.243		41.254	2	.000
Frequency of physical intimacy/sexual activity NOT including intercourse	2455.988		14.999	2	.001
How often I have an orgasm	2453.279		12.289	2	.002
My perception of my relationship's strength and longevity	2461.714		20.725	2	.000
My feeling that my sexual activity is morally correct and/or fits my religious beliefs	2461.225		20.235	2	.000
My feelings of acceptance and comfort with my sexual identity	2459.168		18.179	2	.000
My masturbatory activities/solo sex	2463.686		22.696	2	.000
My experiences with partners in addition to my primary partner	2471.559		30.569	2	.000
How often my partner and I communicate about sex	2447.045		6.055	2	.048
How often my partner and I communicate about topics other than sex	2448.476		7.486	2	.024

The chi-square statistic is the difference in -2 log-likelihoods between the final model and a reduced model. The reduced model is formed by omitting an effect from the final model. The null hypothesis is that all parameters of that effect are 0.

**Table 3.** Odds ratios for significant model PSSF factors.

PSSF Factor		B	OR	95% CI	
Heterosexual/Straight (reference: Bisexual)	The importance placed on sexual activity	0.16	1.17	[1.02, 1.35]	
	The use of sex materials	-0.22	0.81	[0.71, 0.91]	
	How often I have an orgasm	0.18	1.20	[1.05, 1.37]	
	My perception of my relationship's strength and longevity	0.29	1.34	[1.18, 1.52]	
	My feelings that my sexual activity is morally correct and/or fits with my religious beliefs	0.25	1.28	[1.14, 1.43]	
	My feelings of acceptance of and comfort with my sexual identity	-0.25	0.78	[0.68, 0.89]	
	My masturbatory activities/solo sex	-0.26	0.77	[0.70, 0.87]	
	My experiences with partners in addition to my primary partner	-0.30	0.74	[0.67, 0.88]	
	How often my partner and I communicate about topics other than sex	-0.06	0.95	[0.82, 1.10]	
Homosexual/Gay/Lesbian (reference: Bisexual)	The use of sex materials	0.22	1.25	[1.06, 1.47]	
	Frequency of physical intimacy/sexual activity NOT including intercourse	0.24	1.27	[1.06, 1.57]	
	My perception of my relationship's strength and longevity	0.27	1.31	[1.10, 1.56]	
	My feelings that my sexual activity is morally correct and/or fits with my religious beliefs	0.15	1.16	[1.00, 1.35]	
	My feelings of acceptance of and comfort with my sexual identity	-0.34	0.71	[0.60, 0.85]	
	My masturbatory activities/solo sex	-0.29	0.75	[0.64, 0.87]	
	How often my partner and I communicate about topics other than sex	-0.26	0.77	[0.64, 0.94]	
	Homosexual/Gay/Lesbian (reference: heterosexual)	The importance placed on sexual activity	-0.19	0.82	[0.70, 0.97]
		The use of sex materials	0.44	1.55	[1.35, 1.78]
Frequency of physical intimacy/sexual activity NOT including intercourse		0.35	1.41	[1.18, 1.69]	
How often I have an orgasm		-0.23	0.80	[0.68, 0.93]	
My experiences with partners in addition to my primary partner		0.18	1.19	[1.04, 1.36]	
How often my partner and I communicate about topics other than sex		-0.20	1.19	[0.70, 0.96]	

their sexual satisfaction (Heterosexual reference group OR = 1.19, 95% CI [0.70, 0.96]; bisexual reference group OR = 0.77, 95% CI [0.64, 0.94]). Bisexual women were also more likely than the heterosexual women to endorse communication with their partners about topics other than sex as relevant to their sexual satisfaction (OR = 0.95, 95% CI [0.82, 1.10]). When assessing their sexual satisfaction, the bisexual and lesbian groups endorsed the use of sex materials (bisexual reference group OR = 0.81, 95% CI [0.71, 0.91]; lesbian reference group OR = 1.55, 95% CI [1.35, 1.78]) and their experiences with partners in addition to their primary partner (bisexual reference group OR = 0.74, 95% CI [0.67, 0.88]; lesbian reference group OR = 1.19, 95% CI [1.04, 1.36]) as more important than the heterosexual group. The lesbian group was also more likely than the bisexual group to identify the use of sex as important to sexual satisfaction (OR = 0.22, 95% CI [1.06, 1.47]). The bisexual group identified their feelings of acceptance and comfort with their sexual identity (Heterosexual reference group OR = 0.78, 95% CI [0.68, .089]; lesbian reference group OR = 0.71, 95% CI [0.60, 0.85]) and their masturbatory activities/solo sex (Heterosexual reference group OR = 0.77, 95% CI [0.70, 0.87]; lesbian reference group OR = 0.75, 95% CI [0.64, 0.87]) as more relevant to sexual satisfaction than the heterosexual group and the lesbian group. Finally, the lesbian group identified the frequency of physical intimacy/sexual activity NOT including intercourse

as more important for sexual satisfaction than the bisexual group (OR = 1.27, 95% CI [1.06, 1.57]) and heterosexual group (OR = 1.41, 95% CI [1.18, 1.69]). These results provide evidence that there are differences in the factors that contribute to women's sexual satisfaction as a function of sexual identity.

For our second research question about the applicability of the NSSS for women of different sexual identities, we explored the reliability of the NSSS using Cronbach's alpha. Based on responses of the current sample, the NSSS had excellent internal consistency when used with heterosexual women ( $\alpha = .95$ ), bisexual women ( $\alpha = .95$ ), and lesbians ( $\alpha = .96$ ). Additionally, total scores on the NSSS were strongly correlated with responses on the Likert scale of sexual satisfaction for the entire sample,  $r(1596) = .777, p < .001$ . In all three groups, total scores on the NSSS were strongly correlated with responses on the Likert scale of sexual satisfaction, heterosexual  $r(994) = .767, p < .001$ ; bisexual  $r(331) = .798, p < .001$ ; lesbian  $r(202) = .793, p < .001$ . These results provide some evidence for the construct validity of the NSSS across different sexual identities.

For the third research question exploring potential novel factors contributing to sexual satisfaction as reported by the participants, the principal investigator trained a team of two graduate and eight undergraduate students to analyze participants' descriptions of what variables they considered when

assessing their level of sexual satisfaction. Team members were taught to analyze qualitative responses without making additional inferences in order to determine if the response reflected a factor already accounted for in the PSSF or if the response represented a novel factor. After completing training, group members worked independently with input as needed from the principal investigator, but any factor difficult to categorize was classified by team consensus after a discussion. Frequencies of both PSSF factors and novel factors were collected. Of the 1,598 responses, the text entered averaged 22.25 words and ranged from one character to 267 words. Participants offered responses such as “How many times I’ve had an orgasm,” “My comfort level with my partner and how well we attend to one another’s wants and needs,” “Variety of sexual acts. Communication about needs and wants and following through with those communications,” and “Frequency and quality of sexual encounters now vs. frequency and quality experienced earlier in our relationship and in relationships I had before this one.” Qualitative analysis of the data revealed the presence of eight factors not accounted for in the PSSF. They were: desire, how I feel after sex, physical capability for sex, how I feel during sex, chemistry/sexual affinity factors unique to my partner, duration of sex act, my feelings of anticipation regarding sex with my partner, and sexual self-confidence. Frequencies and proportions for all observed factors, including the eight novel factors, are presented in Table 4.

## Discussion

This study aimed to evaluate the factors that contribute to the subjective sense of sexual satisfaction among women of

diverse sexual identities. It did so in three ways: (1) comparing heterosexual, bisexual, and lesbian women’s endorsement of the importance of a variety of factors in contributing to their sense of sexual satisfaction; (2) examining the validity of an existing measure of sexual satisfaction for heterosexual, bisexual, and lesbian women; and (3) collecting open-ended information about the factors that women consider when evaluating their subjective sense of sexual satisfaction. Results revealed both similarities and differences among the sexual identity groups in terms of the factors that contribute to their sexual satisfaction.

Differences among women of different sexual identities with regard to factors that contribute to perceptions of sexual satisfaction were found on 11 of the 25 PSSF items. Significant differences were found in importance placed on sexual activity, use of sex materials, frequency of physical intimacy/sexual activity NOT including intercourse, how often I have an orgasm, my perception of my relationship’s strength and longevity, my feeling that my sexual activity is morally correct and/or fits my religious beliefs, my feelings of acceptance and comfort with my sexual identity, my masturbatory activities/solo sex, my experiences with partners in addition to my primary partner, how often my partner and I communicate about sex, and how often my partner and I communicate about topics other than sex.

A review of literature suggested several factors related to sexual satisfaction which women of differing sexual orientation might value differently, such as a lack of internalized homophobia, sexual assertiveness, interpersonal intimacy, monogamy, use of visual sexual materials, novel sex

**Table 4.** Frequencies of potential sexual satisfaction factors and novel (italicized) factors in qualitative responses.

	Hetero	Hetero %	Bisexual	Bisexual %	Lesbian	Lesbian %
Frequency of sexual activity	332	0.33	103	0.31	75	0.37
Perceptions of enjoyment	225	0.23	87	0.26	55	0.27
How often I have an orgasm	204	0.20	66	0.20	30	0.15
Satisfaction with the non-sexual aspects of relationship.	106	0.11	18	0.05	24	0.12
<i>Desire</i>	100	0.10	25	0.08	28	0.14
My partner’s awareness of what sexual feelings and behaviors I find pleasurable and arousing	88	0.09	24	0.07	16	0.08
Variety of sex techniques	65	0.07	29	0.09	16	0.08
How often my partner and I communicate about sex	55	0.06	22	0.07	13	0.06
<i>How I feel after</i>	53	0.05	15	0.05	3	0.01
Frequency of physical intimacy/sexual activity NOT including intercourse	44	0.04	12	0.04	2	0.01
How often I give my partner an orgasm	39	0.04	26	0.08	13	0.06
<i>Physical Capability</i>	37	0.04	13	0.04	7	0.03
<i>How sex makes me feel (during)</i>	36	0.04	12	0.04	5	0.02
The balance between what I give and get during sexual activity	30	0.03	19	0.06	10	0.05
Overall satisfaction with all aspects of my relationship	27	0.03	19	0.06	9	0.04
My masturbatory activities/solo sex	24	0.02	12	0.04	2	0.01
<i>Duration of sex act</i>	22	0.02	4	0.01	4	0.02
How comfortable I feel asserting myself sexually (e.g., initiating sex, asking for sex acts that I enjoy or refusing those I do not)	21	0.02	9	0.03	4	0.02
The importance placed on sexual activity	21	0.02	10	0.03	1	0.00
<i>Anticipation</i>	16	0.02	6	0.02	1	0.00
<i>Chemistry with Partner</i>	16	0.02	12	0.04	19	0.09
My experiences with partners in addition to my primary partner	14	0.01	11	0.03	8	0.04
<i>Sexual self-confidence</i>	13	0.01	4	0.01	5	0.02
My awareness of what sexual feelings and behaviors I find pleasurable and arousing	10	0.01	10	0.03	3	0.01
How much my partner loves me	7	0.01	1	0.00	2	0.01
Use of sex materials (e.g., toys, erotica/pornography).	5	0.01	0	0.00	0	0.00
My perception of my relationship’s strength and longevity	5	0.01	3	0.01	4	0.02
Feeling as if I have control in the relationship	5	0.01	0	0.00	1	0.00
How often my partner and I communicate about topics other than sex	3	0.00	7	0.02	0	0.00
My feelings of acceptance and comfort with my sexual identity	2	0.00	6	0.02	3	0.01
Feeling competent at being in the relationship	0	0.00	1	0.00	1	0.00
My feeling that my sexual activity is morally correct and/or fits with my religious beliefs	0	0.00	2	0.01	0	0.00

techniques, orgasm frequency, frequency of genital touching, and frequency of sexual activity (Bailey et al., 1994; Hurlbert & Apt, 1993; Kurdeck, 1991; Scott et al., 2018). Other factors were included based on previous literature about measurement of sexual satisfaction (Purine & Carey, 1997; Rosen & Bachmann, 2008). Contrary to findings from previous research, no differences were found among the groups on the role of sexual assertiveness, novel sex techniques, or frequency of intercourse for sexual satisfaction. Additionally, differences were found on only one of the exploratory factors (masturbatory activities/solo sex). Interestingly, more differences were found in comparing bisexual women to lesbian/heterosexual women than in comparing heterosexual women with lesbian/bisexual women. This calls into question any possible assumptions that – in relation to factors associated with sexual satisfaction – bisexual women represent an intermediate category between heterosexual and lesbian women. This also provides more evidence that the bisexual identity is a unique and important focus for study.

Currently available research provides some possible explanations for the observed differences in the importance women place on factors associated with sexual satisfaction. For example, lesbians are more likely than heterosexual women to experience orgasms with their partners (Matthews et al., 2003), and in this study, heterosexual women valued orgasm frequency more than lesbian and bisexual women. Perhaps this dearth of orgasms among heterosexual women makes orgasms more important to heterosexual women than lesbians. In this study, heterosexual women were also more likely than lesbian and bisexual women to evaluate the importance placed on sexual activity when assessing their sexual satisfaction, which may relate to the fact that Hurlbert and Apt (1993) found that heterosexual women placed more importance on high desire and amount of sexual activity than lesbian or bisexual women. In other words, heterosexual women may be more likely to use the role of sexual activity in the relationship as a key barometer for the sexual health of the relationship. In addition, heterosexual women's value on the importance placed on sexual activity may reflect the importance of frequent sex to that group; consistent with this, other research has found that women in same-gender relationships perceive the quality or intensity of the sex as more important than the frequency of sex to sexual satisfaction (Blair & Pukall, 2014). Homophobia may influence both lesbians and heterosexual women to view their feeling that their sexual activity is morally correct as more important to their sexual satisfaction than bisexual women do. The bisexual group's importance placed on perception of acceptance and comfort of their sexual identity may reflect a need to overcome internalized biphobia, given the bignativity these women describe (Feinstein & Dyar, 2017).

Given previous research (Hurlbert & Apt, 1993) suggesting that lesbians enjoy greater interpersonal dependency, compatibility, and intimacy than heterosexual women, it may be that lesbians in this study saw nonsexual communication as less central to their sexual satisfaction than heterosexual and bisexual women because such

communication is so foundational to their relationships that it is not a useful factor to consider when assessing sexual satisfaction. Previous findings revealed that lesbians valued monogamous relationships less and the use of pornography more than their heterosexual counterparts (Bailey et al., 1994; Kurdeck, 1991), which is supported by the current study's findings that bisexual and lesbian women thought the use of sex materials and experiences with additional partners were more important when assessing their sexual satisfaction than did heterosexual women. Minority sexual identities may reflect an associated comfort with sex-positivity and disregard of more traditional, sex-negative values. The interesting pairing of the bisexual group's evaluation of their masturbatory activities/solo sex as more important and their perception of their relationship's strength/longevity as less important to their sexual satisfaction compared to the heterosexual and lesbian group suggests a possible unique factor related to independence in bisexual women's sexual satisfaction.

In contrast to the differences in conceptualizations of sexual satisfaction across identities found in the PSSF, the New Sexual Satisfaction Scale (NSSS) showed remarkable consistency across sexual identities, yielding excellent internal consistency and convergent validity with a single item of subjective sexual satisfaction for heterosexual, bisexual, and lesbian women. These findings support previous findings in which the NSSS demonstrated high internal consistency for heterosexual and non-heterosexual American and Croatian women and men (Stulhofer et al., 2010), and the findings point to some important similarities in the construct of sexual satisfaction across identity groups. This also suggests that the NSSS does a relatively good job of measuring sexual satisfaction of heterosexual, bisexual, and lesbian women. However, given that differences were found as a function of sexual identity in terms of the factors that *contributed* to the sexual satisfaction based on the PFSS and given that novel factors were identified from the open-ended question about sexual satisfaction, it is clear that sexual satisfaction is not a one-size-fits-all concept. High internal consistency does not necessarily guarantee high validity. In other words, although perceptions of sexual satisfaction may be similar across sexual identities, the factors that contribute to those perceptions may differ.

Participants in the current study suggested a number of novel factors they used to assess their sexual satisfaction, including desire, how I feel after sex, physical capability for sex, how I feel during sex, chemistry/sexual affinity factors unique to my partner, duration of sex act, my feelings of anticipation regarding sex with my partner, and sexual self-confidence.

These findings suggest possible additions to research on and measurement of sexual satisfaction and its correlates. These findings also support past research highlighting the importance of strength of desire for sex, emotional intimacy, and sexual intimacy for sexual minority women (Birnie-Porter & Lydon, 2013; Cohen & Byers, 2014; Scott et al., 2018; Tracy & Junginger, 2007). It is worth noting that for all women, regardless of sexual identity, the frequency of sexual activity was the most frequently

mentioned factor contributing to their sexual satisfaction. Thus, although sexual frequency should be not entirely conflated with sexual satisfaction, for many women, it does appear to be a key determinant of satisfaction.

The novel factors identified as contributing to sexual satisfaction among our participants suggest that additional work might be needed to refine measures of sexual satisfaction. Interestingly, seven of the eight novel factors from our open-ended question appeared in the initial 35-item pilot of the NSSS, but were omitted from the final version after two rounds of principal component analysis (PCA) utilizing four groups of heterosexual Croatian and American participants. The groups of novel factors and groups of discriminant factors from the current study would be useful in piloting a measure – or trio of measures – for use in assessing factors associated with sexual satisfaction in bisexual, heterosexual, and lesbian women. By including factors identified here as important to women from all three groups, the results of such a pilot study could help discern if it is possible to use a one-size-fits-all measure like the NSSS to assess the factors associated with sexual satisfaction of all women regardless of sexual identity. Future research may also revisit factors associated with sexual satisfaction for men, as there may be overlooked differences in these factors for sexual minority men.

Two recent studies also suggest four more variables that warrant inclusion in future research. Shepler et al. (2018) demonstrated that sexual anxiety, relationship commitment, body image, and identity pride contributed significantly to sexual satisfaction for lesbian and bisexual women. The relationship commitment variable may represent an interestingly unique factor given Mark et al.'s (2015) findings that lesbian women did not differ from other groups in sexual satisfaction reported in committed sex (married, unmarried, or cohabitating), but described significantly lower levels of sexual satisfaction in one night stands, casual hookups, and first dates than other women, and significantly less sexual satisfaction in friends-with-benefits sex than bisexual participants of all genders.

Several limitations should be considered when interpreting the results of the current study. Chiefly, the generalizability of these results is limited by the predominantly White sample. Also, several bisexual and lesbian participants understandably objected to the use of the term “intercourse” on the PSSF to refer to sex. This item was included because it was anticipated that this might be relevant to the sexual satisfaction of women who have sex with men. Nevertheless, it seems clear that this term limits the conclusions that can be drawn based on this factor, but it is not otherwise known whether and how this heterosexist language may have affected results in this study. It is interesting and perhaps surprising that the sexual identity groups did not differ in terms of the relevance of this item for their sexual satisfaction. It may be that frequency of intercourse is not particularly relevant for women's sexual satisfaction regardless of whether it is an activity that can occur in their relationship.

Another potential limitation of the study is that we asked only about sexual satisfaction within the context of

a specific relationship. We did so in order to evaluate the role of relationship factors in sexual satisfaction. Most of the existing measures of sexual satisfaction were designed for individuals in dyadic partnerships, which is problematic as at least one study found that single women perceive themselves as sexually satisfied on average (Woloski-Wruble et al., 2010). Thus, more research is needed on factors that contribute to sexual satisfaction of women who are not in relationships.

Regarding strengths of the current study, the construct of sexual satisfaction was defined for participants, reducing or eliminating the risk of conflating sexual satisfaction with the presence of an orgasm or absence of sexual dysfunction. This action also helped ensure that each participant defined this personal and subjective construct the same way other participants did. This makes it more likely that the group differences we found in factors contributing to sexual satisfaction reflect actual differences in the correlates rather than differences in the definition of sexual satisfaction among the groups.

The current study also addressed a gap in the literature by validating clinical measures of sexual satisfaction with bisexual and lesbian participants. In addition to the diversity of sexual identity represented in the larger sample, participants represented a wide array of ages, academic and employment statuses, and relationship statuses. Given that a great deal of psychological research is conducted on traditional college student populations, it was helpful to recruit a diverse range of ages and academic level. Notably though, the educational attainment diversity among our sample was still rather limited, as most participants had attended college.

Future studies may be conducted using a more diverse sample, more complex measures of sexual identity, and less heterosexist language. This diverse sample could be expanded to include queer and/or pansexual people who do not identify as bisexual, heterosexual, or lesbian, and those who do not identify as cisgender. Although the current study attempted to include women of varying religious backgrounds, it is unclear how successful these efforts were. In light of Haavio-Mannila and Kontula's (1997) research that suggested religion has a deleterious effect on sexual satisfaction, it is important to learn more about how religion may interact with sexual identity.

Future exploration of potential disparities between bisexual women's current partner's gender and their preferred gender as it relates to their sexual satisfaction would help build understanding of bisexual experiences. Complicating the picture for bisexual women are the findings reported by Coleman (1985), who observed that 89% of a sample of bisexual women in mixed-gender marriages reported experiencing sexual difficulties and developing an aversion to their male partner. Conversely, Dixon (1984) studied a sample of self-identified bisexual, mixed-gender married, swinging women who reported having had multiple female partners; most of his participants indicated they preferred sex with a male partner and reported having satisfactory sex lives. In Reinhardt's (2011) study of self-identified bisexual women in heterosexual relationships, participants rated their sex lives as very satisfactory. So it seems that for bisexual women, there may be some

unknown underlying factors affecting their sexual satisfaction that may be unique to their sexual orientation (e.g., gender of their current partner vs. their preferred gender for relationships) and worthy of future research attention.

In this study, we examined differences in the factors that contribute to sexual satisfaction as a function of sexual identity labels. In future research, it would be interesting to conduct comparisons in the factors contributing to sexual satisfaction as a function of other components of sexual orientation. For example, do the factors that contribute to sexual satisfaction differ as a function of attraction to men, women, both, or neither? Do the factors that contribute to sexual satisfaction differ as a function of sexual experiences with men, women, both, or neither?

Despite the limitations and need for further research, this study is relatively unique in examining the factors that contribute to the sexual satisfaction of women with diverse sexual identities. The findings of this study have relevance for clinical work, advocacy, and research. Regarding implications for practice, this study demonstrates the commonalities of sexual satisfaction across sexual identities as well as unique components specific to particular identities. Therefore, in clinical settings, it is important to assess sexuality on an individual basis, and avoid assumptions about clients' sex lives based on their sexual identity. Given potential mismatches between gender and sexual identities of clinician and client, either may inadvertently project their own values regarding what factors contribute to sexual satisfaction. Clinicians are encouraged to explore clients' level of sexual satisfaction, how they assess it, and ways they might improve factors they find important. Using factors associated with sexual satisfaction identified in the current study in such discussions with clients will allow clinicians to develop interventions individually suited to each client and her specific considerations. Outside the therapy room, psychologists as advocates can continue their social justice work involving increasing the acceptance of bisexual women and men, given that bisexual women participants indicated feelings that acceptance of their sexual identities are important to their sexual satisfaction. For research, these results suggest that findings that levels of subjective sexual satisfaction are similar across groups may obscure important differences in the factors that contribute to sexual satisfaction. Combining measures of satisfaction with measures of factors contributing to that satisfaction may offer a more complete picture. Sexual satisfaction remains a vital contributor to individual and relationship satisfaction, and thus continued exploration of this construct via research, advocacy, and practice is of utmost importance.

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