The association between sexual subjectivity and sexual health outcomes both negative and positive in a sample of women

Julia Bond

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Stephen Hawes

Diane Morrison

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Abstract

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Julia Bond

Chair of the Supervisory Committee:

Stephen Hawes, Chair and Associate Professor

Epidemiology

The role of psychosocial constructs such as assertiveness and self-efficacy has increasingly been acknowledged as an important component of research and interventions directed at young women's sexual health. The female sexual subjectivity inventory (FSSI) was developed to measure five distinct factors of young women's experiences of sexual pleasure and empowerment as agentic sexual beings: 1) sexual body esteem, 2) entitlement to sexual pleasure from a partner 3) entitlement to sexual pleasure from the self, 4) self-efficacy in achieving sexual pleasure from a partner, and 5) sexual self-reflection. Though previous research has found positive associations between higher scores on the FSSI and other constructs such as sexual well-being and condom use self-efficacy, no studies have explicitly evaluated the association between FSSI scores and adverse sexual health outcomes. We conducted a cross-sectional survey of women affiliated with the University of Washington to assess the association between FSSI factors and the occurrence of three adverse sexual health outcomes in the prior 12 months: acquisition of an STI, unwanted pregnancy, or taking emergency contraception (Plan B). We used multivariate logistic regression models to evaluate the association between each FSSI factor while

controlling for age and estimated frequency of sexual activity. We also assessed the association between FSSI scores and self-reported orgasm frequency during partnered sexual activity. We did not find any statistically significant associations between mean score on any of the FSSI factors and adverse sexual health outcomes in the prior year. We found that all FSSI factors with the exception of sexual self-reflection were positively associated with increased orgasm frequency. We further used the FSSI scale in a novel way to identify a population of women who are discordant on their levels of entitlement to pleasure from partner and self-efficacy in achieving sexual pleasure. Though our primary analysis did not show statistically significant results, our study underscores the validity of the FSSI as a measure to assess psychosocial constructs relevant to young women's ability to experience sexual pleasure with a partner. Our research also indicates that different FSSI factors may interact with each other to inform women's sexual behavior, and implications for future research using this scale are discussed.

Background and significance

Sexual health is an area of significant concern in the United States (US). According to a report from the Centers for Disease Control (CDC) the infection rate of many sexually transmitted infections (STIs) increased between 2012 and 20161.[1] People aged 15 to 24 years old bear a significant portion of the burden of STIs, comprising an estimated 50% of new STI infections annually.[1] Unwanted pregnancy is also a relatively common occurrence in the United States. In 2011, approximately 45% of pregnancies in the US were unintended, with the highest rate among women 20 to 24 years of age.[2] Sexual health education varies considerably across the US.[3] States and school districts enact their own requirements and sexual health often competes for limited time with other important adolescent health topics.[3,4]

Despite the variability in the sexual health education adolescents in the US receive, a consistent theme is the framing of sexual activity as primarily risky and young women as passive gatekeepers of the male sex drive, as opposed to agentic sexual beings themselves.[5] Recent research into young women's sexual health has begun to acknowledge and assess young women's attitudes towards and experiences of their own sexuality, including sexual autonomy, assertiveness, and agency.[6-8] Acknowledging the development of sexual desire as a normative part of young women's psychosocial growth stands to improve the quality of both research and interventions into adolescent sexual health by empowering both protective and pleasure-seeking sexual behavior.[9]

The development of several different instruments that assess psychosocial elements of young women's sexuality has formed the foundation for research in this area. These scales include the Sexual Assertiveness Scale,[10] the Sexual Self-Esteem Inventory,[11] and the Sexual Self-Concept Inventory.[12] The Female Sexual Subjectivity Inventory (FSSI) is unique in that it was developed specifically to reflect young women's accounts of their own experiences developing into sexual beings.[13] This scale was grounded in qualitative research performed with young women to provide a multidimensional view of important intraindividual elements of young women's sexuality.[13,14] Based upon young women's

accounts of their own experiences, the scale includes five factors important to young women's sexual development: 1) sexual body esteem, 2) entitlement to sexual pleasure from the self (entitlement to pleasure from self), 3) entitlement to sexual pleasure from a partner (entitlement to pleasure from partner), 4) self-efficacy in achieving sexual pleasure from a partner (self-efficacy), and 5) sexual self-reflection.[13] Each of these five factors is related but distinct from the others, and together the scale enables researchers to collect a multidimensional view of the constructs that make up young women's sexual subjectivity.[13] Sexual subjectivity is an important part of normative sexual development for young women and has been associated with higher levels of sexual and general well-being in young women.[13,15,16]

Sexual subjectivity may also be an important but underappreciated potential target for sexual health interventions. In a study of 237 sexually active women in the US that used the FSSI, higher levels of self-efficacy were predictive of consenting to receive oral sex from a male partner.[17] Another survey of 214 college-aged women in Australia that used the FSSI found that entitlement to pleasure from self was positively associated with condom use self-efficacy.[15] These results suggest that increased sexual subjectivity may empower young women to advocate for their own interests and safety during sexual encounters.

The present study attempted to expand upon the existing literature by assessing whether there is an association between sexual subjectivity and sexual health outcomes, including STI acquisition, unwanted pregnancy, use of emergency contraception (Plan B), and orgasm frequency in a sample of women recruited at a large research university in the US. This research attempts to draw a more explicit connection between sexual subjectivity and sexual health outcomes to improve knowledge about the importance of this construct. Further, this study used the FSSI in a new way to create novel categorizations of women based upon FSSI scores. Traditionally, each of the five factors of the FSSI has been analyzed independently as a mean score. We assess the interrelatedness of two of the five factors

(entitlement to sexual pleasure from partner and self-efficacy) to identify whether women who are discordant on these measures have unique patterns of sexual health outcomes. A better understanding the role sexual subjectivity plays in mediating sexual health outcomes could assist in designing and implementing more robust sexual education programs aimed at empowering young women to advocate for their interests and pleasure.

Methods

Procedures and respondents

Data were collected via a cross-sectional online survey. The survey was available online from October to December of 2017 (roughly corresponding with the Autumn quarter of instruction at the University of Washington). Recruitment efforts were focused at the University of Washington, a large public university in Seattle, Washington. We posted flyers in public spaces around the University of Washington inviting women to participate in the survey. The survey was titled "The Women's Health and Sex Survey" and prospective respondents were informed that it would take approximately fifteen minutes to complete. In addition to posters on campus, we announced the survey in some undergraduate classes, to University Sorority leadership, and via health-related email listservs associated with the University. There was no incentive offered for participation.

To be eligible, respondents had to identify as a woman and to have had penetrative vaginal sex with a penis or oral sex (giving or receiving) in the preceding 12 months. These inclusion criteria were detailed on the survey consent page, and responses in the questionnaire served as an additional screen for eligibility. Because no identifiable information was collected as a part of the survey, the research was determined to be exempt by the University of Washington Human Subjects Division.

Measures

Demographics and sexual behavior

Respondents answered questions on relevant demographic characteristics and sexual behavior in the previous 12 months. Demographic characteristics included age, which was an open-ended field, and multiple-choice questions regarding gender identity, sexual orientation, current relationship status, race/ethnicity, national origin, and nature of University of Washington affiliation. Finally, respondents were asked if they had had vaginal sex with a penis or oral sex (giving or receiving) in the previous 12 months. Respondents who reported "I am not a woman" as their gender identity and those who answered "No" to the question about sexual activity in the previous 12 months were sent to the "Thank you" page and did not continue with the survey.

Respondents who reported having vaginal sex with a penis in the previous year were asked to estimate the number of times they had penetrative vaginal sex as well as their number of partners in open-ended response fields.

Respondents who reported having oral sex in the previous year were also asked to estimate the number of times they had oral sex, as well as the number of partners to whom they gave and from whom they received oral sex in using open-ended response forms.

We used open-ended response forms as opposed to pre-specified categories to assess the number of times and partners for oral and vaginal sex because we did not have an a priori sense of what the distribution of responses would be. Some respondents typed in answers that were not numeric, including "too many to count" or "50+." We recoded all qualitative responses as numeric. Values qualified with "about" or "maybe," were imputed as the value (e.g. "about 40" became 40). Values qualified with a "+" or "more than" were imputed as 10% higher than the value (e.g. "50+" became 55). Values with a range were imputed as the midpoint of the range. Finally, values such as "too many to count" were recoded as the 95th percentile of the distribution of the non-imputed values for each response. Responses of "unknown" or similar were recoded as missing. After recoding of the qualitative

response was complete, number of times and partners for both vaginal and oral sex were recoded as categorical variables cut at the 25th, 50th, and 75th percentiles of the distribution.

Female Sexual Subjectivity Inventory

The primary exposure of interest was mean scores on the Female Sexual Subjectivity Inventory, a multidimensional inventory used to evaluate experiences as a sexual being (or sexual subjectivity) in women.[13] This 20-question measure is comprised of 5 factors designed to assess women's sexual self-perception, sexual self-esteem, and body self-image. The factors are: Sexual body-esteem, entitlement to sexual pleasure from self, entitlement to sexual pleasure from partner, self-efficacy in achieving sexual pleasure, and sexual self-reflection (see Appendix Table A1 for more detail). Each factor is made up of three to five questions. Responses to each question are on a Likert scale including "Strongly disagree," "Disagree," "Neither agree nor disagree," "Agree," or "Strongly Agree," For analysis, the Likert scores were recoded into values of 1 through 5. A response of "Strongly disagree" corresponded with a value of 1 to "Strongly agree" as a value of 5. Reverse questions were recoded in the opposite manner. The numeric scores on each question were averaged for each factor. The mean value of each factor was used as the exposure value.

Outcomes

The primary outcomes of interest were whether a respondent acquired an STI, had an unwanted pregnancy, or used emergency contraception (Plan B) in the previous year. These outcomes were assessed with the following questions: "In the past 12 months, have you been told by a medical professional (doctor, nurse, etc.) that you have a sexually transmitted infection of any kind?;" "In the past 12 months, have you used emergency contraception (also called Plan B), pills you can get at the pharmacy after unprotected sex to prevent pregnancy?;" and "In the past 12 months, have you had an unwanted pregnancy?" Respondents could either answer "Yes" or "No" to these questions. The questions did not ever specify type of STI, nor ask about suspected but unconfirmed STIs. To increase

our statistical power, we combined STIs, unwanted pregnancy, and Plan B use into a single endpoint for analysis, creating a proxy for risky sexual behavior. We refer to this combined outcome as "any adverse sexual health outcome."

Secondary outcomes included frequency of orgasm, assessed with the question "During sexual experiences with a partner, I orgasm: "Always," "Most of the time," "Sometimes," "Rarely," or "Never." Orgasm frequency was recoded as a three-tiered categorical variable that grouped "Never" with "Rarely" into a category labeled "Infrequent orgasms" and "Most of the time" with "Always," into a category labeled "Frequently orgasms," leaving "Sometimes orgasms" as a distinct category. We reasoned that some of the women who report never orgasming with a partner may be unable to orgasm in any circumstance, and therefore combining them with women who rarely orgasm would mitigate the effect of any women experiencing anorgasmia due to medical conditions. We assumed that it was unlikely that there were substantial differences between those who always orgasm and those who orgasm most of the time. We chose orgasm frequency as an indicator of achieving sexual pleasure during partnered sexual activity, despite criticisms that centering orgasm reflects a male-dominant view of sexual pleasure that does not reflect women's experience.[18] Though orgasm is not a complete indicator of women's sexual enjoyment or pleasure, a study assessing college-aged women's sexual experience in the US found that achieving orgasm was strongly associated with self-reported enjoyment of the sexual encounter.[19]

Analysis

Descriptive statistics

We completed all analyses using Stata 14.2. We assessed descriptive statistics, including frequency and percentages for categorical variables and mean and standard deviation for continuous and ordinal variables. Mean scores on each FSSI factor were calculated by converting responses to the

corresponding numeric value (1 through 5) and averaging response scores across the questions comprising each factor. We then assessed the distribution of mean FSSI score for each factor.

We performed statistical analyses to evaluate patterns of missingness in the responses. The length of the survey, combined with the lack of incentive for completion, gave us reason to expect high levels of missingness due to people abandoning the survey. We evaluated missingness across key demographic variables including age, UW affiliation, and sexual orientation using chi-squared tests of independences to assess whether certain groups were more likely to abandon the survey. An alpha of 0.05 was set as the threshold for statistical significance for all analyses.

Primary analyses

We conducted a multivariate analysis to assess the association between sexual subjectivity and any adverse sexual health outcome. We prespecified age and number of times having penetrative vaginal sex with a penis as confounders based on consistent findings that mean FSSI scores increase with age and sexual experience.[13,20] Because our adverse sexual outcomes stem primarily from vaginal sex with a penis, for this analysis we included only women who reported having vaginal sex with a penis in the past year. We calculated two types of logistic regression models: one set of models where each factor was included alone, and another single model where all five FSSI factors were included simultaneously.

We also used multivariate models to evaluate the association between FSSI scores and orgasm frequency. This analysis included all women in the sample. As in the previous analysis, we calculated multinomial logistic regression models that included each FSSI factor score alone and then one model that had all five FSSI factor scores simultaneously. Both model types controlled for age as a continuous variable and relationship status as a dummy variable (in a mutually monogamous relationship, in a non-monogamous relationship, and not in a relationship).

Secondary analysis

We saw our study as an opportunity to explore an alternative way of using the FSSI scale to categorize women. Previous studies using the FSSI have used the average value of the questions as the score for that factor.[13,17,21,22] In one study a mediation analysis demonstrated that the association between mean score on the entitlement to pleasure from partner FSSI factor and explicit verbal consent to oral sex was mediated by the self-efficacy factor of the FSSI.[17] The authors concluded that the factors of entitlement to pleasure from partner and self-efficacy, while distinct, are related and that self-efficacy in achieving pleasure is driven by entitlement to pleasure from partner. To explore the interrelatedness of these two factors we created categories of women based on their concordance of entitlement to pleasure from partner and self-efficacy. We assigned women who responded "agree" or "strongly agree" (or the corresponding for reverse scale items) on all questions in the entitlement to pleasure from partner factor as "high entitlement," and women who responded "strongly disagree" or "disagree" at least to one question as "low" entitlement. We repeated this strategy for the self-efficacy factor. We then categorized women based upon the concordance of these constructs: high entitlement/high efficacy, high entitlement/low efficacy, low entitlement/high efficacy, and low entitlement/low efficacy. We anticipated that the majority of women would be concordant, but that any discordance would be high efficacy/low entitlement, as suggested by previous researchers.[17] We used frequency tables and Fisher's exact tests to evaluate the differences in adverse sexual health outcomes and orgasm frequency by discordance status.

Results

Three-hundred and ninety-four people began the online survey, but 109 (28%) were excluded from the final sample due to survey abandonment (Figure 1). The sample was restricted to individuals with a direct affiliation with the University of Washington because the survey was widely shared on Facebook outside of official recruitment strategies, compromising the sampling frame. Fifty-seven respondents were excluded because they were not students, alumni, or faculty or staff of the University

of Washington. Nine respondents were excluded for reporting that they were not sexually active in the prior year and 10 were excluded because they did not identify as women. We included respondents who were missing data on only one of the FSSI factors (N=3) or only missing data on orgasm frequency (N=2), leaving a final sample size of 209. Survey abandonment did not vary significantly across demographic characteristics with the exception of national origin. More respondents who reported being born outside of the United States abandoned the survey (N=8, 38%) compared to respondents who were born within the United States (N=34, 17%), (Chi-squared test of independence, $P<0.01$), perhaps reflecting varying cultural salience or appropriateness of the content.

The mean age of respondents in our sample was 22.0 years (SD =5.1) (Table 1). The majority of our sample identified as straight (157, 75%) and 52% were in mutually monogamous sexual relationships (N=108). The sample was primarily white (N=146, 70%). One hundred and eighty-eight (90%) women reported that they had engaged in vaginal sex with a penis in the previous year and 201 (96%) women reported that they had either given or received oral sex.

The mean scores for all FSSI factors were consistently above the midpoint of the scale in our sample (see Figure 2). Means ranged from a high of 4.25 (SD =0.56) for entitlement to pleasure from partner to a low of 3.34 (SD = 0.75) for sexual body-esteem. Sexual body-esteem was the most normally distributed mean score compared to the other factors, which tended to be left-skewed. The distributions of responses to each individual question that comprises the FSSI are available in Table 2. In general, responses clustered around the "Agree" value except for the first two questions of the sexual body-esteem scale, both of which asked about distress or negative feelings associated with sexual attractiveness. These questions had the highest proportion of respondents who received a score of 1 or 2, indicating a high degree of distress about their sexual attractiveness.

Of the 209 respondents, 5 were diagnosed with an STI (2.4%), 2 experienced an unwanted pregnancy (1.0%), 19 used Plan B (9.1%), and 2 had both an unwanted pregnancy and Plan B use (1.9%)

(Table 3). After combining the three adverse outcomes into the combined endpoint of any adverse sexual health outcome (n=28, 13.4%), we assessed the mean FSSI score for each factor by outcome status (Table 4). Without adjustment for confounders, the mean FSSI scores were similar between women who experienced an adverse sexual outcome and those who did not (all differences between mean scores between FSSI factors within 0.14 points, all ANOVA p-values>0.23).

The primary analysis assessing the association between mean FSSI scores and any adverse sexual health outcome, when controlling for age and estimated number of sex acts in the prior year, did not reach statistical significance for any of the factors. Nonetheless, the analysis was suggestive of interesting trends (Table 5). There was no apparent association between sexual body-esteem (odds ratio (OR) = 1.09 per unit increase in FSSI score, 95% CI 0.61, 1.95) and sexual self-reflection (OR = 1.00, 95% CI 0.53, 1.91) and any adverse sexual health outcome. Increased mean scores on entitlement to pleasure from partner and self-efficacy trended towards a decreased risk of experiencing an adverse sexual health outcome (OR = 0.56, 95% CI 0.27, 1.18 and OR = 0.81, 95% CI 0.47, 1.41, respectively). Interestingly, a higher mean score on entitlement to pleasure from self trended towards a slightly increased risk of an adverse sexual health outcome in the prior year (odds ratio = 1.20, 95% CI 0.66, 2.19). We replicated this analysis using a single model that simultaneously contained all FSSI factors and found that the direction of the point estimates did not change, with entitlement to pleasure from a partner and self-efficacy having protective trends (odds ratios = 0.55, 95% CI 0.25, 1.18, and 0.84, 95% CI 0.46, 1.54, respectively) and entitlement to pleasure from self trending towards higher risk (odds ratio = 1.35, 95% CI 0.69, 2.67).

Orgasm frequency was relatively evenly distributed among the sample, with 83 (40%) respondents reporting they orgasm frequently during partnered sexual experiences, 27% (n=56) sometimes and 33% (n=68) rarely. Multivariate analysis revealed that there was a statistically significant association between four of the FSSI factors and increased orgasm frequency (Table 6). Higher scores on

all factors except for sexual self-reflection were associated with a higher likelihood of orgasming frequently compared to infrequently. Self-efficacy in achieving sexual pleasure from a partner had the strongest association with orgasm frequency, with those having a one-point increase in mean score having 4.28 (95% CI 2.47, 7.43) times the odds of reporting that they orgasm frequently as compared to infrequently and 2.39 (95% CI 1.45, 3.95) times the odds of reporting that they orgasm sometimes as compared to infrequently.

Categorizing women using entitlement to pleasure from partner and self-efficacy revealed significant differences in the distribution of orgasm frequency across groups (Fisher's exact test $p<0.001$) (Table 7). There were significant differences in the distribution of orgasm frequency between high efficacy/high entitlement respondents and low entitlement/low efficacy and low entitlement/low efficacy respondents (Fisher's exact text $p<0.001$ for both comparisons). Only 19% of women with high entitlement and low efficacy reported frequent orgasms, compared with 56% of women with high entitlement and high efficacy. There was no significant difference between the distribution of orgasm frequency between high entitlement/high efficacy and low entitlement/high efficacy groups (Fisher's exact test $p=0.87$). Similarly, there was no significant difference between high entitlement/low efficacy and low entitlement/low efficacy groups (Fisher's exact text $p=0.44$). There were no significant differences in the distribution of adverse sexual health outcomes across concordance statuses (Fisher's exact test $p = 0.15$; Table 8). The sample size in some of the cells were small given the distribution of our sample across concordance levels: most of our sample was high entitlement/high efficacy (N=90), 36 women were high entitlement/low efficacy, 7 were low entitlement/high efficacy, and 10 were low entitlement/low efficacy.

Discussion

We did not find a statistically significant association between sexual subjectivity and adverse sexual health outcomes in the prior year. Nonetheless, our findings are suggestive of novel trends. We

hypothesized that higher scores on all sexual subjectivity factors would be inversely associated with the risk of adverse sexual health outcomes. This is because a previous study of Australian undergraduates found that scores on all FSSI factors were positively correlated with condom use self-efficacy,[15] implying that higher sexual subjectivity across all factors is associated with an increased ability to advocate for one's sexual health. We anticipated that this would translate into a decreased risk of adverse sexual health outcomes associated with higher scores on sexual subjectivity factors. Our results were in this direction for two factors: entitlement to sexual pleasure from a partner and self-efficacy in sexual pleasure from a partner (odds ratios = 0.56 and 0.81, respectively, for age- and frequency-adjusted association between mean scores and adverse sexual health outcomes). However, the point estimate for entitlement to sexual pleasure from self was in the direction of increased risk of adverse sexual health outcomes with higher mean scores (OR = 1.20 for age- and frequency-adjusted association between mean score and any adverse sexual health outcome). It is important to acknowledge that these point estimates were not statistically significant, but it is interesting to consider the possibility that different factors of the FSSI operate differently in empowering women to advocate for their pleasure and safety during sexual activities. It is possible that women who have a high degree of entitlement to pleasure from themselves via masturbation struggle in communicating with a partner, and that entitlement to pleasure must be mediated with self-efficacy in open and effective communication with a sexual partner.

Previous research supports this idea. A study by Satinsky and Jozkowski[17] that evaluated the association between scores on two FSSI factors and verbal consent to receiving oral sex suggested that the two factors, while distinct, interact with each other in an important way. These researchers demonstrated that the effect of having higher entitlement to pleasure from a partner was wholly mediated by self-efficacy in obtaining pleasure.[17] We did not perform a mediation analysis, but our

results are consistent with the idea that self-efficacy plays a mediating role in the relationship between other elements of subjectivity and actual behavior during partnered sexual activity.

We did find significant associations between sexual subjectivity and orgasm frequency during partnered sexual activity. As the FSSI was designed to capture women's experience of experiencing sexual pleasure from and within their bodies, this finding is unsurprising. Previous research has demonstrated positive associations between sexual subjectivity and overall sexual well-being[15] and explicit consent to receiving oral sex,[17] but our study is the first study to look at orgasm frequency. Our results support the FSSI as a useful measure of psychological constructs relevant to young women's sexual experience. Of note, we did not see an association between sexual self-reflection and orgasm frequency. This could be due to distresses caused by anorgasmia in young women.[23] Inability to orgasm is relatively common and can be distressing for young women, thus women experiencing difficulty achieving orgasm may actually spend more time thinking about their sex lives than other women.[23] Researchers using the FSSI in the future should bear in mind the duality of the sexual self-reflection factor: that thinking frequently about one's sex life could be a positive and affirming activity or could be due to distress. Future research should seek to differentiate between positive sexual self-reflection that underlies the development of sexual subjectivity and negative sexual self-reflection due to sexual dysfunction or distress.

When we assessed the impact of discordance between entitlement to pleasure from partner and self-efficacy, an interesting pattern emerged. The largest proportion of women had high levels of both entitlement and self-efficacy (N=90, 42%), but 17% (N=36) of our sample reported high entitlement to pleasure from partner but had low self-efficacy. Women with this discordant pattern were significantly less likely to report frequent orgasms in partnered sexual activity compared to concordant high efficacy/high entitlement women (19% vs 56%, respectively, Fisher's exact test p=0.001). This finding suggests that a sense of entitlement to pleasure is not enough to completely mediate sexual

outcomes, and that women also need to be equipped with the tools to communicate with their sexual partners. Indeed, there was no significant difference in distribution of orgasm frequency between respondents who were low entitlement/high efficacy and those who were high entitlement/high efficacy (Fisher's exact test p=0.87), though it should be noted that only 7 women were low entitlement/high efficacy.

Taken together with the mediation pattern reported by Satinsky and Jozkowsi,[17] these results suggest that sexual health interventions for young women may be best served by focusing on increasing self-efficacy for obtaining pleasure from a partner. As described by Tolman, gender inequality is an important but often overlooked part of the experience of heterosexual women.[24] Young women are not educated about their right to sexual pleasure[5,9] and are left to develop an awareness of their sexuality and right to pleasure on their own, often through engaging in sexual activity.[20,21] Even as young women internalize the idea that they are entitled to sexual pleasure, they may still struggle to navigate gender inequality and the sexual double standard while having sexual experiences with men. Sexual health interventions for young women should consider incorporating topics that can help arm young women to successfully advocate for their pleasure in sexual experiences, as well as educate young men and women about how to be receptive and supportive of their partners' sexual needs.

We believe that our novel method of using the FSSI to categorize women according to discordance on entitlement to pleasure from partner and self-efficacy is an improvement over some previous metrics used to assess psychosocial constructs related to women's sexual behavior. The Sexual Assertiveness Scale, for example, emphasizes a woman's ability to refuse sex as central to women's sexuality,[10] supporting the pervasive cultural frame of men as sexual aggressors and women as gatekeepers of male sexual desire.[5] The FSSI emphasizes a woman's active role in pursuit of sexual pleasure and enables researchers to measure sexual empowerment from a positive frame. Assessing multiple factors of the FSSI simultaneously and tracking concordance adds nuance to the scale, enabling

researchers to follow the development of different factors over time and how factors interact with each other. Further, the use of mean values may obscure outlying responses of importance that occur within factors. Future research should quantitatively and qualitatively explore how women develop a sense of entitlement to pleasure, and what additional exposures are required to help women translate that sense of entitlement into self-efficacy in achieving it.

Our study has several limitations. Our small sample size and relatively few observed adverse sexual health outcomes limited our statistical power. As an anonymous online survey, we have no way of verifying the veracity of our survey responses. The fact that we offered no monetary incentive for completion likely contributed to the small sample size, but also likely reduced the chance that people fraudulently took the survey for financial motives.[25]

Due to our lack of a randomized sampling frame, our results are limited to a self-selected sample of women, who may have relatively high sexual subjectivity. However, our mean FSSI scores were similar to those in another study conducted using the FSSI in an American university-based population.[17] Our sample came from the University of Washington, which is a large public university located in Seattle, and thus our results may not be generalizable to dissimilar populations. Because we conducted a cross-sectional survey, we are unable to make any causal claims regarding the associations observed. It is plausible that orgasm frequency impacts sexual subjectivity and not the other way around.

Our lookback period may present a limitation. Twelve months was selected as a look-back period to maximize the chance of observing the outcomes of interest while also minimizing the chance that the FSSI score would have changed substantially over the time period. Though it has been demonstrated that FSSI scores can change appreciably over 12 months, this change is most pronounced in women with no sexual experience and those who have sex for the first time during that period.[21] We excluded women with no sexual experience from this study, and previous research suggests that the

proportion of women who initiated coitus during our study period would likely be small,[21] thus we felt one year was an appropriate lookback period.

Our results expand upon the growing body of literature looking at young women's attitudes and empowerment as an important component of sexual health research and interventions.[9,15–17,22] Though we did not find statistically significant associations between sexual subjectivity scores and adverse sexual health outcomes, we nonetheless believe that our results contribute important new knowledge to this body of work. We hope that future research will similarly use multiple factors of the FSSI simultaneously to expand the utility of this important measure. As sexual health research for young women progresses, sexual pleasure should be included as an outcome of interest. Young women deserve access to not only safe, but also enjoyable, sexual experiences.

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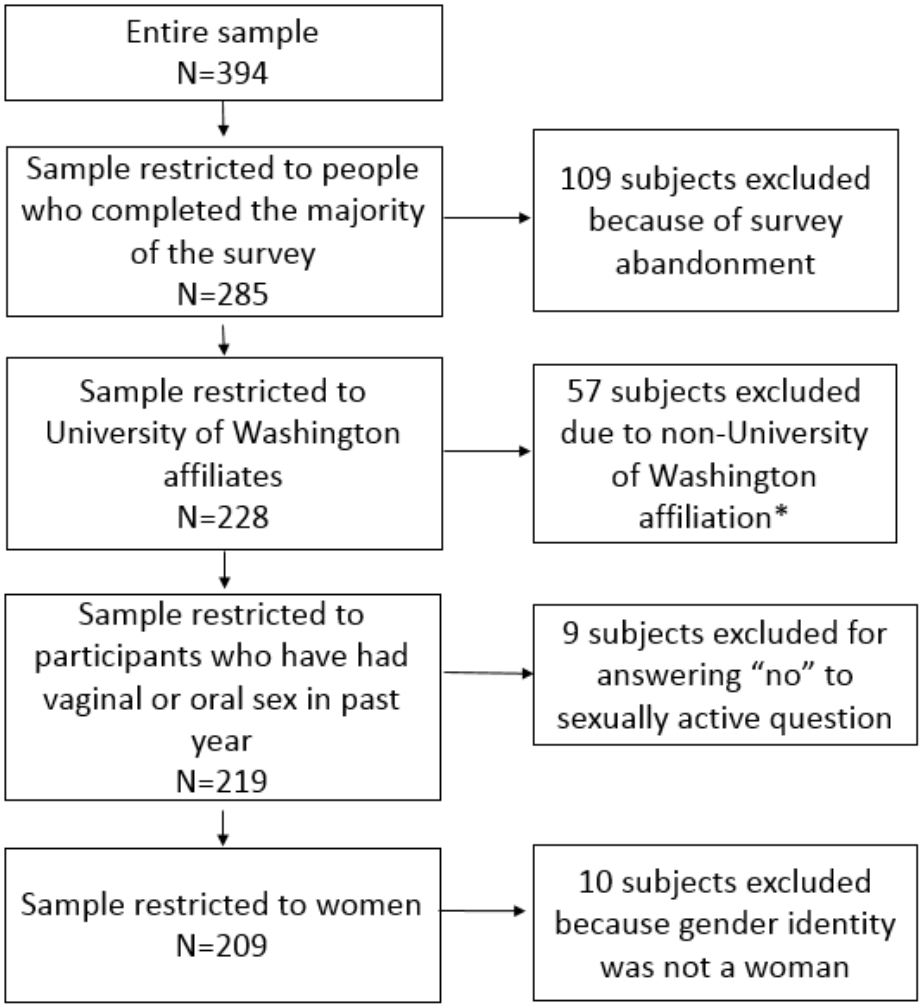
Tables and Figures

Figure 1. Construction of the final sample (N=209) of women recruited at the University of Washington for a study evaluating the association between sexual subjectivity and adverse sexual health outcomes.

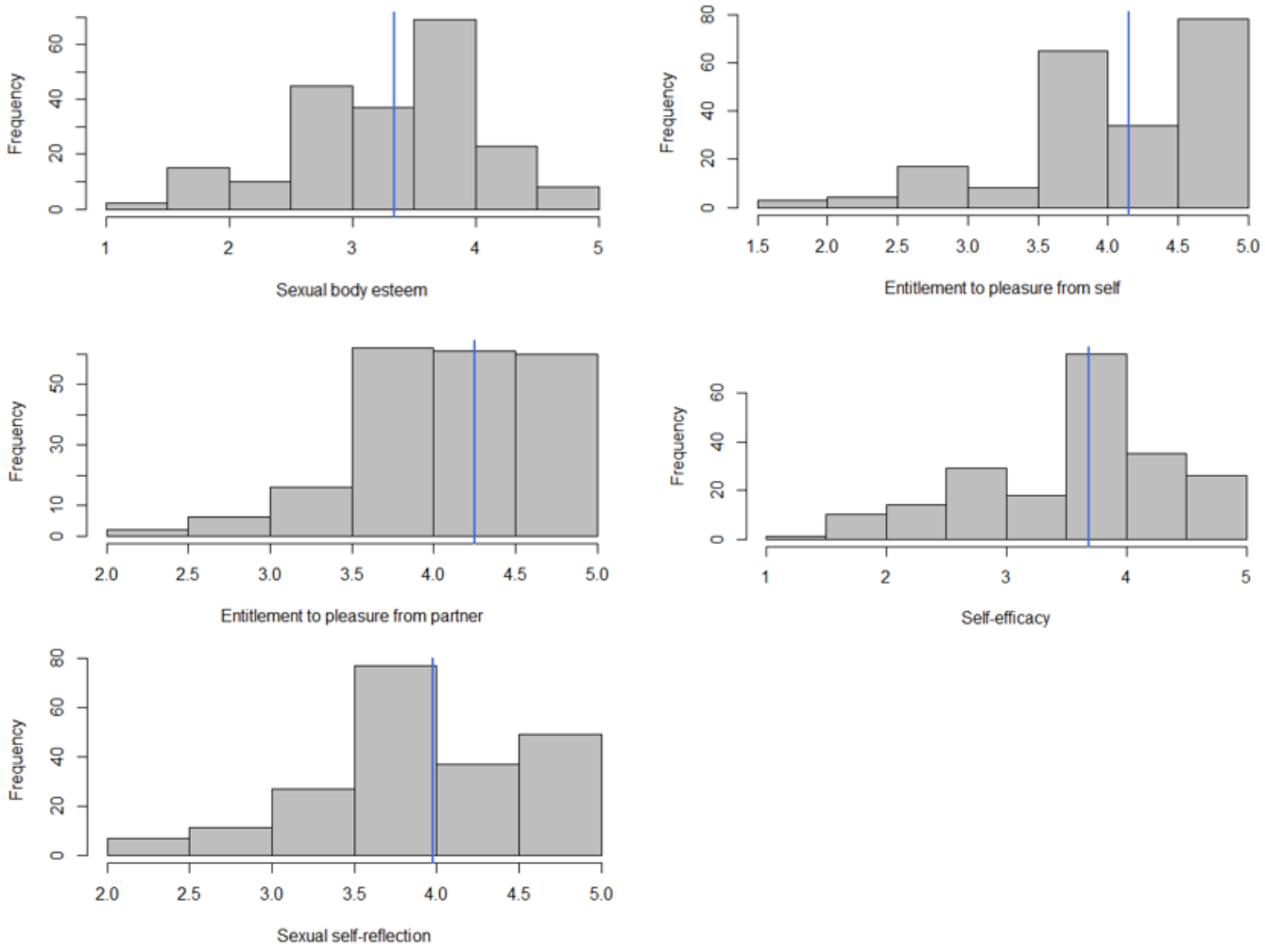


*"Non-University of Washington affiliation" indicates that the respondent answered "Not affiliated" on a question that asked "What is your affiliation with the University of Washington?" Other response options were "Undergraduate student," "Graduate student," "Faculty/staff," or "Alumna."

Table 1. Baseline characteristics of the final sample (N=209) of respondents in a study of women recruited at the University of Washington to assess the association of sexual subjectivity and adverse sexual health outcomes

Characteristic	n	(%)	Mean	(SD)
Age			22.0	(5.1)
Sexual orientation				
Asexual	1	(0.5)		
Bisexual	21	(10.0)		
Lesbian	8	(3.8)		
Other	1	(0.5)		
Pansexual	8	(3.2)		
Queer	7	(3.4)		
Questioning/Unsure	6	(2.9)		
Straight	157	(75.1)		
Relationship status				
Mutually monogamous	108	(51.9)		
In a non-monogamous relationship	10	(4.8)		
Not in a relationship	90	(43.3)		
Race				
African-American, Black, African	3	(1.4)		
Asian, Asian-American	25	(12.0)		
Hispanic and/or Latina	13	(6.2)		
Multiple races	15	(7.2)		
Native American/Alaska Native	2	(1.0)		
Pacific Islander	1	(0.5)		
White	146	(69.9)		
Other	4	(1.9)		
Birthplace				
Born in the US	193	(92.8)		
Born outside of the US	15	(7.2)		
Had penetrative vaginal sex with a penis in previous 12 months				
No	21	(10.0)		
Yes	188	(90.0)		
Number of vaginal sex times			58.3	(65.4)
Number of vaginal sex partners			2.39	(3.3)
Had oral sex in previous 12 months				
No	7	(3.4)		
Yes	201	(96.6)		
Number of oral sex times			39.0	(44.4)
Number of oral sex partners: give			2.0	(2.4)
Number of oral sex partners: receive			1.67	(1.5)

Figure 2. The distributions of the mean score of each FSSI factor were consistently skewed above the midpoint for all factors in a sample of 209 women



Mean score for each factor was calculated by averaging the scores on all questions comprising the factor. Blue line indicates mean value of the distribution of mean factor scores.

Table 2. The distribution of responses to each individual question comprising the Female Sexual Subjectivity Index after transformation of Likert scale into numeric values for a sample of 209 women recruited at the University of Washington

FSSI questions organized by factor	1	2	3	4	5	Missing
Factor 1: Sexual body-esteem						
It bothers me that I'm not better looking (reverse)	20	70	58	47	14	0
I worry that I am not sexually desirable to others (reverse)	21	58	32	80	18	0
Physically, I am an attractive person	3	18	47	128	13	0
I am confident that a romantic partner would find me sexually attractive	3	14	39	116	37	0
I am confident that others will find me sexually desirable	4	38	55	99	13	0
Factor 2: Entitlement to pleasure from self						
It is okay for me to meet my own sexual needs through self-masturbation	4	13	26	83	83	0
I believe self-masturbating can be an exciting experience	4	14	52	92	47	0
I believe self-masturbation is wrong (reverse)	1	3	8	61	136	0
Factor 3: Entitlement to pleasure from partner						
If a partner were to ignore my sexual needs and desires, I'd feel hurt	3	13	24	107	62	0
It would bother me if a sexual partner neglected my sexual needs and desires	3	8	14	114	70	0
I would expect a sexual partner to be responsive to my sexual needs and feelings	0	1	9	111	87	1
I think it is important for a sexual partner to consider my sexual pleasure	0	1	2	99	106	1
Factor 4: Self-efficacy						
I would not hesitate to ask for what I want sexually from a romantic partner	4	41	26	97	41	0
I am able to ask a partner to provide the sexual stimulation I need	1	31	26	104	47	0
If I were to have sex with someone, I'd show my partner what I want	0	27	41	120	21	0
Factor 5: Sexual self-reflection						
I spend time thinking and reflecting about my sexual experiences	0	8	26	126	49	0

I rarely think about the sexual aspects of my life (reverse)	1	9	28	109	62	0
I think about my sexuality	2	13	25	119	49	1
I don't think about my sexuality very much (reverse)	3	30	29	103	44	0
My sexual behavior and experiences are NOT something I spend time thinking about (reverse)	1	10	19	112	67	0

The value of 1 corresponds to "Strongly disagree" except in the case of those questions marked "Reverse," in which it corresponds to "Strongly Agree."

Table 3. Frequency of self-reported adverse sexual health outcomes occurring in the previous 12 months in a sample of 209 women recruited at the University of Washington

Outcome	N	(%)
No adverse sexual health outcomes	181	(86.6%)
STI only	5	(2.4%)
Pregnancy	4	(1.9%)
Plan B use	19	(9.1%)

Table 4. Mean score and standard deviation (SD) for each FSSI factor by outcome status following creation of combined adverse sexual health outcome including STI, unwanted pregnancy, or Plan B usage in the past year in a sample of 209 women

	Mean score (SD) for each FSSI factor				
Any adverse sexual health outcome	Sexual body esteem	Entitlement to pleasure from self	Entitlement to pleasure from partner	Self-efficacy	Sexual self-reflection
Yes (N=181)	3.44 (0.74)	4.24 (0.74)	4.13 (0.70)	3.74 (0.78)	3.99 (0.54)
No (N=28)	3.33 (0.75)	4.13 (0.58)	4.27 (0.53)	3.68 (0.83)	3.98 (0.66)

Table 5. Adjusted analysis assessing the association between mean scores on each FSSI factor and the composite outcome of STI, pregnancy, or Plan B use in a series of logistic regression models in a sample of 209 women

FSSI factor	Adjusted odds ratio (95% CI)
Sexual body esteem	1.09 (0.61, 1.95)
Entitlement to pleasure from self	1.20 (0.66, 2.19)
Entitlement to pleasure from partner	0.56 (0.27, 1.18)
Self-efficacy	0.81 (0.47, 1.41)
Sexual self-reflection	1.00 (0.53, 1.91)

All models controlled for age (continuous) and estimated number of times an individual had vaginal sex with a penis in the previous year (categorical variable). Each FSSI factor was modeled separately. Women who did not have vaginal sex with a penis in the past year were excluded from this analysis.

Table 6. The association between mean scores on each FSSI factor and self-reported orgasm frequency during partnered sexual activity in a sample of 209 women assessed via a series of adjusted multinomial regression models

FSSI domain	Odd Ratios (95% CI)
Sexual body esteem	
Frequently orgasms	1.62 (1.00, 2.62)
Sometimes orgasms	1.41 (0.87, 2.30)
Infrequent orgasms	Reference
Entitlement to pleasure from self	
Frequently orgasms	1.77 (1.05, 2.99)
Sometimes orgasms	0.88 (0.54, 1.42)
Infrequent orgasms	Reference
Entitlement to pleasure from partner	
Frequently orgasms	2.28 (1.17, 4.45)
Sometimes orgasms	1.26 (0.66, 2.40)
Infrequent orgasms	Reference
Self-efficacy	
Frequently orgasms	4.28 (2.47, 7.43)
Sometimes orgasms	2.39 (1.45, 3.95)
Infrequent orgasms	Reference
Sexual self-reflection	
Frequently orgasms	1.19 (0.70, 2.03)
Sometimes orgasms	0.95 (0.54, 1.67)
Infrequent orgasms	Reference

Models were adjusted for relationship status (mutually monogamous relationship, non-monogamous relationship, and no relationship) and age (continuous). Each FSSI factor was modeled separately.

Table 7. Distributions of partnered orgasm frequency were significantly different across concordance configurations for self-efficacy and entitlement to pleasure from a partner* in a sample of 209 women

	High efficacy, high entitlement (N=88)	**Low efficacy, high entitlement (N=36)**	**High efficacy, low entitlement (N=7)**	**Low efficacy, low entitlement (N=10)**
Orgasm frequency	N (%)	N (%)	N (%)	N (%)
Frequently	48 (55.6)	7 (19.4)	5 (71.4)	0 (0)
Sometimes	24 (27.3)	8 (22.2)	1 (14.3)	2 (20)
Rarely	16 (18.2)	21 (58.3)	1 (14.3)	8 (80)
Fisher's exact test, $p<0.001$				

*Sixty-six women were excluded from this analysis due to answers of "neither agree nor disagree" on the questions in the relevant factors

Table 8. Frequency of combined adverse sexual health outcome (STI, pregnancy, and Plan B) in the previous 12 months by concordance configurations for self-efficacy and entitlement to pleasure from a partner in a sample of 209 women

	High efficacy, high entitlement (N=90)	**Low efficacy, high entitlement (N=36)**	**High efficacy, low entitlement (N=7)**	**Low efficacy, low entitlement (N=10)**
Any adverse sexual health outcome	N (%)	N (%)	N (%)	N (%)
Yes	11 (12.2)	5 (13.9)	3 (42.9)	2 (20.0)
No	79 (87.8)	31 (86.1)	4 (57.1)	8 (80.0)
Fisher's exact test p=0.15				

Appendix

Table A1. Questions that comprise the Female Sexual Subjectivity Inventory (13)

Factor 1: Sexual body-esteem	
	It bothers me that I'm not better looking*
	I worry that I am not sexually desirable to others*
	Physically, I am an attractive person
	I am confident that a romantic partner would find me sexually attractive
	I am confident that others will find me sexually desirable
Factor 2: Sense of entitlement to sexual pleasure from self	
	It is okay for me to meet my own sexual needs through self-masturbations
	I believe self-masturbating can be an exciting experience
	I believe self-masturbation is wrong*
Factor 3: Sense of entitlement to sexual pleasure from a partner	
	If a partner were to ignore my sexual needs and desires, I'd feel hurt
	It would bother me if a sexual partner neglected my sexual needs and desires
	I would expect a sexual partner to be responsive to my sexual needs and feelings
	I think it is important for a sexual partner to consider my sexual pleasure
Factor 4: Self-efficacy in achieving sexual pleasure	
	I would not hesitate to ask for what I want sexually from a romantic partner
	I am able to ask a partner to provide the sexual stimulation I need
	If I were to have sex with someone, I'd show my partner what I want
Factor 5: Sexual self-reflection	
	I spend time thinking and reflecting about my sexual experiences
	I rarely think about the sexual aspects of my life*
	I think about my sexuality
	I don't think about my sexuality very much*
	My sexual behavior and experiences are not something I spend time thinking about*

*Indicates a reverse item