

## BEHAVIOR

## Diverse Sexual Behaviors in Undergraduate Students: Findings From a Campus Probability Survey

Debby Herbenick, PhD, MPH,<sup>1,2</sup> Callie Patterson, MA,<sup>1,2</sup> Jonathon Beckmeyer, PhD,<sup>2,3</sup> Yael R. Rosenstock Gonzalez, MA,<sup>1,2</sup> Maya Luetke, MPH,<sup>4</sup> Lucia Guerra-Reyes, PhD, MPH, MA,<sup>1,2</sup> Heather Eastman-Mueller, PhD,<sup>1,2</sup> Dubravka Svetina Valdivia, PhD, MPH,<sup>5</sup> and Molly Rosenberg, PhD, MPH<sup>2,4</sup>

## ABSTRACT

**Background:** Probability-based surveys of college students typically assess sexual behaviors such as oral, vaginal, and anal sex. Little is known about the broader range of sexual behaviors in which students engage.

**Aims:** In a random sample survey of undergraduate students, we aimed to: (1) describe how recently participants had engaged in solo and partnered sexual behaviors, (2) examine how frequently participants enacted certain rough sex sexual behaviors (e.g., light spanking, hard spanking, choking, slapping, and others), (3) assess participants' frequency of experiencing certain rough sex behaviors, (4) describe participants' frequency of threesome/group sex, (5) assess the characteristics of participants' experiences with choking during sex; and (6) examine choking and face slapping in regard to consent.

**Methods:** A confidential, online cross-sectional survey of 4,989 randomly sampled undergraduate students at a large U.S. university.

**Outcomes:** Participants reported having engaged in a broad range of solo and partnered sexual activities, including rough sex behaviors.

**Results:** The most prevalent general sexual behaviors were solo masturbation (88.6%), oral sex (79.4% received, 78.4% performed), penile-vaginal intercourse (73.5%), and partnered masturbation (71.1%). Anal intercourse was the least prevalent of these behaviors (16.8% received, 25.3% performed). Among those with any partnered sexual experience, 43.0% had choked a partner, 47.3% had been choked, 59.1% had been lightly spanked and 12.1% had been slapped on the face during sex.

**Clinical translation:** College health clinicians and educators need to be aware of the diverse and evolving range of solo and partnered sexual behaviors reported by students. In addition to counseling students about pregnancy and sexually transmitted infection risk, clinicians might assess patients' engagement in diverse sexual behaviors, such as choking/strangulation during sex, given the risk for serious outcomes including death.

**Strengths and limitations:** Strengths of our research include the large sample size, use of random sampling, high response rate for college populations, broad range of behaviors assessed, and novel data on choking during sex. Among our limitations, we did not assess to what extent the experiences were wanted, pleasurable, or appealing to participants. Except for in relation to choking and slapping, we also did not assess issues of consent.

**Conclusion:** Participants reported engaging in diverse sexual behaviors, some of which have important clinical implications, are understudied, and warrant further research. **Herbenick D, Patterson C, Beckmeyer J, et al. Diverse Sexual Behaviors in Undergraduate Students: Findings From a Campus Probability Survey. J Sex Med 2021;XXX:XXX–XXX.**

Copyright © 2021, International Society of Sexual Medicine. Published by Elsevier Inc. All rights reserved.

**Key Words:** Sex behavior; Sexual activity; Rough sex; Sexual asphyxiation; Strangulation; Coitus; Oral sex; anal Sex

Received September 5, 2020. Accepted March 8, 2021.

<sup>1</sup>Department of Applied Health Science, Indiana University School of Public Health, Indiana University, Bloomington, IN, USA;

<sup>2</sup>The Center for Sexual Health Promotion, Indiana University School of Public Health, Indiana University, Bloomington, IN, USA;

<sup>3</sup>Department of Learning Sciences and Human Development, West Virginia University, Morgantown, WV, USA;

<sup>4</sup>Department of Epidemiology and Biostatistics, Indiana University School of Public Health, Indiana University, Bloomington, IN, USA;

<sup>5</sup>Department of Counseling and Educational Psychology, School of Education, Indiana University, Bloomington, IN, USA

Copyright © 2021, International Society of Sexual Medicine. Published by Elsevier Inc. All rights reserved.

<https://doi.org/10.1016/j.jsxm.2021.03.006>

In the United States (U.S.), 18–24 year olds are disproportionately impacted by sexually transmitted infections (STIs) and unintended pregnancies,<sup>1,2</sup> and experience substantial rates of sexual assault.<sup>3–5</sup> Thus, high quality data are needed on young adults' sexual experiences. College students – most of whom are young adults – are often in a developmental period marked by sexual exploration,<sup>6</sup> which may include an exploration of sexual feelings, identities, as well as solo and partnered sexual behaviors. Prior research on U.S. college students' sexual behaviors has largely relied on convenience samples and classroom recruitment.<sup>7,8</sup> Although such studies have provided important insights into the sexual lives of college students, they are limited in their generalizability.<sup>7,8</sup>

Compared to the many convenience surveys of college students, one study that gathers more generalizable data on U.S. college students' sexual behavior is the American College Health Association-National College Health Assessment (ACHA-NCHA). Although campuses who use the ACHA-NCHA may choose their own sampling procedures, the primary ACHA-NCHA reports limit their presentation of data to schools that either sample all students or that use random sampling techniques.<sup>9</sup> However, the broader generalizability of ACHA-NCHA data is balanced against the limited nature of its sexual health items. Students are only asked how recently they had oral, vaginal, or anal sex, without differentiating between giving or receiving any of these, and without assessing masturbation or more diverse behaviors.<sup>9</sup> Items assessing young adults' sexual behaviors are also in the National Survey of Family Growth, though they too are limited in scope.<sup>10</sup> Oral, vaginal, and anal sex data are necessary but not sufficient to understand college students' risks of pregnancy, sexually transmitted infections (STIs), and human immunodeficiency virus (HIV) - especially in a climate of rising STI rates.<sup>3</sup> Focusing on oral, vaginal, and anal sex leaves an incomplete understanding of college students' sexual risks and sexual expression.

Data from the National Survey of Sexual Health and Behavior (NSSHB) and other U.S. nationally representative surveys demonstrate that young adults engage in a broad range of sexual behaviors including masturbation, vibrator use, dyadic sex, as well as threesomes and groups sex.<sup>11–13</sup> In a 2015 U.S. probability survey, among 18–24 year-olds approximately 12% of men and 15% of women reported having tied up a partner or been tied up, 17% of men and 46% of women reported having spanked or been spanked, 11% of men and 2% of women reported having had a threesome, and 5% of men and 1% of women reported having had group sex.<sup>14</sup> Behaviors sometimes characterized as dominant/submissive, aggressive, or as “rough sex” are prevalent among young adults.<sup>15–18</sup> In a series of 2006–2015 college student convenience surveys, Burch and Salmon (2019) found that 51% of their participants reported having engaged in rough sex behaviors; in this study, rough sex included hair pulling, spanking, scratching, biting, among others.<sup>14</sup> Vogels and O'Sullivan (2019) found, in an online convenience sample

of 19–30 year olds, that 82% reported having engaged in at least one rough sex behavior; the researchers had defined rough sex behaviors as including spanking, scratching, hair pulling, and double penetration.<sup>15</sup> In a campus probability survey of undergraduate students, 80% of those who had a current sexual or romantic partner reported engaging in, and largely enjoying, rough sex which students most often described as including choking, hair pulling, spanking, and/or slapping, among other behaviors.<sup>16</sup> Data on diverse sexual behaviors, including what are sometimes called rough sex behaviors<sup>14,16</sup> or dominant/submissive behaviors,<sup>18,19</sup> are needed given the role that college campuses commonly play in providing programming related to sexual health education and sexual assault prevention.<sup>20–22</sup>

Partnered sexual asphyxiation through the use of hands or ligatures to press against or squeeze the neck (often called “choking,” though technically it is strangulation<sup>17</sup> as it involves external pressure to the neck or airways) is one such behavior that appears to have grown in prevalence. The 2016 National Survey of Pornography Use, Relationships, and Sexual Socialization (NSPRSS) – a U.S. nationally representative probability survey - found that 21% of women and 11% of men reported ever having been choked during sex and that 20% of men and 12% of women reported ever having choked a partner.<sup>18</sup> In a 2020 survey, we found that one in three undergraduate women reported having been choked during their most recent penile-vaginal intercourse event.<sup>23</sup> Choking/strangulation during sex has also garnered attention in the media because of its role in sexual assaults and fatalities, particularly of women.<sup>24–28</sup> Further, strangulation as part of solo masturbation has also been noted due to the occasional unintentional deaths, mostly of young men.<sup>29–33</sup> Given the potential health risks, including death, associated with choking/strangulation whether as part of sex, non-sexual adolescent “choking games,” or intimate partner violence (IPV),<sup>34–38</sup> we need to better understand these sexual behaviors and how they fit into college students' broader sexual exploration.

Using data from a survey of randomly sampled undergraduate students, we aimed to: (1) describe how recently participants reported having engaged in solo and partnered sexual behaviors, (2) examine how frequently participants had enacted certain rough sex sexual behaviors (e.g., light spanking, hard spanking, choking, slapping, and others), (3) assess participants' frequency of experiencing certain rough sex behaviors, as above, (4) describe participants' frequency of threesome/group sex, (5) assess the characteristics of participants' experiences with choking during sex; and (6) examine choking and face slapping in regard to consent.

## MATERIALS AND METHOD

### Study Design

Data are from the 2020 Campus Sexual Health Survey (CSHS), a random probability survey conducted in January and

February 2020 at a large public Midwestern university, prior to the COVID-19 pandemic. Study protocols and measures were approved by the institutional review board (IRB) at the authors' university. Half of the undergraduate student body ( $N=15,478$ ) ages 18 and over were randomly selected to comprise the sampling frame. A list of these individuals was sent by campus administrators directly to the campus survey research center so that the research team would not have access to student identifiers. Of these 15,478 students, survey center staff emailed survey invitations to the 15,432 students with an associated email address. The email invited students to participate in a confidential cross-sectional online survey about sexual health and relationships; up to three reminder emails were sent over the three-week data collection period in January and February 2020. Interested individuals could click on the survey link, read an IRB-approved consent form, and proceed to the survey if they agreed to participate. Participants were eligible to win one of 250 electronic gift cards valued at \$20-\$100.

On average, the survey took 18 minutes to complete. For our survey, the American Association for Public Opinion Research (AAPOR) Response Rate 2 (reflecting partial and complete

surveys) was 32.3% ( $N = 4,989$ ); the complete survey response rate was 27.0% ( $N = 4,177$ ). To correct for nonresponse and to enhance representativeness to the undergraduate population of the campus, the survey center staff created statistical weights using students' demographic characteristics including sex/gender, student classification (see Table 1 for racial/ethnic categories and international student status), and year in school (fourth year, third year, etc.). Rates for responders and non-responders for full time/part time enrollment were similar and thus were not used for statistical weights.

## Measures

*Participant Characteristics.* Age, gender, race/ethnicity, sexual identity, and year in school were included in our analyses. Using an item from a prior college health survey,<sup>4</sup> we assessed participants' sexual identity by asking, "Do you consider yourself to be" with response options as heterosexual or straight, gay or lesbian, bisexual, asexual, or something else with the option to describe." For gender/sex, we asked "what is your gender and/or sex?" Response options were man, woman, transgender woman, transgender man, gender non-binary or non-conforming, and

**Table 1.** Participant characteristics

Characteristics	Total (N=4986) % (n)	Women (N=2453) % (n)	Men (N=2445) % (n)	Trans/Non-Binary (N=77) % (n)
<b>Age</b>				
18-19	40.9 (2037)	41.7 (1024)	40.2 (982)	40.4 (31)
20-24	57.4 (2862)	57.2 (1403)	57.7 (1414)	57.6 (45)
25-29	1.1 (49)	0.6 (15)	1.4 (32)	2.0 (2)
30-39	0.4 (24)	0.4 (9)	1.0 (15)	-
40-49	0.04 (2)	0.08 (2)	-	-
50-59	0.02 (1)	0.04 (1)	-	-
<b>Sexual Identity</b>				
Heterosexual or Straight	83.3 (4142)	80.3 (1971)	88.7 (2169)	1.6 (1)
Gay or Lesbian	4.3 (218)	2.6 (64)	5.7 (139)	19.9 (15)
Bisexual	10.3 (511)	14.6 (357)	4.8 (119)	46.3 (36)
Asexual	0.7 (35)	0.9 (22)	0.3 (7)	8.6 (7)
Something else	1.3 (63)	1.5 (38)	0.3 (7)	23.5 (18)
<b>Year in School</b>				
First	29.0 (1444)	28.6 (702)	29.6 (722)	25.6 (20)
Second	24.3 (1209)	24.7 (605)	23.9 (584)	26.1 (20)
Third	23.6 (1174)	23.1 (567)	23.9 (585)	28.9 (22)
Fourth	21.0 (1045)	21.8 (535)	20.3 (496)	18.4 (14)
Fifth	2.0 (102)	1.8 (45)	2.3 (56)	1.0 (1)
<b>Race/Ethnic Group</b>				
White	69.0 (3435)	68.5 (1681)	69.3 (1693)	78.8 (61)
Black/African American	4.4 (219)	5.5 (136)	3.3 (80)	3.1 (2)
Amer Ind /Alaska Native	0.1 (6)	0.1 (2)	0.2 (4)	-
Asian	6.6 (328)	6.1 (149)	7.2 (176)	2.4 (3)
Hispanic/Latino	7.1 (353)	7.4 (181)	6.8 (166)	8.0 (6)
Native HI/Pacific Islander	0.04 (2)	0.03 (1)	0.05 (1)	-
International Student	7.8 (391)	7.0 (171)	8.7 (214)	2.2 (2)
Multiracial	4.6 (227)	5.0 (122)	4.2 (102)	4.4 (3)

prefer to describe. A separate item adapted from Beischel et al. (2020)<sup>39</sup> asked if participants consider themselves as transgender; response items were no, yes but I do not identify as trans or transgender, yes and I identify as trans or transgender with this term (textbox), yes and let me clarify (textbox), and the above choices don't work for me/let me clarify (textbox).

*Recency of Sexual Behaviors.* Using items from the NSSHB,<sup>13</sup> participants were asked how recently they had engaged in specific sexual behaviors including: solo masturbation, partnered masturbation, received oral sex, given oral sex, penile-vaginal intercourse, received penile-anal sex, and performed penile-anal sex (asked of men and people who reported having a penis). Recency was rated for each behavior using the following scale: never, past month, past year, or > 1 year ago.

*Frequency of Sexual Behaviors.* Participants who reported having engaged in any partnered sexual interactions (e.g., kissing, sexual touching, oral sex, or anything else they considered sexual) were asked a series of items about additional partnered sexual interactions including rough sex behaviors as well as threesomes/group sex. Specifically:

*Frequency of Enacting Rough Sex Behaviors.* Using items from the NSPRSS and other research,<sup>18,19</sup> we asked participants how many times in their life (never, once or twice, 3–5 times, more than 5 times) they had: spanked someone lightly, spanked someone hard enough to leave a mark, slapped a partner's face, slipped their penis into a partner's anus without first asking, ejaculated on someone's face, called someone names like "slut" or "whore" or "bitch" as part of sex, aggressively thrust their penis in and out of someone's mouth/"face fucking," or choked someone as a part of sex. The items about inserting one's penis, ejaculating, and penile thrusting were asked only of participants who reported having a penis.

*Frequency of Experiencing Rough Sex Behaviors.* Again using items modified from the NSPRSS and other research,<sup>18,19</sup> participants were asked how many times (never, once or twice, 3–5 times, more than 5 times) they had: been lightly spanked, been spanked hard enough to leave a mark, been slapped on the face, been called names like "slut" or "whore" or "bitch", had a partner ejaculate on their face, had a partner aggressively thrust their penis in and out of their mouth/"face fucking", had a partner slip their penis in their anus without first asking, or had been choked as part of sex.

*Frequency of Threesomes/Group Sex.* We asked participants how many times they ever engaged in a threesome or group sex (never, once or twice, 3–5 times, more than 5 times).

The development of items related to choking and slapping (below) was informed by focus groups with undergraduate students that we had previously led on these topics in the course of writing survey items.

*Choking Characteristics.* For participants who had ever been choked during sex, we asked them how old they were the first time they were choked (textbox). They were also asked,

"Thinking about the times someone has choked you during sex, have you ever passed out from being choked?" (Yes, No).

*Asking to be Choked.* Participants were asked how often they had asked someone to choke them, or been asked to choke someone (never, once or twice, 3–5 times, more than 5 times).

*Reasons for Asking to Be Choked During Sex.* Those who reported having asked someone to choke them during sex were asked, "You said that you've asked someone to choke you during sex. Why did you ask them to choke you (check all that apply)?" Response options were: It seemed exciting, I thought it would arouse the person, I thought it would make it easier for me to have an orgasm, I'd seen it in porn and wanted to try it, A friend had told me they liked to be choked and I wanted to try it too, It seemed kinky or adventurous, and other (textbox).

*Reasons for Choking Someone During Sex.* Participants who reported having choked someone during sex were asked, "You said that you've choked someone during sex. Why did you choke them (check all that apply)?" Response options were: They asked me to choke them, It seemed exciting, I thought it would arouse the person, I thought it would make it easier for them to have an orgasm, I'd seen it in porn and wanted to try it, A friend had told me they liked choking and I wanted to try it too, It seemed kinky or adventurous, and other (textbox).

*Choking During Sex and Consent.* Participants who reported having been choked as part of sex were asked "how often were you asked for consent, or if you wanted to be choked" before being choked. Response options were: They always asked me if I wanted to be choked/if it was okay, before they choked me, They sometimes asked me for consent/if it was okay, They never asked me for consent/if it was okay; they just choked me.

*Slapping During Sex and Consent.* Those who reported that they had been slapped on the face as part of sex were asked "how often were you asked for consent, or if [they] wanted to be slapped" before they were slapped. Response options were: They always asked me if I wanted to be slapped/if it was okay, before they slapped me, They sometimes asked me for consent/if it was okay, They never asked me for consent/if it was okay; they just slapped me.

## Statistical Analysis

Analyses were conducted using IBM Statistical Package for the Social Sciences (SPSS) version 26. Survey weights were applied to all analyses. Due to small sample sizes of transgender women, transgender men, and gender non-binary individuals, we combined these individuals into a transgender/non-binary group (TGNB) for analyses, consistent with practices from the ACHA-NCHA<sup>9</sup> and the 2019 American Association of Universities Campus Climate Survey.<sup>40</sup>

Recency of general sexual behaviors (e.g., masturbation, manual stimulation, oral sex, etc.), and frequency of threesome/group sex behaviors, are presented for the total sample. *Frequency of*

enacting certain rough sex behaviors and experiencing certain rough sex behaviors were assessed among those who reported having ever engaged in any partnered sexual activity (e.g., kissing, sexual touching, oral sex, etc.) which was 90.0% of our sample (90.0% men, 90.5% women, 85.7% TGNB). Additionally, we used a chi-square test of independence<sup>1</sup> and associated effect size Cramer's V to examine the associations between the frequency of behaviors and the gender subgroups.<sup>41-44</sup> We interpret Cramer's V effect size according to Rea and Parker (1992): .00 and under .10 as negligible; .10 and under .20 as weak; .20 and under .40 as moderate; .40 and under .60 as relatively strong; .60 and under .80 as strong; and .80 and under 1.00 as very strong association. In presence of statistically significant chi-square test, post hoc analyses were conducted using Bonferroni method to control for Type I error rate. For choking/being choked during sex, we also present analyses when restricted to participants with prior vaginal or anal intercourse experience due to the dearth of research in this area, the importance of understanding choking/strangulation during sex, and findings from one other study we conducted that suggests choking may (for unknown reasons) that often co-occur with intercourse.

Demographic characteristics, characteristics of diverse sexual behaviors, and consent characteristics were presented stratified by gender (women, men, and TGNB). We examined the number and proportion of participants reporting past participation in each sexual behavior, reasons for sexual behaviors, and the consent characteristics of choking and slapping experiences. Analysis of variance (ANOVA) was used to examine differences in age at first experience having been choked during sex; we report these means in the text.

## RESULTS

### Participant Characteristics

Of 4986 participants, 49.2% ( $n = 2453$ ) identified as women (though 4.5% of women-identified students also considered themselves genderfluid, non-binary, transfeminine, or other gender diverse identities), 49.0% ( $n = 2445$ ) identified as men (2.8% of whom also identified in gender diverse terms such as non-binary or transmasculine), and 1.5% identified as transgender, gender non-binary, or other non-binary/non-conforming gender identities (TGNB). Participants' mean age was 20.1 (range = 18 to 57, median = 20.0, SD = 1.85). More than 80% of the sample identified as heterosexual, with more women and TGNB individuals identifying as bisexual as compared to gay or lesbian and similar proportions of men identifying as gay and bisexual. See Table 1 for additional demographic characteristics.

### Aim 1: Sexual Behaviors Reported in the Past Month, Past Year, More Than a Year Ago, or Never

Recency of sexual behaviors are presented in Table 2. Although we present percentages for TGNB individuals reporting various sexual behaviors, due to small sample sizes we urge caution in any attempts to generalize beyond the present study.

*Solo and Partnered Masturbation.* Solo masturbation was the most common sexual behavior and most students had masturbated in the prior month (63.7% of women, 90.5% of men, 87.9% TGNB). About half of participants reported partnered masturbation in the prior month, with nearly three quarters of all participants having engaged in partnered masturbation.

*Oral Sex.* More than three quarters of participants reported having ever given oral sex to a partner and about 80% reported having ever received oral sex. Although fewer TGNB individuals reported having ever engaged in oral sex, about half of all participants across gender categories had given or received oral sex as recently as in the past month.

*Penile-Vaginal Intercourse (PVI).* About three quarters of all participants reported having ever engaged in PVI, though fewer (62.8%) TGNB individuals reported having ever had PVI. Past month PVI was reported by 56.0% of women, 48.7% of men, and 40.2% of TGNB individuals.

*Penile-Anal Sex.* In all, 16.8% of participants reported having ever received anal sex (22.6% women, 9.4% men, 32.4% TGNB). Among men and TGNB individuals, 25.3% of participants reported ever having performed anal sex on a partner (25.1% men, 41.0% TGNB). More than one-quarter of men (27.5%,  $n = 591$ ) and two-thirds of TGNB individuals (64.6%,  $n = 25$ ) had ever given or received anal sex. When we examined the men by sexual identity, we found that 40.5% ( $n = 241$ ) of gay and bisexual men had ever received penile-anal sex, with 13.9% of gay and bisexual men having done so in the prior month. We also found that 3.7% ( $n = 70$ ) of heterosexual men reported ever having received penile-anal intercourse, including 1.5% ( $n = 29$ ) in the prior month. Further, we found that 56.9% ( $n = 142$ ) of gay and bisexual men reported having ever performed anal sex.

### Aim 2: Frequency of Enacting Rough Sex Behaviors

As described earlier, frequency of enacting certain rough sex behaviors was asked only of those with any partnered sexual experience (e.g., kissing, cuddling, touching, oral sex, etc.).

*Lightly Spanked Partner.* As shown in Table 3, more than two-thirds of participants reported having ever spanked a partner. That is, 81.7% of men and 67.7% of TGNB individuals

between practicality and precision in conducting the chi-square test. Thus, we follow their recommendations and report chi-square for the tests in cases where no cells had an expected frequency less than one and no more than 20% of cells contained between one and five cell frequencies.

<sup>1</sup>Determining the minimum cell size in chi-square test of association is complex and not universally agreed upon in the literature. We agree with scholars such as Landis et al. (2013), Cochran (1954), Ruxton and Neuhauser (2010), who recognize the difficulty of obtaining a balance

**Table 2.** Sexual behaviors in the past month past year, 1+ year ago, or never, presented by gender (all participants)

	Total (N=4986)		Women (N=2453)		Men (N=2445)		Trans/Nonbinary (N=77)	
	n	%	n	%	n	%	n	%
Solo Masturbation								
Never	516	11.4	442	19.7	68	3.1	6	7.4
Past Month	3409	77.2	1426	63.7	1977	90.5	67	87.9
Past Year	436	8.2	274	12.2	95	4.3	1	1.6
1 + Year Ago	142	3.2	97	4.3	44	2.0	2	3.0
Partner masturbation/hand genital stimulation								
Never	1295	28.9	702	31.5	572	26.3	21	27.8
Past Month	2083	46.5	1030	46.2	1014	46.7	39	52
Past Year	803	17.9	385	17.2	406	18.7	12	16.4
1 + Year Ago	299	6.7	116	5.2	180	8.3	3	3.7
Received oral sex								
Never	926	20.6	495	22.2	409	18.8	22	29.4
Past Month	2270	50.5	1091	48.9	1130	51.9	49	52.6
Past Year	998	22.2	502	22.5	489	22.4	7	9.3
1 + Year Ago	300	6.7	142	8.7	151	6.9	7	8.7
Gave oral sex								
Never	969	21.6	465	20.8	483	22.2	21	27.2
Past Month	2264	50.5	1209	54.1	1012	46.6	43	56.7
Past Year	958	21.3	450	20.1	502	23.1	6	8.1
1 + Year Ago	296	6.6	112	5.0	178	8.2	6	8
Penile-vaginal intercourse								
Never	1190	26.5	559	25.0	603	27.6	28	37.2
Past Month	2342	52.2	1251	56.0	1061	48.7	30	40.2
Past Year	725	16.1	332	14.9	383	17.6	10	13.1
1 + Year Ago	234	5.2	94	4.2	133	6.1	7	9.1
Received penile-anal sex								
Never	3691	83.2	1690	76.4	1950	90.6	51	68.6
Past Month	217	4.9	124	5.6	87	4.0	6.0	8.7
Past Year	274	6.2	193	8.7	74	3.5	7.0	9.6
1 + Year Ago	254	5.7	204	9.2	40	1.9	10	13.1
Performed anal sex								
Never	1626	74.7	-	-	1606	74.9	15	59.0
Past Month	142	6.6	-	-	139	6.5	2	9.8
Past Year	210	9.6	-	-	206	9.6	4	15.8
1 + Year Ago	200	9.1	-	-	194	9	4	15.3

reported having lightly spanked a partner at least once as did 39.4% of women. More than half of men and 45.0% TGNB individuals reported having lightly spanked people as part of sex more than five times. Further, the omnibus  $X^2(6) = 883.70$ ,  $P < .001$ , was statistically significant with a moderate effect size, Cramer's  $V = .33$ . Information regarding where specific subgroup differences were found can be seen in Table 3 with the superscript notation. For example, it was found that women, men, and TGNB differed statistically among each other for "never" category (hence designations <sup>a</sup>, <sup>b</sup>, and <sup>c</sup> for men, women, and TGNB, respectively). Further, it was found that for "3-5 times" category, men and women differed - statistically speaking - while TGNB was statistically no different from either men or women (hence its <sup>a,b</sup> notation). Similarly, no group differences were found among men,

women, and TGNB for "once or twice" category (hence the <sup>a,a,a</sup> notation across all three gender subgroups).

*Spanked Partner Hard.* Most men (56.8%) and 45.1% of TGNB individuals reporting having ever spanked a partner hard enough to leave a mark, and nearly one quarter reported having done so more than five times. Among women, 13.1% indicated they had ever spanked someone during sex hard enough to leave a mark. The  $X^2(6) = 844.36$ ,  $P < .001$  was statistically significant with the moderate effect size, Cramer's  $V = .33$ . Statistical differences were found between at least two gender subgroups across all frequency categories (see Table 3 for details).

*Slapped a Partner's Face.* Having slapped a partner on the face was reported by 15.0% of men, 25.8% of TGNB individuals,

**Table 3.** Frequency of behaviors enacted by participants, presented by gender, of those reporting any partnered sexual activity (e.g., kissing, oral sex, etc.)

	Total (N=3751)		Women (N=1829)		Men (N=1779)		Trans/Non-Binary (N=57)		Omnibus $\chi^2$ and effect size
	n	%	n	%	n	%	n	%	
<i>Lightly spanked a partner's behind/butt</i>									
Never	1583	39.8	1213 <sup>b</sup>	60.6	349 <sup>a</sup>	18.3	21 <sup>c</sup>	32.3	$\chi^2(6) = 883.70, P < .001$ Cramer's V = .33
Once or Twice	618	15.5	321 <sup>a</sup>	16.0	290 <sup>a</sup>	15.1	8 <sup>a</sup>	12.1	
3-5 Times	409	10.3	154 <sup>b</sup>	7.7	248 <sup>a</sup>	13.0	7 <sup>a,b</sup>	10.6	
More than 5 times	1369	34.4	312 <sup>b</sup>	15.6	1026 <sup>a</sup>	53.6	29 <sup>a</sup>	45.0	
<i>Spanked partner hard enough to leave a mark</i>									
Never	2597	65.3	1735 <sup>b</sup>	86.9	826 <sup>a</sup>	43.2	36 <sup>a</sup>	54.9	$\chi^2(6) = 844.36, P < .001$ Cramer's V = .33
Once or Twice	488	12.3	123 <sup>b</sup>	6.2	356 <sup>a</sup>	18.6	7 <sup>a,b</sup>	11.5	
3-5 Times	258	6.5	48 <sup>b</sup>	2.4	207 <sup>a</sup>	10.8	4 <sup>a,b</sup>	5.4	
More than 5 times	635	16.0	91 <sup>b</sup>	4.5	526 <sup>a</sup>	27.5	18 <sup>a</sup>	28.2	
<i>Slapped a partner's face during sex</i>									
Never	3545	89.1	1870 <sup>b</sup>	93.5	1625 <sup>a</sup>	85.0	48 <sup>c</sup>	74.2	$\chi^2(6) = 113.15, P < .001$ Cramer's V = .12
Once or Twice	226	5.7	85 <sup>b</sup>	4.3	137 <sup>a</sup>	7.2	4 <sup>a,b</sup>	6.0	
3-5 Times	93	2.3	17 <sup>b</sup>	0.9	71 <sup>a</sup>	3.7	5 <sup>a</sup>	7.1	
More than 5 times	113	2.8	27 <sup>b</sup>	1.3	78 <sup>a</sup>	4.1	8 <sup>c</sup>	12.7	
<i>Slipped your penis in a partner's anus without first asking/discussing*</i>									
Never	1824	94.3	6 <sup>a,b</sup>	100	1799 <sup>a</sup>	94.4	18 <sup>b</sup>	82.0	$\chi^2(6) = 9.80, P = .133$ Cramer's V = .05
Once or Twice	72	3.7	0 <sup>a,b</sup>	-	70 <sup>a</sup>	3.7	3 <sup>b</sup>	12.2	
3-5 Times	20	1.0	0 <sup>a</sup>	-	20 <sup>a</sup>	1.0	0 <sup>a</sup>	-	
More than 5 times	18	0.9	0 <sup>a</sup>	-	17 <sup>a</sup>	0.9	1 <sup>a</sup>	5.8	
<i>Ejaculated ("cum") on someone's face*</i>									
Never	990	51.1	5 <sup>a</sup>	75.2	975 <sup>a</sup>	51.1	9 <sup>a</sup>	41.6	$\chi^2(6) = 6.64, P = .356$ Cramer's V = .04
Once or Twice	453	23.4	0 <sup>a</sup>	-	445 <sup>a</sup>	23.3	8 <sup>a</sup>	35.3	
3-5 Times	221	11.4	0 <sup>a</sup>	-	218 <sup>a</sup>	11.4	2 <sup>a</sup>	11.6	
More than 5 times	274	14.2	2 <sup>a</sup>	24.8	270 <sup>a</sup>	14.2	2 <sup>a</sup>	11.5	
<i>Choked someone during sex</i>									
Never	2265	57.0	1447 <sup>b</sup>	72.4	788 <sup>a</sup>	41.3	29 <sup>a</sup>	45.2	$\chi^2(6) = 446.59, P < .001$ Cramer's V = .24
Once or Twice	552	13.9	234 <sup>b</sup>	11.7	310 <sup>a</sup>	16.2	8 <sup>a,b</sup>	13.0	
3-5 Times	383	9.6	142 <sup>b</sup>	7.1	231 <sup>a</sup>	12.1	9 <sup>a,b</sup>	14.6	
More than 5 times	774	19.5	175 <sup>b</sup>	8.7	581 <sup>a</sup>	30.4	18 <sup>a</sup>	27.3	
<i>Called someone names like slut, whore, or bitch as part of sex</i>									
Never	3356	84.3	1878 <sup>b</sup>	93.8	1431 <sup>a</sup>	74.9	46 <sup>a</sup>	70.2	$\chi^2(6) = 287.48, P < .001$ Cramer's V = .19
Once or Twice	249	6.3	61 <sup>b</sup>	3.0	185 <sup>a</sup>	9.7	3 <sup>a,b</sup>	4.7	
3-5 Times	133	3.3	22 <sup>b</sup>	1.1	107 <sup>a</sup>	5.6	4 <sup>a</sup>	6.6	
More than 5 times	241	6.1	41 <sup>b</sup>	2.1	188 <sup>a</sup>	9.8	12 <sup>a</sup>	18.4	

(continued)

Table 3. Continued

	Total (N=3751)		Women (N=1829)		Men (N=1779)		Trans/Non-Binary (N=57)		Omnibus $\chi^2$ and effect size
	n	%	n	%	n	%	n	%	
<i>Aggressively thrust your penis in and out of someone's mouth (face fucking)*</i>									
Never	1191	61.5	5 <sup>a</sup>	71.1	1171 <sup>a</sup>	61.4	15 <sup>a</sup>	71.1	$\chi^2(6) = 3.11, P = .795$ Cramer's V = .03
Once or Twice	351	18.1	1 <sup>a</sup>	17.3	346 <sup>a</sup>	18.1	4 <sup>a</sup>	17.3	
3–5 Times	168	8.7	0 <sup>a</sup>	0	168 <sup>a</sup>	8.8	0 <sup>a</sup>	-	
More than 5 times	226	11.7	1 <sup>a</sup>	11.5	223 <sup>a</sup>	11.7	2 <sup>a</sup>	11.5	

\*Asked of participants of any gender identity who indicated having a penis. Note: A superscript associated with the counts denotes a subset of gender variable whose column proportions did not statistically significantly differ from each other at alpha .05 after correcting for multiple comparisons via Bonferroni method.

and 6.5% of women. Fewer than 5% of women and men had done this more than five times though 12.7% of TGNB individuals reported having done so. The  $\chi^2(6) = 113.15, P < .001$  was statistically significant, while the effect size was weak, Cramer's V = .12. Differences were found between at least two gender subgroups for all frequency categories (see Table 3 for details).

*Anal Sex Without Asking.* Among men, 5.6% reported having ever slipped their penis into someone's anus without first asking or discussing; 18.0% of TGNB individuals with a penis reported having ever done this. The  $\chi^2(6) = 9.80, P = .13$  was statistically not significant, with negligible effect size, Cramer's V = .05. We also note that 6 cells (or 50.0%) has expected count less than 5, thus these results ought to be interpreted with caution.

*Ejaculated on Face.* Having ejaculated on a partner's face was reported by 48.9% of men and 58.4% of TGNB students. The  $\chi^2(6) = 6.64, P = .36$  was statistically not significant, with negligible effect size, Cramer's V = .04. We also note that 7 cells (or 58.3%) has expected count less than 5, thus these results ought to be interpreted with caution.

*Choked Someone During Sex.* Of all students with any kind of partnered sexual interactions, 27.6% of women, 58.7% of men, and 54.8% of TGNB students reported having ever choked a partner during sex; more than one-quarter of men and TGNB individuals had choked a partner more than five times. Among women, 8.7% had choked a partner more than five times. The  $\chi^2(6) = 446.59, P < .001$  was statistically significant and the effect size was moderate, Cramer's V = .24. Differences were found between men and women across all frequency categories and between men and TGNB subgroups (see Table 3 for details).

When we further limited the sample to those with vaginal and/or anal intercourse experience, we found that 31.2% of women ( $n = 515$ ), 67.8% of men ( $n = 1041$ ), and 62.6% of TGNB participants ( $n = 30$ ) had ever choked a partner during sex. Of the total men in the sample (including those with no

kissing or sexual touching experience), 49.2% reported having ever choked someone during sex.

*Called Someone Names.* Of all students with any kind of partnered sexual interactions, 6.2% of women, 25.1% of men, and 29.8% of TGNB students reported having ever called a partner names like bitch, slut, or whore during sex; 2.1% of women, 9.8% of men, and 18.4% of TGNB individuals had done this more than five times. The  $\chi^2(6) = 287.48, P < .001$  was statistically significant, while the effect size was weak, Cramer's V = .19. Differences were found between men and women across all frequency categories and between women and TGNB subgroups across most frequency categories (see Table 3 for details).

*Aggressive Fellatio.* Among men, 38.6% reported having ever aggressively thrust their penis in and out of a partner's mouth. Also, 28.9% of TGNB individuals with a penis had ever done this. The  $\chi^2(6) = 3.11, P = .80$  was statistically not significant with negligible effect size, Cramer's V = .03. We also note that 7 cells (or 58.3%) has expected count less than 5, thus these results ought to be interpreted with caution.

### Aim 3: Frequency of Experiencing Rough Sex Behaviors

As described earlier, frequency of experiencing certain rough sex behaviors were asked only of those with any partnered sexual experience (e.g., kissing, cuddling, touching, oral sex, etc.).

*Lightly Spanked.* Having ever been lightly spanked during sex was reported by 79.7% of women, 37.3% of men, and 70.4% of TGNB students. Most women (54.0%) and 42.8% of TGNB individuals had been lightly spanked more than five times, as had 11.6% of men. The  $\chi^2(6) = 1000.41, P < .001$  was statistically significant, and the effect size was moderate, Cramer's V = .36. Statistical differences were found between men and women, as well as men and TGNB gender subgroups for most of the frequency categories (see Table 4 for detail).

*Spanked Hard.* Having ever been spanked hard enough to leave a mark was reported by 50.6% of women, 15.5% of men, and 45.7% of TGNB participants. About one-quarter of women and TGNB individuals had experienced this more than five times, as had 3.5% of men. The  $X^2(6) = 585.28^2$ ,  $P < .001$  was statistically significant, and the effect size was moderate, Cramer's  $V = .27$ . Statistical differences were found between men and women, as well as men and TGNB gender subgroups, across most of the frequency categories (see Table 4 for detail).

*Slapped on Face.* About 13% of women, 10.5% of men, and 23.5% of TGNB participants had ever been slapped on their face during sex; 4.0% of women, 1.5% of men, and 9.2% of TGNB participants said this happened more than five times. The  $X^2(6) = 40.36$ ,  $P < .001^3$  was statistically significant, but the effect size was negligible, Cramer's  $V = .07$ . Statistical differences were found between men and women, as well as men and TGNB gender subgroups for "never" and "more than 5 times" frequency categories.

*Experienced Anal Sex Without Asking.* We found that 13.9% of women, 3.8% of men, and 11.4% of TGNB individuals had ever had a partner slip their penis into the participant's anus without discussion or being asked. The  $X^2(6) = 126.08$ ,  $P < .001^4$  was statistically significant, although the effect size was weak, Cramer's  $V = .13$ . Several statistical differences were found between men and women, as well as men and TGNB gender subgroups (only "more than 5 times" frequency category yielded no statistical difference among the three gender subgroups).

When restricted to gay and bisexual men, we found that 21.4% of gay and bisexual men ( $n = 44$ ) reported this happening to them at least once and 2.4% ( $n = 5$ ) reported this experience at least five times. Among heterosexual men, 1.5% ( $n = 25$ ) reported that someone had ever slipped their penis into the participant's anus without first asking or discussing.

*Experienced Facial Ejaculation.* About 27% of participants reported that someone had ever ejaculated on their face; this was reported by 41.3% of women, 11.8% of men, and 30.5% of TGNB individuals. The  $X^2(6) = 429.44$ ,  $P < .001^5$  was statistically significant, and the effect size was moderately weak, Cramer's  $V = .23$ . Several statistical differences were found between men and women, as well as men and TGNB gender subgroups as shown in Table 4. When restricted to gay and bisexual men, we found that 46.2% ( $n = 96$ ) reported having ever had this experience, including 12.1% ( $n = 25$ ) who reported it more than five times. Among heterosexual men, 6.5% ( $n = 116$ ) reported that someone had ejaculated on their face.

*Choked by Partner.* Overall, of students with *any kind of partnered sexual interactions* (even just kissing or sexual touching), 47.3% had ever been choked during sex; this was reported by 64.4% of women, 29.1% of men, and 55.5% of TGNB students. More than a third of women and 37.4% of TGNB individuals experienced this more than five times, as had 6.7% of men. The  $X^2(6) = 667.75$ ,  $P < .001$  was statistically significant, and the effect size was moderate, Cramer's  $V = .29$ . Statistical differences between men and women and men and TGNB subgroups were found across some of the frequency categories (see Table 4). When we further limited the sample to *those with vaginal or anal intercourse experience*, we found that 73.3% of women ( $n = 1202$ ), 63.6% of TGNB participants ( $n = 30$ ), and 30.4% of men ( $n = 459$ ) had ever been choked during sex. Of the *total sample of women* - that is, including even those with no partnered sexual interactions - 57.8% of women reported having ever been choked during sex.

*Been Called Names.* Having been called names during sex such as bitch, slut, or whore was reported by 25.0% of women, 8.7% of men, and 45.2% of TGNB participants. The  $X^2(6) = 252.77$ ,  $P < .001^6$  was statistically significant, although the effect size was weak, Cramer's  $V = .18$ . Several statistical differences were found among all three gender subgroups, including frequency categories "never," "3–5 times," and "more than 5 times."

*Experienced Aggressive Fellatio.* Among women, 40.8% reported that someone had aggressively thrust their penis in and out of the participant's mouth (face fucking); this was also reported by 30.3% of TGNB individuals and 8.3% men. The  $X^2(6) = 549.47$ ,  $P < .001^7$  was statistically significant, and the effect size was moderate, Cramer's  $V = .26$ . Statistical differences between men and women, as well as men and TGNB subgroups, across some of the frequency categories (see Table 4). Restricted to gay and bisexual men, this was reported by 49.8% of gay and bisexual men ( $n = 103$ ) and 3.1% ( $n = 52$ ) of heterosexual men.

#### Aim 4: Frequency of Threesomes/Group Sex

*Threesomes and Group Sex.* Among all participants, 91.0% ( $n = 3616$ ) reported never having engaged in a threesome or group sex, 7.1% ( $n = 280$ ) had done so once or twice, 1.3% ( $n = 50$ ) 3–5 times, and 0.7% ( $n = 29$ ) more than five times. Fewer women reported threesome/group sex experience, with 93.0% ( $n = 1858$ ) of women reporting never having done this compared to 89.1% ( $n = 1703$ ) of men. Across all gender groups with threesome/group sex experience, these experiences were more often reported to have occurred once or twice (women:

<sup>2</sup>2 cells (16.7%) had expected count less than 5.

<sup>3</sup>3 cells (25.0%) had expected count less than 5.

<sup>7</sup>2 cells (16.7.0%) had expected count less than 5.

<sup>2</sup>1 cell (8.3%) had expected count less than 5.

<sup>3</sup>3 cells (25.0%) had expected count less than 5.

<sup>4</sup>3 cells (25.0%) had expected count less than 5.

**Table 4.** Frequency of behaviors experienced by the participant, presented by gender, of those reporting any partnered sexual activity (e.g., kissing, oral sex, etc.)

	Total		Women		Men		Trans/Non-Binary		Omnibus $\chi^2$ and effect size
	<i>N</i> = 4986		<i>N</i> = 2453		<i>N</i> = 2445		<i>N</i> = 77		
	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%	
<i>Someone lightly spanked your behind/butt</i>									
Never	1610	40.8	403 <sup>b</sup>	20.3	1187 <sup>a</sup>	62.7	19 <sup>b</sup>	29.6	$\chi^2(6) = 1000.41, P < .001$ Cramer's <i>V</i> = .36
Once or Twice	604	15.3	253 <sup>b</sup>	12.7	342 <sup>a</sup>	18.1	8 <sup>a,b</sup>	12.4	
3–5 Times	410	10.4	257 <sup>b</sup>	12.9	143 <sup>a</sup>	7.5	10 <sup>a,b</sup>	15.2	
More than 5 times	1322	33.5	1075 <sup>b</sup>	54.0	220 <sup>a</sup>	11.6	28 <sup>b</sup>	42.8	
<i>Someone spanked you hard enough to leave a mark</i>									
Never	2617	66.4	982 <sup>b</sup>	49.4	1598 <sup>a</sup>	84.5	35 <sup>b</sup>	54.3	$\chi^2(6) = 585.28, P < .001$ Cramer's <i>V</i> = .27
Once or Twice	478	12.1	311 <sup>b</sup>	15.6	157 <sup>a</sup>	8.3	10 <sup>a,b</sup>	15.1	
3–5 Times	293	7.4	219 <sup>b</sup>	11.0	70 <sup>a</sup>	3.7	4 <sup>a,b</sup>	6.6	
More than 5 times	556	14.1	474 <sup>b</sup>	23.9	66 <sup>a</sup>	3.5	16 <sup>b</sup>	24.0	
<i>Slapped on face</i>									
Never	3462	87.9	1721 <sup>b</sup>	86.8	1690 <sup>a</sup>	89.4	50 <sup>b</sup>	76.5	$\chi^2(6) = 40.36, P < .001$ Cramer's <i>V</i> = .07
Once or Twice	269	6.8	125 <sup>a</sup>	6.3	135 <sup>a</sup>	7.2	8 <sup>a</sup>	12.4	
3–5 Times	95	2.4	57 <sup>a</sup>	2.9	37 <sup>a</sup>	2.0	1 <sup>a</sup>	1.9	
More than 5 times	112	2.8	78 <sup>b</sup>	4.0	27 <sup>a</sup>	1.5	6 <sup>b</sup>	9.2	
<i>Slipped their penis in your anus without first asking or discussing</i>									
Never	3583	91.0	1708 <sup>b</sup>	86.1	1816 <sup>a</sup>	96.2	58 <sup>b</sup>	88.6	$\chi^2(6) = 126.08, p < .001$ Cramer's <i>V</i> = .13
Once or Twice	292	7.4	232 <sup>b</sup>	11.7	54 <sup>a</sup>	2.8	7 <sup>b</sup>	10.1	
3–5 Times	42	1.1	32 <sup>b</sup>	1.6	9 <sup>a</sup>	0.5	1 <sup>a,b</sup>	1.4	
More than 5 times	21	0.5	12 <sup>a</sup>	0.6	8 <sup>a</sup>	0.4	0 <sup>a</sup>	-	
<i>Ejaculated on your face</i>									
Never	2876	73.1	1164 <sup>b</sup>	58.7	1665 <sup>a</sup>	88.2	45 <sup>b</sup>	69.5	$\chi^2(6) = 429.44, P < .001$ Cramer's <i>V</i> = .23
Once or Twice	511	13.0	404 <sup>b</sup>	20.4	100 <sup>a</sup>	5.3	7 <sup>a,b</sup>	11.4	
3–5 Times	257	6.5	193 <sup>b</sup>	9.7	59 <sup>a</sup>	3.1	6 <sup>b</sup>	8.7	
More than 5 times	292	7.4	221 <sup>b</sup>	11.2	64 <sup>a</sup>	3.4	7 <sup>b</sup>	10.4	
<i>Someone choked you as part of sex</i>									
Never	2073	52.7	706 <sup>b</sup>	35.6	1337 <sup>a</sup>	70.9	29 <sup>b</sup>	44.5	$\chi^2(6) = 667.75, P < .001$ Cramer's <i>V</i> = .29
Once or Twice	579	14.7	281 <sup>a</sup>	14.2	293 <sup>a</sup>	15.5	5 <sup>a</sup>	8.2	
3–5 Times	404	10.3	265 <sup>b</sup>	13.4	130 <sup>a</sup>	6.9	9 <sup>a,b</sup>	14.4	
More than 5 times	878	22.3	730 <sup>b</sup>	36.9	127 <sup>a</sup>	6.7	21 <sup>b</sup>	32.9	
<i>Called names like slut, whore, or bitch as part of sex</i>									
Never	3252	82.5	1490 <sup>b</sup>	75	1726 <sup>a</sup>	91.3	36 <sup>c</sup>	54.8	$\chi^2(6) = 252.77, P < .001$ Cramer's <i>V</i> = .18
Once or Twice	296	7.5	194 <sup>b</sup>	9.8	97 <sup>a</sup>	5.1	5 <sup>a,b</sup>	7.2	
3–5 Times	163	4.1	116 <sup>b</sup>	5.8	38 <sup>a</sup>	2.0	10 <sup>c</sup>	14.7	
More than 5 times	233	5.9	188 <sup>b</sup>	9.4	30 <sup>a</sup>	1.6	15 <sup>c</sup>	23.4	
<i>Aggressively thrust their penis in and out of your mouth (face fucked you)</i>									
Never	2952	75.0	1176 <sup>b</sup>	59.2	1730 <sup>a</sup>	91.7	45 <sup>b</sup>	69.7	

(continued)

Table 4. Continued

	Total		Women		Men		Trans/Non-Binary		Omnibus $\chi^2$ and effect size
	$N = 4986$		$N = 2453$		$N = 2445$		$N = 77$		
	$n$	%	$n$	%	$n$	%	$n$	%	
Once or Twice	465	11.8	386 <sup>b</sup>	19.4	74 <sup>a</sup>	3.9	5 <sup>a,b</sup>	8.2	$\chi^2(6) = 549.47, P < .001$ Cramer's $V = .26$
3–5 Times	231	5.9	184 <sup>b</sup>	9.2	42 <sup>a</sup>	2.2	5 <sup>b</sup>	7.9	
More than 5 times	290	7.4	240 <sup>b</sup>	12.1	41 <sup>a</sup>	2.2	9 <sup>b</sup>	14.2	

Notes. A superscript associated with the counts denotes a subset of gender variable whose columns proportions did not statistically significantly differ from each other at alpha .05 after correcting for multiple comparisons via Bonferroni method.

5.8%,  $n = 115$ ; men: 8.2%,  $n = 158$ ; TGNB: 12.2%,  $n = 8$ ) and less often 3–5 times (women: 0.8%,  $n = 15$ ; men: 1.8%,  $n = 34$ ; TGNB: 1.9%,  $n = 1$ ) or more than five times (women: 0.5%,  $n = 9$ ; men: 0.9%,  $n = 18$ ; TGNB: 3.5%,  $n = 2$ ).

### Aim 5: Characteristics of Choking During Sex

*Age at First Experience Being Choked During Sex.* Among participants who reported having been choked during sex, the mean age at first time being choked was 18.4 years old (SD = 1.67, range = 7 to 35). Considered by gender, the mean age at first time being choked was 18.4 for women (SD = 1.58, range = 12 to 35), 18.5 for men (SD = 1.85, range = 7 to 23), and 18.0 for TGNB students (SD = 1.86, range = 14 to 22). There were no significant differences in reported age by gender. Of those who had been choked, 26.8% of women ( $n = 317$ ), 22.9% of men ( $n = 107$ ), and 36.0% of TGNB individuals ( $n = 13$ ) had been first choked before the age of 18 (of those who had ever been choked, this amounts to 25.9% participants).

*Having Passed Out While Being Choked During Sex.* Of those participants who had ever been choked during sex, having passed out while being choked was reported by 2.1% of the combined sample ( $n = 38$ ); by gender, having ever passed out from being choked during sex was reported by 1.9% of women ( $n = 24$ ) and 2.0% of men ( $n = 11$ ). Although a larger proportion of TGNB individuals who had ever been choked also reported having passed out (3 of 15), the small sample size necessitates caution in interpretation.

*Participants Asked Partner(s) to Choke Them.* As shown in Table 5, more than half of women and TGNB individuals with oral, vaginal, or anal sex experience reported having ever asked a partner to choke them during sex. About 27% of women and TGNB individuals had done so more than five times. In contrast, 15.0% of men reported having ever asked a partner to choke them during sex and only 4.3% of men had done so more than five times.

*Reasons Participants Asked to be Choked.* Of the seven possible response options, the two that were most commonly endorsed were consistent across all three gender categories: “It seemed

exciting” (72.9% women, 75.0% men, 82.7% TGNB) and “It seemed kinky or adventurous” (61.0% women, 66.3% men, 61.8% TGNB). For women, the least commonly endorsed items were “I’d seen it in porn and wanted to try it” (9.9%); in comparison, 22.5% of men and 26.8% of TGNB individuals endorsed this item. About one fifth of participants indicated that they thought it would facilitate orgasm and close to one third thought it would arouse their partner (see Table 5).

*Participants Had Been Asked to Choke Partner(s).* More than half of men (52.9%) and TGNB individuals (56.7%) reported that a partner had ever asked the participant to choke them during sex; about one quarter reported having been asked to choke someone more than five times during sex. In contrast, one fourth of women had ever been asked to choke their partner.

*Reasons Participants Choked Partner(s).* Overwhelmingly, the most common reason that participants gave for choking their partner is that the person asked them to (60.8% women, 85.8% men, 86.8% TGNB). About 40% of participants endorsed reasons related to arousal, excitement, or choking seeming kinky or adventurous.

### Aim 6: Examine Choking and Face Slapping in Regard to Consent

*Choking and Consent.* As shown in Table 6, among TGNB individuals who had been choked during sex, 58.5% reported that their partner(s) had always asked if they wanted to be choked, or if it was okay, before they choked the participant. For (cisgender) women and men, less than half indicated this was true for them (48.0% women, 45.1% men). Nearly one-third of participants who had ever been choked indicated that partners had only sometimes asked for consent or if it was okay; 20.9% reported that they had never been asked for consent or if it was okay, that their partner(s) had just choked them. TGNB individuals more often reported having first been asked if they wanted to be choked or if it was okay.

*Slapping and Consent.* Referring again to Table 6, about one-third of participants reported that their partner(s) had always

**Table 5.** Characteristics of choking during sex, presented by gender

	Total		Women		Men		Trans/Non-Binary	
	N	%	N	%	N	%	N	%
<b>Choking Requests</b>								
<i>Asked someone to choke you during sex</i>								
Never	2603	65.5	945	47.3	908	85.0	32	42.0
Once or Twice	418	10.5	283	14.2	289	6.9	4	5.0
3–5 Times	304	7.6	223	11.2	237	3.8	8	10.5
More than 5 times	650	16.3	548	27.4	453	4.3	21	26.8
<i>Someone asked you to choke them as part of sex</i>								
Never	2425	61.6	1489	75.0	1624	48.1	28	43.3
Once or Twice	522	13.3	222	11.2	131	15.3	11	17.2
3–5 Times	385	9.8	140	7.1	73	12.5	8	12.0.0
More than 5 times	606	15.4	134	6.7	82	24.0	18	27.5
<i>Reasons that participants asked partner(s) to choke them</i>								
It seemed exciting	1008	73.6	766	72.9	214	75.0	27	82.7
I thought it would arouse the person	406	29.7	297	28.3	99	34.8	22	31.2
I thought it would make it easier for me to have an orgasm	305	22.2	239	22.7	53	18.4	13	39.0
I'd seen it in porn and wanted to try it	177	13.0	104	9.9	64	22.5	9	26.8
A friend had told me they liked to be choked and I wanted to try it too	179	13.0	127	12.1	47	16.5	4	12.4
It seemed kinky or adventurous	851	62.1	641	61.0	189	66.3	20	61.8
Other	179	13.1	143	13.6	27	9.4	9	28.9
<i>Reasons that participants had choked partner(s) during sex</i>								
They asked me to choke them	1322	77.8	334	60.8	956	85.8	31	86.8
It seemed exciting	646	38.0	223	40.7	408	36.6	14	38.1
I thought it would arouse the person	700	41.2	242	44.1	444	39.9	12	34.5
I thought it would make it easier for them to have an orgasm	290	17.1	72	13.0	212	19.0	6	19.0
I'd seen it in porn and wanted to try it	149	8.8	18	3.3	129	11.6	2	5.6
A friend had told me they liked choking and I wanted to try it too	97	5.7	21	3.8	75	6.7	1	3.5
It seemed kinky or adventurous	702	41.3	224	40.8	469	42.1	9	24.7
Other	59	3.5	26	4.8	31	2.8	2	4.4

asked if they wanted to be slapped, or if it was okay, before they slapped the participant. About one-quarter of participants indicated that their partner(s) sometimes asked for consent. Also, 39.0% reported that their partner(s) had never first asked if the participant wanted to be slapped or if it was okay; they just

slapped them. Men reported this experience more often than other genders (47.3% men, 33.3% women, 28.8% TGNB). The sample size for TGNB individuals who had been slapped was small ( $n = 15$ ) and thus not generalizable to broader TGNB college populations.

**Table 6.** Consent Characteristics of Choking and Slapping, presented by gender

Choking	Total		Women		Men		Trans/Non-Binary	
	n	%	n	%	n	%	n	%
They always asked if I wanted to be choked/if it was okay, before they choked me	879	47.4	611	48.0	247	45.1	21	58.5
They sometimes asked me for consent/if it was okay	590	31.8	431	33.9	146	26.6	12	33.9
They never asked me for consent/if it was okay; they just choked me.	387	20.9	230	18.1	155	28.3	3	7.6
<b>Slapping</b>								
They always asked if I wanted to be slapped/if it was okay, before they slapped me	163	34.4	100	38.5	57	28.6	6	40.1
They sometimes asked if I wanted to be slapped/if it was okay	126	26.6	73	28.2	48	24.1	5	31.1
They never asked if I wanted to be slapped/if it was okay; they just slapped me.	185	39.0	87	33.3	94	47.3	4	28.8

## DISCUSSION

The present study describes the lifetime prevalence and frequency of certain sexual behaviors among a sample of undergraduate students. As our study purpose was descriptive in nature, like other national and college student surveys have done,<sup>9,11,45</sup> we chose to present these behaviors in descriptive terms rather than test for significant differences between groups based on gender, year in school, or other demographic characteristics. Study findings underscore that human sexual expression is diverse among undergraduate college students; our study also points to potential shifts in sexual behaviors and, in particular, the prevalence of choking during sex. Some findings are similar to U.S. probability surveys.<sup>11</sup> Compared to the most recent ACHA-NCHA, we found higher rates of oral sex, penile-vaginal intercourse, and anal sex. The ACHA-NCHA reported about 65%, 60%, and 19% for oral, vaginal, and anal sex respectively, whereas we found prevalence rates of 80%, 73%, and about one-fourth, respectively. There are several potential reasons for these differences. First, our sample was comprised of students from one public university whereas the ACHA-NCHA includes data from 39,602 undergraduate students from 75 campuses (52 of which are public), though the costs for colleges/universities to participate in the ACHA-NCHA may serve as a barrier for some school to participate, leading to differences in which schools (and thus which students) are included.<sup>46,47</sup> Second, our surveys differed in timing; ours was conducted in January/February 2020 with students having had more time together in the school year, whereas the ACHA-NCHA sampled from Fall 2019 through early Spring 2020 (prior to the COVID-19 pandemic),<sup>36</sup> thus including some first year students who had little time together at the time of sampling. Third, the ACHA-NCHA reported a 14.1% response rate<sup>48</sup> compared to our response rate of 32.3%, which may reflect differences in self-selection.

Although it is well documented that college students of diverse ages, as well as young adults, engage in various solo and partnered sexual behaviors,<sup>11,36</sup> our data provide insights into the prevalence and frequency of sexual behaviors sometimes characterized as rough sex, aggressive, and/or dominant/submissive behaviors.<sup>14-16,18,49</sup> Echoing prior research,<sup>18</sup> we acknowledge the challenge in neatly categorizing these behaviors, given people's own subjective experiences with them. Some findings were consistent with research involving adults in the general population; that is, we found that spanking is common, slapping is less common, men more often enact rough sex behaviors, women most often report experiencing rough sex behaviors, and TGNB individuals report a range of both enacting and experiencing rough sex behaviors. We also found that women and TGNB participants were significantly more often called names during sex; this may be influenced by the fact that our examples (bitch, slut, and whore) are more often used to describe women or feminine individuals, but as prior research has noted<sup>18</sup> (and our data show) men are called these terms too, just less often. We selected these examples with intention because they are prevalent in

contemporary pornography (which, as noted elsewhere, has been associated with changes in rough sex behaviors), appear to be used across genders (even if in varying proportions), and facilitate comparisons with prior research."<sup>18,19</sup>

We found that about 15% of women, 13% of TGNB participants, and 21% of gay and bisexual men reported that someone had put their penis into the participant's anus without first asking or discussing. Prior research has found that most young adults expect explicit verbal consent prior to anal intercourse (more so than for genital touching, oral sex, or vaginal intercourse).<sup>50</sup> Also, some young men first put their penis into a partner's anus as a way of "getting consent" and a minority of young men use deception to get anal sex, such as by putting their penis into someone's anus and then pretending it was a mistake.<sup>51</sup> More research is needed to understand these sexual experiences and how anal sex, and communication about anal sex, is organized in college students' sexual experiences.

Regarding slapping, 39% of participants who had been slapped indicated that their partner(s) had never first asked if it was okay or if they wanted it. This was especially true for men who reported having been slapped, often without communication or consent; subsequent research might examine whether myths about male sexuality (e.g., that men are always interested in sex)<sup>52,53</sup> might lead to their partners making assumptions about their sexual interest or readiness, without first talking about or discussing sexual boundaries. Further, consistent with prior research, we found that a range of so-called rough sex behaviors were prevalent. We found that enacting rough sex behaviors were largely enacted by men and that women were largely the recipients of behaviors that may be characterized as submissive, as rough sex, or as aggressive acts (especially if non-consensual). Subsequent research might examine the extent to which people find these kinds of sexual behaviors reinforce or are reinforced by traditional gender roles, as well as how they allow people to explore, challenge, or simply play with gender roles or sexual expressions.<sup>54</sup> TGNB students reported higher rates of many rough sex behaviors and more often described communication/consent prior to choking or slapping. Subsequent research might examine the extent to which sexual exploration supports young adults as they grow in their own understanding of both sex and gender.

We add to the existing literature by showing that most women reported that they had been choked by a sexual partner; among men with partnered sexual experience, most men reported that they had ever choked their partner(s) during sex. Most TGNB individuals reported both choking and being choked though we express caution in interpreting these data due to small sample sizes. Prevalence of choking/being choked was higher when the sample was restricted to just those with oral, vaginal, or anal intercourse experience, and even higher when the sample was restricted to those with vaginal or anal intercourse. Because research on choking during sex is sparse, it was unclear what to use as the denominator and thus we present the data in

these three ways to support subsequent research. We add to the limited literature on choking by showing that a majority of undergraduates in our sample have choked or been choked during sex; this likely reflects changes in sexual repertoire over time.<sup>18</sup>

More than half of women reported having asked partners to choke them, and most men reported having been asked to choke a partner. Together with the behavioral data on choking prevalence, these patterns suggest that choking is becoming (or is already) a common aspect of college students' partnered sexual repertoires. Our findings also indicate that a substantial amount of choking experience is wanted, requested, and/or consensual by undergraduate students. Yet, our findings underscore that consent is not always in place and that about 20% of undergraduate students who have been choked reported that they had *never* been asked if they wanted to be choked before it was done to them. Many more reported only sometimes having consent conversations. Other research has noted women's descriptions of choking occurring without consent, of it being scary,<sup>55</sup> and feeling as though their partners had copied choking from porn;<sup>56</sup> indeed, research has found that various rough sex behaviors – including choking – have been associated with viewing pornography.<sup>18,19,49</sup> That said, research on the increasing prevalence of certain rough sex behaviors – including choking – is relatively recent and none assesses associations with erotica (such as *Fifty Shades of Grey*) or influences such as partners, peers, or media outside of pornography. Additional research is warranted in each of these areas. In terms of consent, it is possible that some participants had had earlier conversations with their partner(s) indicating that choking was acceptable and/or desired, and thus didn't feel the need for ongoing verbal or nonverbal consent (these individuals may have indicated that they were only “sometimes” asked for consent). That said, in another recent interview study of young adults who had ever choked or been choked during sex, it was found that women often described being choked without ever having first talked about it, even by partners they did not know well.<sup>57</sup> Subsequent research should investigate issues of consent and choking in more detailed ways, especially given the fact that safe words (as opposed to safe gestures) may be of limited use if the recipient is unable to speak while being choked.”

Our findings on choking are critical to those who serve college students and other young adults, whether as clinicians, health educators, sexual violence prevention officers, or therapists. We did not assess to what extent our participants were aware of the potential health risks of choking, including death, nor did we assess students' knowledge of potential legal consequences of choking their partner(s) during sex. However, 2% of participants who had been choked reported that they had lost consciousness from choking at least once, suggestive of probable mild traumatic brain injury (TBI),<sup>58</sup> though oxygen deprivation even without loss of consciousness may lead to mild TBI.<sup>59</sup>

On average, participants were 18 when they were first choked; one-fourth were first choked at ages younger than 18, emphasizing the relevance of these findings to parents and pediatricians, as well as to the understanding of adolescent sexual behavior and development. Subsequent research might address how adolescents learn about choking during sex and come to incorporate it into their sexual repertoires. Just as the non-sexual adolescent “choking game” resulted in fatalities and various health sequelae,<sup>30</sup> we must understand this increase in choking during partnered sex. Subsequent research should explore how people feel about choking during sex, why they engage in it (beyond our preliminary researcher-driven response options related to excitement, arousal, orgasm, and pornography), how they feel it affects their sexual experiences, and also how people feel when they are asked to choke someone. In an earlier study about sexual experiences that made people feel scared, while most of the choking descriptions were written by people who had been choked/strangled without consent and/or in ways that felt aggressive, violent, or dangerous, one man described feeling scared about being *asked* to choke a partner.<sup>55</sup> Given myths that men should always be ready for sex,<sup>53,60</sup> we highlight the difficult position that men (and people of any gender) are put in when they are asked to choke a partner: to be a pleasing partner, they may find themselves engaging in sex that makes them feel uncomfortable or worried for their partner's health, or that puts their partner at risk for various short or long term health sequelae. It is also possible, though rare, that someone could unintentionally kill someone while choking/strangling them during consensual sex.<sup>34,36,37</sup>

Given how understudied most of these sexual behaviors are, we encourage more research, including in-depth qualitative research that highlights participants' own experiences and feelings. We are cognizant of ways in which diverse sexual behaviors have long been stigmatized, pathologized, or made unlawful; depending on the historical time and place, such behaviors have included sex outside of marriage, same-sex sexual behavior, oral sex, anal sex, vibrator use, masturbation, sleep orgasms, and kink behaviors.<sup>61-66</sup> Thus, while we encourage clinicians, educators, and administrators to become aware of sexual diversity among college students and other adults, we simultaneously encourage an openness to understanding these behaviors from the perspectives of those who desire and/or engage in them. Sexual stigma and discrimination have been barriers to many people - including kinky sex practitioners, LGBTQ+ individuals, sexually active adolescents, unmarried pregnant women, and people who masturbate - from accessing healthcare, education, and other sexual health resources.<sup>67-70</sup>

Our research also has implications for educators. As Rothman (2019) indicated, as kink and rough sex behaviors have become more mainstream, we must improve college health education so that it reflects the ways that college students actually have sex.<sup>20</sup> Additionally, our findings may be integrated into consent education on college campuses. Comprehensive sexuality education that incorporates education on the diversity of sexual behaviors

reflected here needs to extend to high school sex education, especially given that about one quarter of participants with choking experience were first choked between ages 12 and 17. We did not assess the ages at first experiencing other rough sex behaviors, due to concerns about survey length and participant burden, but perhaps subsequent research will examine adolescents' learning about and exploration of a diverse range of sexual behaviors.

## Strengths and Limitations

Among our strengths, we assessed a broad range of sexual behaviors in a college sample, used random sampling for participant recruitment, and had a good response rate in the context of college samples. We also collected data online, which has been shown to enhance reporting on sensitive behaviors, including sexual behaviors.<sup>71</sup> Our large sample size included a sufficient number of transgender and gender non-binary individuals for descriptive analyses, though the sample size was insufficient for analyses by distinct identity (e.g., transgender woman, transgender man, gender non-binary) and it may be that some sexual behaviors vary by gender identity or even more granular analyses at the intersections of gender and sexual identity. After reviewing the scientific literature<sup>72,73</sup> for guidance, we chose to combine the transgender and gender non-binary identified students into one group rather than exclude their data from our study. Had we presented each gender group separately, we may have risked some of our participants being identified, particularly as the data come from a single college campus. We acknowledge that TGNB individuals are not monolithic. Indeed, we would expect diversity within the TGNB sample but given the limited sample size of each transgender, non-binary, genderqueer, and other gender non-conforming identity we are underpowered for more granular analyses.

Given the limited non-clinical research on TGNB individuals, subsequent research addressing sexual exploration and sexual behaviors will be important, especially outside of clinical samples. We note that the TGNB group is not monolithic, but then again neither are the women and men groups; indeed, <5% of women and men participants additionally described themselves with gender diverse labels (though their primary identification was as women or men, and thus we categorized them accordingly). We are reminded of how diversity exists within all gender categories, including those that may appear cisgender on the surface.

Also among our limitations is that, due to survey length, we assessed behaviors (e.g., "gave oral sex") rather than behaviors in connection with partner gender (e.g., "gave oral sex to a woman") as had been done in the 2009 NSSHB.<sup>11</sup> We also did not examine all sexual behaviors by all sexual identities given (e.g., bisexual, gay, heterosexual, lesbian, pansexual), though perhaps in subsequent presentations of the data we will do so. While our survey augments the literature in terms of the number of sexual behaviors we assessed among randomly sampled undergraduates, we would have liked to assess an even broader range of sexual behaviors, or to have asked about some of these behavior

in more detailed ways. Indeed, we considered the need to balance survey time and participant burden (as well as the risk of participant drop-out in long surveys). Although our survey asked about a broader range of sexual behaviors than most probability surveys of college students or nationally representative samples,<sup>9,10,11,13,18</sup> in asking about 23 sexual behaviors we still asked about a limited range of human sexual expression. In retrospect, we should have also asked all participants (not just those with a penis) if they had ejaculated on a partner's face, since individuals with a vulva and vagina may squirt or ejaculate as well.

Additionally, given that we used a survey, our research is also subject to self-report, to having used a pre-defined list of sexual behaviors, and potential difficulties in recalling frequencies of behaviors. Our research is limited by the fact that students were sampled from one university in the U.S.; had the research been conducted at another U.S. university, or in another country, findings may have differed. Although college students' sexual behaviors may be similar to young adults not enrolled in college, they are not necessarily the same<sup>74</sup> and thus our findings should not be generalized to either all college students or to those not in college.

When we analyzed behaviors sometimes described as rough sex or dominant/submissive, we first restricted the sample to those who reported having ever engaged in partnered sexual activity (e.g., kissing, oral sex, vaginal sex, etc.). For choking, we additionally presented analysis that restricted the sample to those with vaginal or anal sex experience, as a recent study suggests that choking often co-occurs with intercourse.<sup>23</sup> Subsequent research is needed to better understand how consent operates for both choking and face slapping. In the present study, due to space limitations, we asked about consent only generally, though this is the first study to our knowledge to examine consent experiences related to choking and face slapping. It would be useful to examine how consent for choking and/or slapping operates within individual sexual events as well as reasons people may give for not communicating about consent each and every time (e.g., such as if someone had indicated to their partner that they generally enjoy or expect it when they have sex). Subsequent research might also explore the kinds of consent communication that would support people feeling comfortable choking their partner, addressing if someone can truly give informed consent to choke or be choked if they are unaware of the potential for injury, death, or legal responsibility for such outcomes. Given the dearth of literature on consent in regard to choking and slapping (and the vast literature<sup>75,76</sup> on sexual consent more broadly among college populations), we only asked about consent in regard to choking and slapping and thus cannot directly compare, within the sample, how consent experiences compare to those for other sexual behaviors.

## CONCLUSIONS

In conclusion, we found that undergraduate students reported engaging in a broad range of sexual behaviors. We also found

that behaviors commonly described as rough sex behaviors were prevalent and that most participants had choked or been choked as part of sex, with variable experiences of consent. Findings have the potential to shape the work of clinicians, educators, and scientists.

## ACKNOWLEDGEMENTS

The authors are grateful to the Indiana University School of Public Health for their generous support of this research.

**Corresponding Author:** Debby Herbenick, PhD, MPH, Center for Sexual Health Promotion, Indiana University School of Public Health, Room 116, Indiana University, Bloomington, Indiana 47405, USA.; E-mail: [debby@iu.edu](mailto:debby@iu.edu)

*Conflicts of interest:* The authors report no conflicts of interest

*Funding:* Indiana University School of Public Health.

## STATEMENT OF AUTHORSHIP

Conceptualization (DH, JB, LGR, HEM, DSV), Methodology (DH, HEM), Formal Analysis (CP, DH, DSV), Writing – Original Draft (DH, CP), Writing – Review & Editing (DH, CP, JB, YRG, ML, LGR, HEM, DSV, MR), Funding Acquisition (DH).

## REFERENCES

- Centers for Disease Control and Prevention. Sexually Transmitted Disease Surveillance. Available at: <https://www.cdc.gov/nchstp/newsroom/2019/2018-STD-surveillance-report.html>. Accessed May 7, 2021.
- Finer LB, Zolna MR. Declines in unintended pregnancy in the United States, 2008–2011. *N Engl J Med* 2016;**374**:843–852.
- Muehlenhard CL, Peterson ZD, Humphreys TP, et al. Evaluating the one-in-five statistic: women's risk of sexual assault while in college. *J Sex Res* 2017;**54**:549–576.
- Herbenick D, Fu TJ, Dodge B, et al. The alcohol contexts of consent, wanted sex, sexual pleasure, and sexual assault: results from a probability survey of undergraduate students. *J Am Coll Health* 2019;**67**:144–152.
- Luetke M, Giroux S, Herbenick D, et al. High prevalence of sexual assault victimization experiences among university fraternity men. *J Interpers Viol*. doi: 10.1177/0886260519900282. E-pub ahead of print.
- Hensel DJ, Fortenberry JD. Life-span sexuality through a sexual health perspective. *APA Handbook of Sexuality and Psychology, Vol. 1: Person-Based Approaches*. Washington, DC, US: American Psychological Association; 2014. p. 385–413.
- Pokhrel P, Little MA, Herzog TA. Current methods in health behavior research among U.S. Community college students: a review of the literature. *Eval. Health Prof.* 2014;**37**:178–202.
- England P, Bearak J. The sexual double standard and gender differences in attitudes toward casual sex among U.S. university students. *Dem Res* 2014;**30**:1327–1338.
- American College Health Association. American College Health Association-National College Health Assessment II: Undergraduate Student Reference Group Data Report Fall 2019. 2020.
- Chandra A, Mosher WD, Copen C, et al. Sexual behavior, sexual attraction, and sexual identity in the United States: data from the 2006–2008 national survey of family growth. *Natl Health Stat Report* 2011;**1**–36.
- Herbenick D, Reece M, Schick V, et al. Sexual behavior in the United States: results from a national probability sample of men and women ages 14–94. *J Sex Med* 2010;**7**(Suppl 5):255–265.
- Herbenick D, Bowling J, Fu T-C, et al. Sexual diversity in the United States: results from a nationally representative probability sample of adult women and men. *PLoS ONE* 2017;**12**: e0181198.
- Herbenick D, Reece M, Sanders S, et al. Prevalence and characteristics of vibrator use by women in the United States: results from a nationally representative study. *J Sex Med* 2009;**6**:1857–1866.
- Burch RL, Salmon C. The rough stuff: understanding aggressive consensual sex. *Evol Psychol* 2019;**5**:383–393.
- Vogels EA, O'Sullivan LF. The relationship among online sexually explicit material exposure to, desire for, and participation in rough sex. *Arch Sex Behav* 2019;**48**:653–665.
- Herbenick D, Fu TC, Valdivia DS, et al. What is rough sex, who does it, and who likes it? Findings from a probability sample of US undergraduate students. *Arch Sex Behav* 2021;**50**: 1183–1195.
- Sauvageau A, Boghossian E. Classification of asphyxia: the need for standardization. *J Forensic Sci* 2010;**55**:1259–1267.
- Herbenick D, Fu TC, Wright P, et al. Diverse sexual behaviors and pornography use: findings from a nationally representative probability survey of Americans aged 18 to 60 years. *J Sex Med* 2020;**17**:623–633.
- Sun CF, Wright P, Steffen N. German heterosexual women's pornography consumption and sexual behavior. *Sex. Media Soc.* 2017;**3**:2374623817698113.
- Rothman EF. Preventing sexual violence on campus in the U. S.: four thought experiments. *J. Fam. Violence.* 2019;**34**: 177–184.
- Eastman-Mueller H, Fu T-C, Dodge BM, et al. The relationship between college students' campus sexual health resource utilization and self-reported STI testing: findings from an undergraduate probability survey. *J Am Coll Health* 2020 E-pub ahead of print. doi: 10.1080/07448481.2020.1775607.
- Oswalt SB, Wagner LM, Eastman-Mueller HP, et al. Pedagogy and content in sexuality education courses in US colleges and universities. *Sex Educ* 2015;**15**:172–187.
- Herbenick D, Fu T, Patterson C, et al. Prevalence and characteristics of choking/strangulation during sex: Findings from a

- probability survey of undergraduate students. *Journal of American College Health*. (In press)
24. IU Bloomington crime notice: reported rape and aggravated assault [press release]. 2019.
  25. Buzash GE. The "rough sex" defense. *J. Crim. Law Criminol.* (1973-) 1989;80:557–584.
  26. Moore C, Kahn C. The Fatal, Hateful Rise of Choking During Sex. Available at: <https://www.theguardian.com/society/2019/jul/25/fatal-hateful-rise-of-choking-during-sex>. Accessed July 25, 2020.
  27. We Can't Consent to This. Available at: <https://wecantconsenttothis.uk>. Accessed July 12, 2020.
  28. Yardley E. The killing of women in 'sex games gone wrong': an analysis of femicides in great Britain 2000-2018. *Violence Against Women* 2020.
  29. Byard RW, Hucker SJ, Hazelwood RR. A comparison of typical death scene features in cases of fatal male and female autoerotic asphyxia with a review of the literature. *Forensic Sci. Int.* 1990;48:113–121.
  30. O'Halloran RL, Lovell FW. Autoerotic asphyxial death following television broadcast. *J. Forensic Sci.* 1988;33:1491–1492.
  31. Uva JL. Review: autoerotic asphyxiation in the United States. *J Forensic Sci* 1995;40:574–581.
  32. Sauvageau A. Autoerotic deaths: a 25-year retrospective epidemiological study. *Am J Forensic Med Pathol* 2012;33:143–146.
  33. Byard RW, Hucker SJ, Hazelwood RR. Fatal and near-fatal autoerotic asphyxial episodes in women. Characteristic features based on a review of nine cases. *Am J Forensic Med Pathol* 1993;14:70–73.
  34. Roma P, Pazzelli F, Pompili M, et al. Double hanging during consensual sexual asphyxia. *Arch. Sex. Behav.* 2012;42: 895–900.
  35. Busse H, Harrop T, Gunnell D, et al. Prevalence and associated harm of engagement in self-asphyxial behaviours ('choking game') in young people: a systematic review. *Arch Dis Child* 2015;100:1106–1114.
  36. Michalodimitrakis M, Frangoulis M, Koutselinis A. Accidental sexual strangulation. *Am J Forensic Med Pathol* 1986;7:74–75.
  37. Sandler DJ. Lethal asphyxiation due to sadomasochistic sex training - How some sex partners avoid criminal responsibility even though their actions lead to someone's death. *J Forensic Leg Med* 2018;56:59–65.
  38. Zilkens R, Phillips M, Kelly M, et al. Non-fatal strangulation in sexual assault: a study of clinical and assault characteristics highlighting the role of intimate partner violence. *J Forensic Leg Med* 2016:43.
  39. Beischel WJ, Schudson ZC, Hoskin RA, van Anders SM. Gender/Sex in Samples Looks Different Depending on Method and Coders: Towards the Gender/sex 3 X 3 for Inclusive Measures Beyond Binaries. In preparation.
  40. Cantor D, Fisher B, Chibnall S, et al. Report on the AAU Campus Climate Survey on Sexual Assault and Misconduct. 2020.
  41. Delucchi KL. The use and misuse of chi-square: lewis and Burke revisited. *Psychological Bull* 1983;94:166–176.
  42. Cochran W. Some methods for strengthening the common  $\chi^2$  tests. *Biometrics* 1954;10:417–451.
  43. Ruxton GD, Neuhauser M. Good practice in testing for an association in contingency tables. *Behav Ecol Sociobiol* 2010;64:1505–1513.
  44. Rea LM, Parker RA. *Designing and Conducting Survey Research: A Comprehensive Guide*. San Francisco, CA: Jossey-Bass Publishers; 1992.
  45. Johnson AM, Mercer CH, Erens B, et al. Sexual behaviour in Britain: partnerships, practices, and HIV risk behaviours. *Lancet* 2001;358:1835–1842.
  46. Jackson ZA, Sherman LD. National college health assessment sampling: organizational barriers preventing black participation and organizational solutions for appropriate representation. *J Am Coll Health* 2019;67:501–504.
  47. American College Health Association. American College Health Association-National College Health Assessment II: Undergraduate Student Reference Group Data Report Spring 2020. 2020.
  48. American College Health Association. American College Health Association-National College Health Assessment II: Undergraduate Student Reference Group Executive Summary Spring 2020. 2020.
  49. Wright PJ, Sun C, Steffen NJ, et al. Pornography, alcohol, and male sexual dominance. *Commun. Monogr.* 2015;82:252–270.
  50. Willis M, Hunt M, Wodika A, et al. Explicit verbal sexual consent communication: effects of gender, relationship status, and type of sexual behavior. *Int J Sex Health* 2019;31:60–70.
  51. Jozkowski KN, Peterson ZD, Sanders SA, et al. Gender differences in heterosexual college students' conceptualizations and indicators of sexual consent: implications for contemporary sexual assault prevention education. *J Sex Res* 2014; 51:904–916.
  52. Muehlenhard CL. Nice women" don't say yes and "real men" don't say no. *Women Ther* 1988;7:95–108.
  53. Zilbergeld B. *The New Male Sexuality*. Bantam.
  54. Sprott RA, Williams DJ. Is BDSM a sexual orientation or serious leisure? *Curr Sex Health Rep* 2019;11(2):75–79.
  55. Herbenick D, Bartelt E, Fu TJ, et al. Feeling scared during sex: Findings from a U.S. probability sample of women and men ages 14 to 60. *J Sex Marital Ther* 2019;45:424–439.
  56. Ashton S, McDonald K, Kirkman M. Pornography and sexual relationships: Discursive challenges for young women. *Fem Psychol* 2020;5:0959353520918164.
  57. Herbenick D, Guerra-Reyes L, Patterson C, et al. (Under review). "It was cary but then it was kind of exciting": Young women's experiences with choking during sex.
  58. Bichard H, Byrne C, Saville C, et al. *The Neuropsychological Outcomes of Non-Fatal Strangulation in Domestic and Sexual Violence: A Systematic Review*. 2020.

59. Murray CE, Lundgren K, Olson LN, et al. Practice update: What professionals who are not brain injury specialists need to know about intimate partner violence-related traumatic brain injury. *Trauma Violence Abuse* 2016;17:298–305.
60. Baker CD, de Silva P. The relationship between male sexual dysfunction and belief in Zilbergeld's myths: an empirical investigation. *Sex Marital Ther* 1988;3:229–238.
61. Lindemann DJ. Pathology full circle: A history of anti-vibrator legislation in the United States. *Colum J Gender & L* 2006;15:326.
62. Ellis H. *Studies in the Psychology of Sex: Volume 1*. London: William Heinemann Books, Ltd; 1905.
63. Kinsey AC, Pomeroy WB, Martin CE, et al. *Sexual Behavior in the Human Female*. Philadelphia, PA: WB Saunders; 1953.
64. Tilt EJ, Etter H. *A Handbook of Uterine Therapeutics and of Diseases of Women*. New York: Wood; 1881.
65. Bezreh T, Weinberg TS, Edgar T. BDSM disclosure and stigma management: identifying opportunities for sex education. *Am J Sex Educ* 2012;7:37–61.
66. Fuss J, Briken P, Klein V. Gender bias in clinicians' pathologization of atypical sexuality: a randomized controlled trial with mental health professionals. *Sci Rep* 2018;8:3715.
67. Sprott R, Randall A. Health disparities among kinky sex practitioners. *Curr Sex Health Rep* 2017;9:104–108.
68. Brenick A, Romano K, Kegler C, et al. Understanding the influence of stigma and medical mistrust on engagement in routine healthcare among black women who have sex with women. *LGBT Health* 2017;4:4–10.
69. Donaldson JF, Tait C, Rad M, et al. Obstructive uropathy and vesicovaginal fistula secondary to a retained sex toy in the vagina. *J Sex Med* 2014;11:2595–2600.
70. Cook RJ, Dickens BM. Reducing stigma in reproductive health. *Int J Gynaecol Obstet* 2014;125:89–92.
71. Burkill S, Copas A, Couper MP, et al. Using the web to collect data on sensitive behaviours: a study looking at mode effects on the British national survey of sexual attitudes and lifestyles. *PLoS ONE* 2016;11:e0147983.
72. Broussard KA, Warner RH, Pope ARD. Too many boxes, or not enough? Preferences for how we ask about gender in cis-gender, LGB, and gender-diverse samples. *Sex Roles* 2018;78:606–624.
73. Jaroszewski S, Lottridge D, Haimson O, et al. Genderfluid" or "Attack Helicopter": Responsible HCI Research Practice With Non-Binary Gender Variation in Online Communities. 2018.
74. de Visser R, Smith A, Richters J. Can we generalise to other young people from studies of sexual risk behaviour among university students? *Aust N Z J Public Health* 2005;29:436–441.
75. Jozkowski KN, Peterson ZD. College students and sexual consent: unique insights. *J Sex Res* 2013;50:517–523.
76. Muehlenhard CL, Humphreys TP, Jozkowski KN, et al. The complexities of sexual consent among college students: a conceptual and empirical review. *J Sex Res* 2016;53:457–487.