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ORIGINAL PAPER

Sexting in Young Adults: A Normative Sexual Behavior

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Abstract
With the advancement of technology, sexting has become more prominent in high school and university samples. The current study examined the rates and characteristics of sexting among an online sample of 2,828 young adults aged 18–30, primarily from the U.S. and Canada. We found that most participants sext (81%), sext often (most report ≥ 11 sexts), and start young (most by 16–17 years of age). Common reasons for sexting echoed reasons for participating in other normative sexual behaviors, including that it was sexually arousing, they were asked and wanted to reciprocate, or they wanted to flirt. Sexual coercion was a gendered phenomenon, with 1 in 10 cisgender women and 1 in 50 cisgender men reporting having sent a sext due to being threatened. The body parts captured in cisgender men's sexts were more diverse, whereas cisgender women focused on their chest, underwear/genitalia, and stomach. Sexual orientation was also found to be a relevant factor, with different patterns in sexting experiences emerging across identities. The current study adds to the mounting evidence that sexting is a normative sexual behavior. Sexual education programs should provide youth with information on consent and safe sexting practices rather than follow an abstinence approach.

Keywords Sexting · Pornography · Sex education · Sexual materials · Sexual orientation

Introduction

The advancement in cellphone technology has had a notable influence on sexuality, as it has added novel technology-based sexual behaviors to people's sexual repertoire. "Sexting," which involves the sending of sexual images or videos of oneself to others, is a prominent example.[1] Despite tension between whether sexting should be conceptualized as a normative or risky sexual behavior (Levine, 2013), prevalence rates suggest it is common. A meta-analysis of self-reported sexting among 9,784 adults aged 18 or older found 49% have sent and 56% have received sexts (Klettke et al., 2014). More recently, Mori et al. (2020) report in their meta-analytic review of self-reported sexting among 18,122 adults aged 18–29, that 38% have sent sexts, 42% have received sexts, and 48% had both received and sent sexts. These prevalence rates indicate that approximately 1 in 2 adults have sexted, suggesting that it is a tech-based sexual behavior that has been adopted by many. Though these aggregate rates are valuable, our empirical understanding about the true complexity of the prevalence of sexting remains unexplored. The meta-analysis, for example, reported that 80% of the samples were college/university students (Mori et al., 2020). Recent evidence suggests that although a widespread and normative behavior, some types of sexting (e.g., involving coercion or receiving unwanted sexts) may be associated with psychological distress in young adults (Klettke et al., 2019). The lack of a clear understanding of the prevalence and characteristics of sexting makes evidence-based sexual education difficult.

There is a remarkable amount of variability across studies of sexting prevalence rates (e.g., i^2 ranging from 96.8 to 99.0%, representing large variability; Mori et al., 2020). Sample characteristics are one key contributing factor to this variability. Community samples have higher self-reported sexting rates (e.g., 68% of U.S. adults [Crimmins & Seigfried-Spellar,

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[1] Sexting may also be considered the sharing of sexually explicit text (Barrense-Dias et al., 2017), but for the purpose of this research, it will refer to the sharing of sexually explicit images and videos.

2017] and 78% of U.K. adults [Brodie et al., 2019]) than university or college samples (48-52%; Cornelius et al., 2020). Further, Western countries have higher self-reported sexting rates than non-Western countries (e.g., 54.4% in the U.S. vs. 14.3% of respondents from China reported sending a sext [Morelli et al., 2020]; in Nigeria 37% of female participants reported sending sexually explicit materials [Ayinmoro et al., 2020]).

Participant characteristics also appear to influence reported prevalence. Concerning gender, early research found that women's odds of reporting sending a sext was 1.2–1.3 times higher compared to men, whereas the odds of reporting receiving a sext was 1.1–1.2 times higher for men compared to women (Dir et al., 2013; Englander, 2012; Wysocki & Childers, 2011). More recent studies have found either no differences between men and women on sexting rates (Cornelius et al., 2020) or that rates of sending a sext were higher for men than women (Brodie et al., 2019; Mori et al., 2020). The most recent meta-analysis of 50 studies found prevalence rates of sending and receiving sexts were higher for studies with more male participants, that were published more recently, and that had more single participants (Mori et al., 2020). Sexting rates have also varied by sexual orientation, with those who do not identify as heterosexual reporting engaging in sexting at a higher rate than those who identify as heterosexual (e.g., 40% of heterosexual people and 63% of gay people in Döring & Mohseni, 2018; Galovan et al., 2018).

Age is another participant factor that is critical to examine in relation to sexting, as studies suggest that sexting starts early (e.g., average of 16 years old in Drouin et al., 2017), but tends to decrease as one ages (Brodie et al., 2019). Investigating the nuances of sexting behavior becomes particularly important when considering ages of those involved, as many countries define child pornography as photographic material depicting an individual under the age of 18 (Canada, Criminal Code R.S.C., 1985 c. C-46; U.S., Klain et al., 2001). Therefore, sexting exchanges could create potential child pornography materials (Finkelhor et al., 2023). Many countries have regulations in place to safeguard youth from being prosecuted for child pornography offenses if the sext is sent voluntarily between consenting individuals who are close in age, the image does not depict abuse or assault, and the image stays private (i.e., is not posted or shared, Canada; R v. Sharpe, 2001; see also Lee & Darcy, 2020), but some U.S. states do not have such protections (for review, see O'Connor et al., 2017). The legal ramifications of sexting creates a particular motivation for extending prevalence research that not only produces generalizable results related to participant composition, but also about the context to which sexts are shared, the content of the sexts themselves and the degree of pressure associated with exchanges.

Context of and Reasons for Sexting

Sexting most commonly occurs in the context of a romantic relationship (Van Ouytsel et al., 2020). Respondents report sending sexts to make their partner happy, gain the attention of someone that they like, or because sexting is fun (Englander, 2012). Sending and sharing sexts is also viewed as a method of promoting intimacy in a relationship (Amundsen, 2022), which is a viewpoint that has been echoed by both male and female respondents (Bianchi et al., 2021; Currin & Hubach, 2019; Holmes et al., 2021). Using sexting as a form of sexual intimacy is also used when partners are at a distance (e.g., Bonilla et al., 2021). Perhaps relatedly, U.K. men and women who have sexted have reported higher sexual satisfaction ($d = 0.41$; Brodie et al., 2019) and heterosexual women have reported higher relationship satisfaction (Currin et al., 2016) than their non-sexting counterparts. In addition, individuals report that sexting can reinforce their body image (e.g., checking to see if the recipient likes their bodies; Bianchi et al., 2021; Currin & Hubach, 2019).

Like prevalence, motivations for sexting seem to also vary by group. For instance, adolescent males and men report more instrumental reasons (e.g., exchange of benefits) and aggravated reasons (e.g., to hurt or damage someone) for sending sexts than adolescent females and women (Bianchi et al., 2021). That said, sexual gratification and body image reinforcement/self-esteem boost are the main reported reasons and outcomes of sexting (Bianchi et al., 2021; Holmes et al., 2021). Although people often sext in established relationships and for seemingly prosocial reasons, it is critical to highlight the existence of and learn about sexting exchanges that do not fit this mold to accurately understanding sexting.

Coercion in Sexting

Like any sexual activity, sexting can be non-consensual, and consent can be violated at different points during a sexting exchange. One example of non-consensual sexting is when coercion is used to solicit sexts. For instance, in a sample of 534 university students, 49% reported sending a sext when they did not want to and 28% reported feeling coerced to send their first sext in a consensual sexting relationship (Cornelius et al., 2020); rates of coercion did not differ between men and women in this study (*ds* ranging from 0.00 to 0.13). However, other studies have found women to be 1.3 times (Ross et al., 2019) to twice (Englander, 2012; Lippman & Campbell, 2014) as likely than men to be pressured into sending a sext. Pressure in sexting mainly derives from dating partners through tactics such as repeatedly asking or threatening to end the relationship (Drouin et al., 2015).

Sexting coercion is associated with other coercive sexual behaviors. In a sample of 885 undergraduate students in relationships, sexting coercion was strongly correlated to sexual victimization for both men ($r = .80$) and women ($r = .71$; Ross et al., 2019). Although, according to some studies, men may be less likely to be pressured to sext, they report experiencing pressure from other men to request sexts from a woman, or to non-consensually share sexts they have received with friends (Roberts et al., 2021; Walker et al., 2013). Sending unsolicited sexts (also called "cyberflashing" or sending a sext to a person who did not consent to receive it) may be a common sexting practice, with approximately 2 in 5 undergraduate students reporting that they have sent an unsolicited nude or sexual image (Karasavva et al., 2023).

Current Study

With its widespread use, varied prevalence and motives, and potential non-consensual nature, it is imperative to develop a well-rounded and evidence-based understanding of sexting to know if and how it should be managed. The aim of the current study is to shed light onto sexting, particularly sending or receiving sexual images or videos, by conducting an online survey with a community sample of young adults 18–30 years of age. To further characterize sexting, we collected data on the prevalence of consensual and non-consensual sexting, what is captured in sexts, the contexts in which sexting occurs, and why people sext. The current study aims to address some of the limitations of the sexting literature. Namely, there are few empirical studies on the prevalence of sexting and motivations outside of college or university samples (Mori et al., 2020). In addition, to our knowledge, only two studies distinguished between nude and semi-nude materials (Crimmins & Seigfried-Spellar, 2017; Scholes-Balog et al., 2016); this distinction is important, as there are significant legal and social differences between sharing a nude image, where genitalia or breasts are fully exposed, and a semi-nude image, where genitalia and breasts are covered. Also, despite that sexual orientation has been found to be associated with sexting prevalence and may be associated with motivations behind sexting, few studies have distinguished across sexual orientation (e.g., Döring & Mohseni, 2018; Galovan et al., 2018).

Method

Participants

To be eligible to participate in this online study, participants were required to be 18 years old to 30 years old and be proficient in English. They did not need to have a history of sending or receiving sexts. A total of 4,117 individuals consented to participate in the survey; however, 1,289 participants were excluded for the following reasons: they did not complete the survey ($n = 516$), failed one of six validity checks ($n = 165$; see Part A, Supplemental Materials), did not provide their gender or sexual orientation ($n = 22$), did not identify as a cisgender man or woman ($n = 439$), or provided impossible answers (e.g., the participant indicated that they first sent a sext at 18–19 years old, and last sent a sext at 16–17 years old; $n = 147$).[2] Therefore, after exclusions, the current study used data from 2,828 participants, including 1,491 cisgender women and 1,337 cisgender men.

Participants' ages ranged from 18 to 30 years old ($M = 22.5$, $SD = 3.5$), and resided in the United States ($n = 1{,}622$; 57.4%) and Canada ($n = 1{,}147$; 40.6%). Approximately half of participants identified their sexual orientation as straight ($n = 1{,}573$; 55.6%), followed by bisexual ($n = 699$; 24.7%), pansexual ($n = 240$; 8.5%), gay or lesbian ($n = 190$; 6.7%), other ($n = 64$; 2.3%), and asexual ($n = 62$; 2.2%). For this paper, participants who identified as something other than cis-het (i.e., cisgender and heterosexual) were combined into one group that will be referred to as "cis-LGBPA+" (i.e., lesbian, gay, bisexual, pansexual, asexual, and other) to allow for meaningful comparisons during analyses. We present select findings from individual sexualities when the differences are particularly noteworthy, and tables with the breakdown by gender and individual sexualities are presented in the Supplemental Materials Part C. This sample consisted of 830 (29.3%) cis-LGBPA+ women, 661 (23.4%) cis-het women, 425 (15.0%) cis-LGBPA+ men, and 912 (32.2%) cis-het men.

The proportion of our sample who did not identify as heterosexual is higher than when compared to representative U.S. and Canadian samples (Gay & Lesbian Alliance Against Defamation [GLAAD], 2017; Statistics Canada, 2022). The sample was highly educated; only 3.0% had not completed high school, 20.0% had graduated high school, 41.4% had completed some college, 8.1% had an associate degree (i.e., two-year degree), 20.3% had a bachelor's degree (i.e., four-year degree), and 6.4% had a graduate degree. The proportion of our sample who reported that they were either in college or had completed a college degree is higher than average for the U.S. (63% of Americans aged 25 or older have at least some college; U.S. Census Bureau, 2022) and Canada (60% of Canadians aged 25–34 have attained a tertiary education; Statistics Canada, 2016). Full participants' characteristics are provided in Table 1.

[2] These participants will be used in a second study with a specific focus on transgender people.

Table 1 Demographic characteristics

	Overall ($N = 2828$)	Cis-LGBPA+ Women ($n = 830$)	Cis-het Women ($n = 661$)	Cis-LGBPA+ Men ($n = 425$)	Cis-het Men ($n = 912$)
Age (in yrs), Mean (SD)	22.5 (3.5)	21.9 (3.3)	22.4 (3.5)	22.9 (3.5)	23.1 (3.5)
Country					
Canada	1147 (40.6%)	301 (36.3%)	287 (43.4%)	159 (37.4%)	400 (43.9%)
USA	1622 (57.4%)	514 (61.9%)	357 (54.0%)	255 (60.0%)	496 (54.4%)
Other	59 (2.1%)	15 (1.8%)	17 (2.6%)	11 (2.6%)	16 (1.8%)
Sexual orientation					
Asexual	62 (2.2%)	48 (5.8%)	0 (0.0%)	14 (3.3%)	0 (0.0%)
Pansexual	240 (8.5%)	170 (20.5%)	0 (0.0%)	70 (16.5%)	0 (0.0%)
Bisexual	699 (24.7%)	506 (61.0%)	0 (0.0%)	193 (45.4%)	0 (0.0%)
Gay/Lesbian	190 (6.7%)	57 (6.9%)	0 (0.0%)	133 (31.3%)	0 (0.0%)
Straight	1573 (55.6%)	0 (0.0%)	661 (100%)	0 (0.0%)	912 (100%)
Other	64 (2.3%)	49 (5.9%)	0 (0.0%)	15 (3.5%)	0 (0.0%)
Education attainment					
Less than high school	86 (3.0%)	38 (4.6%)	10 (1.5%)	14 (3.3%)	24 (2.6%)
High school	567 (20.0%)	167 (20.1%)	124 (18.8%)	88 (20.7%)	188 (20.6%)
Some college	1172 (41.4%)	391 (47.1%)	258 (39.0%)	164 (38.6%)	359 (39.4%)
Associate degree	230 (8.1%)	55 (6.6%)	56 (8.5%)	39 (9.2%)	80 (8.8%)
Bachelor's degree	574 (20.3%)	133 (16.0%)	158 (23.9%)	91 (21.4%)	192 (21.1%)
Graduate degree	180 (6.4%)	40 (4.8%)	50 (7.6%)	27 (6.4%)	63 (6.9%)

Top three responses for "Other" countries were the U.K. ($n = 12$), Australia ($n = 9$), and Germany ($n = 6$)

Measures

Demographic Information

The demographic questionnaire contained questions about participants' age, gender, sexual orientation, education level, and country of residence at the time of the survey. All demographic items were operationalized categorically, with the exception of age which was treated as a continuous variable.

Age. Participants selected their age from a drop-down menu that ranged from 18 to 30.

Gender. Participants were asked to select their gender from the following options, "woman," "man," "non-binary/third gender," "genderfluid," "agender," or "other." Participants were then subsequently asked a yes or no question asking if they were transgender. As mentioned above, only participants who self-identified as being cis-men or cis-women were included in our analyses.

Sexual Orientation. Participants were asked to select their sexual orientation from the following options, "asexual," "pansexual," "bisexual," "gay or lesbian/homosexual," "straight/heterosexual," or "other." As mentioned above, for the purposes of our analyses, participants were grouped by if they identified as "cis-het" or "cis-LGBPA+."

Education Level. Participants were asked what their highest level of education achieved is from the following options, "less than high school," "high school degree or equivalent," "some college but not degree," "associate degree," "bachelor's degree," or "graduate degree."

Country of Residence. Participants were asked to select their country of residence from a drop-down list that contained all 195 countries as recognized by the United Nations.

Sexting Behaviors

A questionnaire was developed for the purpose of this study to assess participants' experiences with sexting. Most items in the sexting behaviors measure were treated as categorical variables, with the exception of the frequency and age domains, which were treated as ordinal variables. The new measure included the following domains:

Frequency. Participants were asked the lifetime frequency in which they have engaged in 12 sexting behaviors: (1) sending a semi-nude image with consent, (2) sending a semi-nude video with consent, (3) sending a nude image with consent, (4) sending a nude video with consent, (5) sending a semi-nude image without consent, (6) sending a semi-nude video without consent, (7) sending a nude image without consent, (8) sending a nude video without consent, (9) receiving a wanted semi-nude image/video, (10) receiving a wanted nude image/video, (11) receiving an unwanted semi-nude image/video, and (12) receiving an unwanted nude image/video. The response options were "Never," "1–2 times," "3–5 times," "6–10 times," or "11 + times," which were coded as

0–4, respectively, and operationalized as ordinal variables. These behaviors were then grouped into four sexting behavior categories: (1) sent a consensual sext (behaviors one through four), (2) sent a non-consensual sext (behaviors five through eight), (3) received a consensual sext (behaviors nine and ten), and (4) received a non-consensual sext (behaviors 11 and 12). Notably, this survey defined semi-nude as "underwear or naked, but genitals and breasts (for women) are not exposed" and nude as "genitals and/or breasts (for women) are fully exposed." This survey defined sexting with consent as "asking if they wanted it before sending it" and without consent as "not asking if they wanted it before sending it."

Body Parts Exposed. Participants who either sent or received a sext were asked what was exposed in the sext. Participants were asked to select all that apply from the response options. The five options given for semi-nude sexts were, "face," "buttocks," "cleavage/chest," "stomach," and "underwear." The five options given for nude sexts were "face," "buttocks," "breasts," "genitals," and "sexually explicit acts (e.g., masturbation, oral sex, vaginal/anal intercourse)." These questions were asked separately for sending and receiving. The response options were the same between sending and receiving a sext, with the exception that in the question related to sending a sext, participants were also asked to report whether they "never," "sometimes," or "always" actively attempted to hide their face when they had sent a semi-nude or nude sext.

Gender and Relationship of Sender or Receiver. Participants were asked whom they had ever sent a sext to and received a sext from. The participants were asked to select all that apply from the following response options, "females," "males," "a significant other," "someone at work," "someone at school," "casual sex partner," "ex-partner," "friend," "someone you wanted to date or have sex with," "someone you only know online, and never met in person," "family member," or "other." The responses "females" and "males" were recoded into "same gender" and "different gender" depending on the gender of the participant (e.g., "males" was recoded to "same gender" for male participants).

Motivations for Sending Sexts. Participants were asked why they had sent a sext. Motivations for sexting were identified and modified from similar studies in the literature (Bianchi et al., 2016; Drouin et al., 2013). Participants were asked to select all that apply from the following response options, "I was flirting with them," "I wanted to get their attention," "I wanted them to send me a similar picture," "I wanted to make them happy," "I wanted to show that I trust them," "I wanted to show that I love them," "I wanted to turn them on," "It turned me on," "I wanted to receive compliments," "I felt it was expected," "I was dared to send it," "I was drunk/high/intoxicated," "I wanted to get a positive reaction," "I wanted to get a negative reaction," "It was fun," "They asked for it," "They paid me for it," "They pressured me to send it," "They threatened me to send it," "To shock them," and "Other."

Age When Sent or Received Sexts. Participants were asked how old they were when they first and last sent a sext, as well as the age of the youngest and oldest recipient they sent a sext to. Participants were also asked what age they first and last received a sext, as well as the age of the sender in both circumstances. The response options in questions referencing the participants own age were, "11 years old or younger," "12–15 years old," "16–17 years old," "18–19 years old," "20–21 years old," "22–24 years old," "25–29 years old," "30–34 years old," or "35 or older." Age categories referencing the participants sexting partner were identical up to and including the "30 to 34 years old" option, but also included "35–39 years old," "40–49 years old," "50–59 years old," and "60 years old or older." The age categories for 20 years old or older were recoded. In reference to participants ages, the recoded categories included "20–24 years old" and "25 or older," while the sexting partners ages were recoded as "20–24 years old," "25–29 years old," "30–39 years old," "40–49 years old," and "50 years old or older." As some participants may not remember their or the other person's specific age, but could remember the approximate age (e.g., uncertain if they first sent a sext at 15 or 16 years old), we allowed participants to select multiple age categories to reduce the possibility of missing data. When multiple age categories were selected, the mean age category was used in the analyses. Age was operationalized as an ordinal variable with 1 = "11 years old or younger" and 9 = "50 years old or older."

Quality of Measurement

A small pilot study ($n = 139$) was first conducted to assess the median time to refine our survey and confirm the median completion time. Pilot participants were recruited in Spring of 2019 through social media sites and search-focused web-forums to complete the survey with an opportunity to leave a comment at the end of the survey. Of the 139 who started the survey, 81 did not complete the survey and 58 completed the full survey. The length of the survey response ranged from 10.7 min (those without sexting behaviors) to 32.9 min (those who engaged in all types of sexting behaviors). Based on endorsement rates and the interitem correlations, changes to the survey included: (1) removing the option to fill out follow-up questions if they shared the sext with consent, as this was outside the scope of the study; and (2) collapsing response categories (e.g., possible relationship options such as 'siblings,' 'half-siblings,' and 'cousins,' into 'family members').

Procedure

Participants for the study proper were recruited in 2019, from August to November, through online ads on Facebook and Instagram ($n = 3{,}954$), other social media sites (Tumblr and Twitter; $n = 34$), and research-focused web-forums (e.g., reddit.com/r/samplesize; $n = 129$), which invited individuals to complete an anonymous online questionnaire about their sexting habits. These advertisements were posted from accounts made for this project, and included a study URL, which, when clicked, would bring the participants to an online consent form that detailed the purpose of the study and the eligibility criteria. After providing consent, participants were taken to the survey. The demographic questionnaire was presented first (and any participants reporting an age below 18 years of age were redirected to the debriefing form), followed by the sexting behavior questionnaire, then a series of measures that will be the focus of a future paper. The overall median time to complete the survey was 21.9 min. Participants who did not engage in any sexting behaviors had a median completion time of 12.9 min, while participants who engaged in all sexting behaviors had a median completion time of 24.6 min. The survey was hosted on Checkbox, which is software that allows for non-tracking of IP addresses and is hosted on a server owned by the research group to ensure physical security.

Statistical Analysis

Group Differences

We examined differences between four groups, (1) cis-LGBPA+ women, (2) cis-het women, (3) cis-LGBPA+ men, and (4) cis-het men. The statistical significance of group differences in categorical outcomes were examined using Pearson's chi-squared test with Yates's continuity correction (Yates, 1934). In ordinal outcomes, the strength of differences by group was examined using Cliff's Delta with values of greater than 0.15, 0.33, and 0.47 referring to small, medium, and large effect sizes, respectively (Cliff, 1993; He et al., 2018). Statistical significance for the ordinal outcomes was examined using Dunn's test (Dunn, 1964).

Missing Data

Missing data were introduced as participants could select "Prefer not to answer" to any question they wished to skip. Missingness was low (< 5% across all items). As there was a very low level of missing data, listwise deletion was used.

Results

Sexting Behaviors

Frequency

Overall. 80.9% of respondents had sent a consensual sext, and 34.4% of respondents had sent a non-consensual sext (i.e., without first inquiring if the receiver wanted to receive the sext). 80.5% of respondents had received a consensual sext, and 60.3% of respondents had received a non-consensual sext. The most frequently selected option for sending a consensual sext (49.2%), receiving a consensual sext (46.9%), and receiving a non-consensual sext (32.7%) was "11 or more times." In contrast, most participants reported that they had never sent a non-consensual sext (65.4%), and of those who did send a non-consensual sext, most reported doing so "once or twice" (42.3%). Table 2 provides a complete breakdown of the frequency participants engaged in each sexting behavior.

Group Differences. cis-LGBPA+ men sent consensual and non-consensual sexts and received consensual sexts more frequently than all other groups (see Table 3). cis-LGBPA+ women received non-consensual sexts more often than any other group. The frequency of each sexting behavior by each group is reported in Tables S1-S4 in Supplemental Material Part B and the medium for which the sexting was received/shared is provided in Table S5 in Supplemental Material Part B.

cis-LGBPA+ men were more likely than cis-LGBPA+ women, cis-het women, and cis-het men to report sending a consensual sext "11 or more times" (cis-LGBPA+ women = 59.7%, cis-het women = 49.9%, cis-LGBPA+ men = 61.8%, cis-het men = 33.3%). cis-LGBPA+ men were also the most likely group to report sending a non-consensual sext "11 or more times" (cis-LGBPA+ women = 8.4%, cis-het women = 9.0%, cis-LGBPA+ men = 9.7%, cis-het men = 4.0%) and to report receiving a consensual sext "11 or more times" (cis-LGBPA+ women = 48.6%, cis-het women = 40.8%, cis-LGBPA+ men = 67.9%, cis-het men = 44.2%). cis-LGBPA+ women were the most likely group to report receiving a non-consensual sext "11 or more times" (cis-LGBPA+ women = 36.9%, cis-het women = 27.3%, cis-LGBPA+ men = 22.5%, cis-het men = 4.8%).

When we examine each sexuality individually, we find that cis-asexual women and cis-asexual men were less likely than any other sexuality to report that they have ever sent a consensual sext (47.9% and 35.7%, respectively), sent a non-consensual sext (16.7% and 7.1%, respectively), or received a consensual sext (27.1% and 35.7%, respectively). Cis-asexual women received non-consensual sexts

Table 2 Frequency of sexting behaviors for total sample ($N = 2828$)

Type of sexting behavior	Never	1–2 times	3–5 times	6–10 times	11 + times
Sent					
Consensual Nude Image	800 (28.4%)	293 (10.4%)	299 (10.6%)	290 (10.3%)	1132 (40.2%)
Consensual Nude Video	1290 (45.8%)	429 (15.2%)	277 (9.8%)	198 (7%)	624 (22.1%)
Consensual Semi-Nude Image	672 (23.8%)	287 (10.2%)	325 (11.5%)	321 (11.4%)	1214 (43.1%)
Consensual Semi-Nude Video	1388 (49.2%)	389 (13.8%)	288 (10.2%)	188 (6.7%)	569 (20.2%)
Non-Consensual Nude Image	2276 (80.9%)	230 (8.2%)	116 (4.1%)	64 (2.3%)	129 (4.6%)
Non-Consensual Nude Video	2581 (91.7%)	95 (3.4%)	41 (1.5%)	29 (1%)	68 (2.4%)
Non-Consensual Semi-Nude Image	1914 (67.9%)	374 (13.3%)	232 (8.2%)	107 (3.8%)	190 (6.7%)
Non-Consensual Semi-Nude Video	2489 (88.4%)	129 (4.6%)	73 (2.6%)	38 (1.3%)	86 (3.1%)
Received					
Consensual Nude Image/Video	712 (25.2%)	270 (9.6%)	316 (11.2%)	282 (10%)	1242 (44%)
Consensual Semi-Nude Image/Video	625 (22.1%)	269 (9.5%)	373 (13.2%)	305 (10.8%)	1250 (44.3%)
Non-Consensual Nude Image/Video	1257 (44.6%)	411 (14.6%)	340 (12.1%)	233 (8.3%)	578 (20.5%)
Non-Consensual Nude Image/Video	1361 (48.3%)	414 (14.7%)	300 (10.7%)	213 (7.6%)	527 (18.7%)

Table 3 Differences in frequency of sexting behaviors between subgroups (Cliff D's)

	Cis-LGBPA + Woman—Cis-het Woman CD (*p*-value)	Cis-LGBPA + Woman—Cis-LGBPA + Man CD (*p*-value)	Cis-LGBPA + Woman—Cis-het Man CD (*p*-value)	Cis-het Woman—Cis-LGBPA + Man CD (*p*-value)	Cis-het Woman—Cis-het Man CD (*p*-value)	Cis-LGBPA + Man—Cis-het Man CD (*p*-value)
Sent						
Consensual Nude Image	0.10 (< 0.001)	− 0.11 (0.003)	0.25 (< 0.001)	− 0.22 (< 0.001)	0.15 (< 0.001)	0.35 (< 0.001)
Consensual Nude Video	0.10 (0.001)	− 0.18 (< 0.001)	0.17 (< 0.001)	− 0.28 (< 0.001)	0.06 (0.011)	0.33 (< 0.001)
Consensual Semi-Nude Image	0.09 (0.002)	0.06 (0.075)	0.37 (0.417)	− 0.03 (< 0.001)	0.28 (< 0.001)	0.30 (< 0.001)
Consensual Semi-Nude Video	0.08 (0.010)	− 0.02 (0.726)	0.22 (0.010)	− 0.10 (< 0.001)	0.15 (< 0.001)	0.24 (< 0.001)
Non-Consensual Nude Image	− 0.01 (0.862)	− 0.07 (0.020)	0.07 (0.027)	− 0.07 (< 0.001)	0.06 (0.002)	0.13 (< 0.001)
Non-Consensual Nude Video	− 0.01 (0.912)	− 0.05 (0.038)	0.01 (0.054)	− 0.05 (0.415)	0.00 (0.587)	0.05 (0.001)
Non-Consensual Semi-Nude Image	0.08 (0.002)	0.07 (0.02)	0.22 (0.662)	− 0.02 (< 0.001)	0.13 (< 0.001)	0.14 (< 0.001)
Non-Consensual Semi-Nude Video	0.02 (0.156)	− 0.01 (0.665)	0.06 (0.175)	− 0.05 (< 0.001)	0.02 (0.070)	0.07 (< 0.001)
Received						
Consensual Nude Image/Video	0.07 (0.022)	− 0.23 (< 0.001)	0.09 (< 0.001)	− 0.30 (0.001)	0.02 (0.499)	0.29 (< 0.001)
Consensual Semi-Nude Image/Video	0.08 (0.013)	− 0.18 (< 0.001)	0.06 (< 0.001)	− 0.26 (0.035)	− 0.02 (0.49)	0.22 (< 0.001)
Non-Consensual Nude Image/Video	0.12 (< 0.001)	0.23 (< 0.001)	0.58 (0.001)	0.11 (< 0.001)	0.47 (< 0.001)	0.35 (< 0.001)
Non-Consensual Nude Image/Video	0.11 (< 0.001)	0.21 (< 0.001)	0.48 (0.002)	0.10 (< 0.001)	0.38 (< 0.001)	0.27 (< 0.001)

CD Cliff's Delta. Cliff's Delta with values of greater than 0.15, 0.33, and 0.47 referring to small, medium, and large effect sizes, respectively

Table 4 Age at sending and receiving first and last sext, full sample ($N = 2828$)

	≤ 11	12–15	16–17	18–19	20–24	25 + or 25–29	30–39	40–49	50+
Sent									
Age, first sext	37 (1.7%)	592 (27.1%)	663 (30.4%)	487 (22.3%)	345 (15.8%)	59 (2.7%)	–	–	–
Age, last sext	0 (0.0%)	17 (0.8%)	83 (3.8%)	540 (24.7%)	1059 (48.4%)	490 (22.4%)	–	–	–
Youngest recipient's age	15 (0.7%)	58 (2.7%)	245 (11.2%)	678 (31.1%)	444 (20.3%)	422 (19.3%)	183 (8.4%)	137 (6.3%)	0 (0.0%)
Oldest recipient's age	0 (0.0%)	9 (0.4%)	317 (14.6%)	657 (30.3%)	683 (31.5%)	379 (17.5%)	94 (4.3%)	22 (1.0%)	5 (0.2%)
Received									
Age, first sext	122 (5.0%)	832 (33.9%)	688 (28.0%)	453 (18.5%)	308 (12.5%)	52 (2.1%)	–	–	–
Age, last sext	0 (0.0%)	40 (1.6%)	120 (4.9%)	608 (24.8%)	1135 (46.2%)	553 (22.5%)	–	–	–
Sender's age, first sext	8 (0.3%)	356 (14.7%)	616 (25.4%)	608 (25.1%)	517 (21.3%)	212 (8.7%)	85 (3.5%)	22 (0.9%)	2 (0.1%)
Sender's age, last sext	24 (1.0%)	117 (4.8%)	506 (20.7%)	999 (40.9%)	534 (21.9%)	215 (8.8%)	33 (1.4%)	12 (0.5%)	1 (0.0%)

In the column "25 + or 25–29," 25 + is used for rows referring to the participants age (i.e. "Age, first sext" and "Age, last sext" for both Sent and Received), while 25–29 is used for all other rows

Table 5 Age at first receiving a sext, and age of the sender, full sample ($N = 2828$)

	Age first received a sext					
Age of sender	≤ 11	12–15	16–17	18–19	20–24	25+
≤ 11	8 (6.6%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)
12–15	16 (13.2%)	302 (37.1%)	33 (4.8%)	4 (0.9%)	0 (0.0%)	0 (0.0%)
16–17	17 (14.0%)	211 (26.0%)	360 (52.9%)	27 (6.0%)	1 (0.3%)	0 (0.0%)
18–19	22 (18.2%)	110 (13.5%)	170 (25.0%)	257 (57.2%)	43 (14.0%)	4 (7.8%)
20–24	24 (19.8%)	100 (12.3%)	76 (11.2%)	118 (26.3%)	189 (61.6%)	9 (17.6%)
25–29	18 (14.9%)	49 (6.0%)	26 (3.8%)	31 (6.9%)	57 (18.6%)	31 (60.8%)
30–39	11 (9.1%)	33 (4.1%)	12 (1.8%)	8 (1.8%)	16 (5.2%)	5 (9.8%)
40–49	3 (2.5%)	8 (1.0%)	4 (0.6%)	4 (0.9%)	1 (0.3%)	2 (3.9%)
50+	2 (1.7%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)

Percentages were calculated by column total

at approximately the same rate as cis-het women (70.8% and 72.0%, respectively), while cis-asexual men received non-consensual sexts at near the same rate as cis-het men (35.7% and 32.0%, respectively). Cis-women, regardless of sexual orientation, were more likely to ever receive non-consensual sexts than cis-men (77.3% and 41.4%, respectively), with the exception of gay men (80.4%).

Ages

Overall. Within the full sample, 59.2% of participants who reported having sent a sext reported beginning sexting when they were 17 years of age or younger. The median age of first receiving a sext was 16–17 years old, while the median age of the person who sent the participant their first sext was 20–24 years old. See Table 4 for the ages in which participants engaged in sexting behaviors, and the age of their sexting partners.

Of the participants who reported having received a sext, 1,642 (66.9%) participants reported receiving their first sext prior to being 18 years old. Of these, 666 (40.6%) reported that they received the sext from someone who was 18 years old or older, and 122 participants reported receiving their first sext at 11 years old or younger. Of these 122 participants, only 8 of the senders were themselves 11 years old or younger, and 97 of the senders were 16 years of age or older. See Table 5 for the ages participants first received a sext and the age of the sender.

Group differences. cis-LGBPA+ women and men sent and received their first sext at a younger age than cis-het women and men (see Table 6; the frequency of each age category reported is provided in Table S6–S9 of the Supplemental Material). cis-LGBPA+ women were more likely than cis-het women, cis-LGBPA+ men, and cis-het men to send a sext prior to being 18 years of age (cis-LGBPA+ women = 66.8%, cis-het women = 55.3%, cis-LGBPA+ men = 60.7%, cis-het men = 51.9%) and to receive their first sext prior to being 18 years of age (cis-LGBPA+ women = 77.0%, cis-het women = 64.7%, cis-LGBPA+ men = 67.5%, cis-het men = 57.1%). Cis-het men were the group most likely to

Table 6 Differences in age between subgroups (Cliff's Delta)

	Cis-LGBPA+ Woman—Cis-het Woman CD (*p*-value)	Cis-LGBPA+ Woman—Cis-LGBPA+ Man CD (*p*-value)	Cis-LGBPA+ Woman—Cis-het Man CD (*p*-value)	Cis-het Woman—Cis-LGBPA+ Man CD (*p*-value)	Cis-het Woman—Cis-het Man CD (*p*-value)	Cis-LGBPA+ Man—Cis-het Man CD (*p*-value)
Sent						
Age, first sext	− 0.37 (< 0.001)	− 0.33 (0.063)	− 0.58 (0.106)	− 0.27 (< 0.001)	− 0.53 (0.094)	− 0.56 (0.003)
Age, last sext	− 0.30 (0.238)	− 0.35 (< 0.001)	− 0.52 (0.027)	− 0.36 (0.001)	− 0.53 (0.103)	− 0.48 (0.406)
Youngest recipient's age	− 0.37 (< 0.001)	− 0.28 (0.926)	− 0.49 (0.006)	− 0.23 (1.000)	− 0.46 (0.014)	− 0.52 (< 0.001)
Oldest recipient's age	− 0.24 (0.164)	− 0.37 (< 0.001)	− 0.37 (< 0.001)	− 0.44 (< 0.001)	− 0.43 (< 0.001)	− 0.34 (< 0.001)
Received						
Age, first sext	− 0.32 (< 0.001)	− 0.31 (< 0.001)	− 0.52 (0.751)	− 0.19 (< 0.001)	− 0.42 (< 0.001)	− 0.39 (< 0.001)
Age, last sext	− 0.22 (0.106)	− 0.25 (< 0.001)	− 0.36 (0.015)	− 0.25 (< 0.001)	− 0.36 (0.071)	− 0.26 (0.329)
Sender's age, first sext	− 0.21 (0.372)	− 0.11 (0.174)	− 0.19 (0.053)	− 0.13 (< 0.001)	− 0.21 (< 0.001)	− 0.24 (0.027)
Sender's age, last sext	− 0.17 (< 0.001)	− 0.15 (0.945)	− 0.18 (< 0.001)	− 0.20 (< 0.001)	− 0.23 (< 0.001)	− 0.19 (< 0.001)

CD Cliff's Delta. Cliff's Delta with values of greater than 0.15, 0.33, and 0.47 referring to small, medium, and large effect sizes, respectively

Table 7 Body parts exposed in sent nude and semi-nude sexts by subgroup

	Overall (*N* = 2325)	Cis-LGBPA+ Women (*n* = 754)	Cis-het Women (*n* = 564)	Cis-LGBPA+ Men (*n* = 378)	Cis-het Men (*n* = 629)	*p*-value
Exposed						
Semi-Nude						
Face	1459 (62.8%)	516 (68.4%)	332 (58.9%)	231 (61.1%)	380 (60.4%)	0.001
Buttocks	1229 (52.9%)	501 (66.4%)	353 (62.6%)	214 (56.6%)	161 (25.6%)	< 0.001
Cleavage/chest	1764 (75.9%)	710 (94.2%)	512 (90.8%)	226 (59.8%)	316 (50.2%)	< 0.001
Stomach	1818 (78.2%)	602 (79.8%)	434 (77.0%)	314 (83.1%)	468 (74.4%)	0.006
Underwear	1988 (85.5%)	692 (91.8%)	502 (89.0%)	325 (86.0%)	469 (74.6%)	< 0.001
Actively hid face	1624 (73.8%)	598 (80.9%)	450 (81.2%)	257 (72.0%)	319 (57.9%)	< 0.001
Nude						
Face	798 (34.3%)	283 (37.5%)	174 (30.9%)	148 (39.2%)	193 (30.7%)	0.003
Buttocks	1017 (43.7%)	403 (53.4%)	263 (46.6%)	200 (52.9%)	151 (24.0%)	< 0.001
Cleavage/chest	920 (39.6%)	470 (62.3%)	331 (58.7%)	61 (16.1%)	58 (9.2%)	< 0.001
Genitals	1264 (54.4%)	411 (54.5%)	278 (49.3%)	249 (65.9%)	326 (51.8%)	< 0.001
Sexual act (e.g., masturbation)	1217 (52.3%)	419 (55.6%)	259 (45.9%)	238 (63.0%)	301 (47.9%)	< 0.001
Actively hid face	1703 (79.1%)	604 (84.1%)	447 (82.9%)	298 (83.5%)	354 (65.7%)	< 0.001

receive their first sext from someone under 18 years of age (cis-LGBPA+ women = 38.3%, cis-het women = 35.7%, cis-LGBPA+ men = 42.3%, cis-het men = 45.6%).

Body Parts Exposed

Participants who reported they had sent a sext were asked which body parts they exposed in their semi-nude and nude sexts. Table 7 reports the body parts participants reported exposing in a sext, by gender and sexual orientation. Figure 1 presents what participants exposed in nude and semi-nude sexts that they had sent, by gender and sexual orientation.

Overall. Participants were less likely to show their faces in a nude sext (34.3%) as compared to a semi-nude sext (62.8%), though there was only a slight difference in the frequency of actively hiding their faces in nude and semi-nude images (79.1% vs. 73.8%, respectively). In semi-nude sexts, participants were most likely to expose their

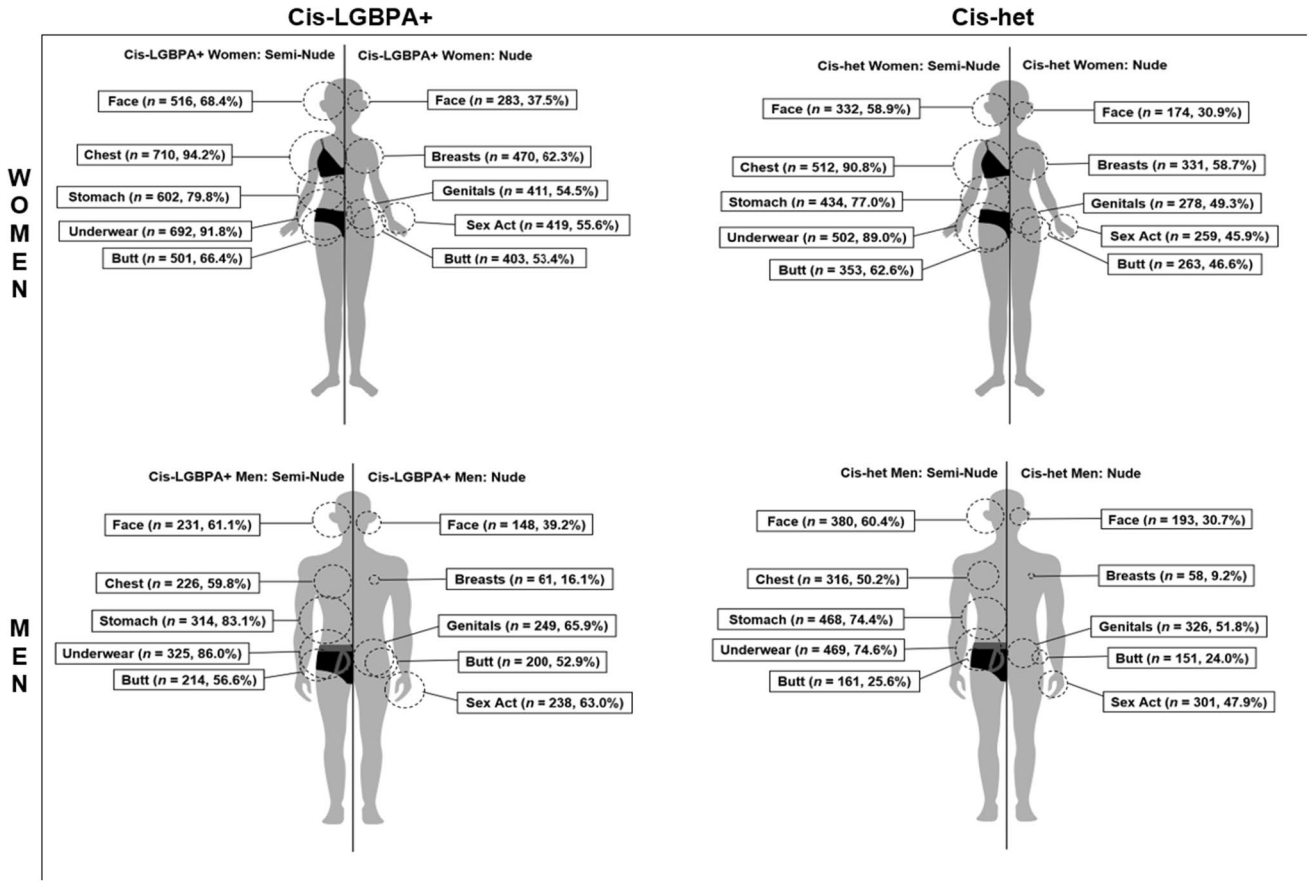

Fig. 1 Body parts exposed in sent nude and semi-nude sexts by subgroup

underwear (85.5%), stomach (78.2%), and chest (75.9%). In nude sexts, participants were most likely to expose their genitals (54.4%), a sexual act (e.g., masturbation; 52.3%), and their buttocks (43.7%).

Group Differences. There were significant group differences by gender and sexual orientation in sending both semi-nude and nude images.

Semi-Nude Images. In semi-nude images, cis-LGBPA+ women were more likely to expose their face than all other groups (cis-LGBPA+ women = 68.4%, cis-het women = 58.9%, cis-LGBPA+ men = 61.1%, cis-het men = 60.4%; $p = .001$). However, cis-LGBPA+ women also reported actively hiding their face at least some of the time more than cis-het men and at a similar rate to cis-het women and cis-LGBPA+ men (cis-LGBPA+ women = 80.9%, cis-het women = 81.2%, cis-LGBPA+ men = 72.0%, cis-het men = 57.9%; $p < .001$). Additionally, both cis-LGBPA+ and cis-het women were more likely to show their chest than cis-LGBPA+ and cis-het men (cis-LGBPA+ women = 94.2%, cis-het women = 90.8%, cis-LGBPA+ men = 59.8%, cis-het men = 50.2%; $p < .001$). Cis-het men were far less likely to report showing their buttocks than all other groups (cis-LGBPA+ Women = 66.4%, cis-het women = 62.6%, cis-LGBPA+ men = 56.6%, cis-het men = 25.6%; $p < .001$).

Nude Images. In nude images, cis-LGBPA+ women and cis-LGBPA+ men were more likely than cis-het women and cis-het men to expose their face (cis-LGBPA+ women = 37.5%, cis-het women = 30.9%, cis-LGBPA+ men = 39.2%, cis-het men = 30.7%; $p = .003$), and cis-het men were the least likely group to actively conceal their face in nude sexts (cis-LGBPA+ women = 84.1%, cis-het women = 82.9%, cis-LGBPA+ men = 83.5%, cis-het men = 65.7%; $p < .001$). Cis-LGBPA+ women and cis-het women exposed their chest more than cis-LGBPA+ men and cis-het men (cis-LGBPA+ women = 62.3%, cis-het women = 58.7%, cis-LGBPA+ men = 16.1%, cis-het men = 9.2%; $p < .001$). cis-LGBPA+ women and cis-LGBPA+ men were also more likely than cis-het women and cis-het men to expose their genitals (cis-LGBPA+ women = 54.5%, cis-het women = 49.3%, cis-LGBPA+ men = 65.9%, cis-het men = 51.8%; $p < .001$), and depict sex acts (cis-LGBPA+ women = 55.6%, cis-het women = 45.9%, cis-LGBPA+ men = 63.0%, cis-het men = 47.8%; $p < .001$). Similar to in semi-nude images, cis-het men were also the least likely group to expose their buttocks in nude images (cis-LGBPA+ women = 53.4%,

Table 8 Relationship to sexting recipient in sent sexts by subgroup

Sent to whom	Overall ($N=2325$)	Cis-LGBPA+ Women ($n=754$)	Cis-het Women ($n=564$)	Cis-LGBPA+ Men ($n=378$)	Cis-het Men ($n=629$)	p-value
Same gender	991 (45.0%)	497 (67.4%)	106 (19.1%)	304 (85.4%)	84 (15.2%)	<0.001
Different gender	2031 (92.2%)	696 (94.6%)	550 (99.1%)	235 (65.8%)	550 (98.9%)	<0.001
Significant other	1983 (90.1%)	675 (91.6%)	508 (91.7%)	294 (83.3%)	506 (91.0%)	<0.001
Someone from work or school	524 (23.8%)	208 (28.2%)	115 (20.8%)	91 (25.5%)	110 (19.8%)	0.001
Casual sex partner	1253 (57.0%)	444 (60.2%)	278 (50.4%)	255 (71.8%)	276 (49.7%)	<0.001
Ex	613 (27.9%)	223 (30.3%)	131 (23.7%)	116 (32.5%)	143 (25.9%)	0.008
Friend	890 (40.5%)	393 (53.2%)	162 (29.2%)	175 (49.4%)	160 (29.0%)	<0.001
Someone they want to date or have sex with	1175 (53.4%)	422 (57.2%)	264 (47.6%)	241 (68.1%)	248 (44.7%)	<0.001
Someone they know only online	1324 (60.2%)	484 (65.5%)	274 (49.6%)	297 (83.2%)	269 (48.3%)	<0.001
Family member	58 (2.6%)	24 (3.3%)	9 (1.6%)	12 (3.4%)	13 (2.3%)	0.225
Other	67 (4.0%)	26 (5.0%)	14 (3.2%)	12 (4.8%)	15 (3.3%)	0.367

cis-het women = 46.6%, cis-LGBPA+ men = 52.9%, cis-het men = 24.0%; $p < .001$).

Relationship

Participants who reported that they had sent a sext were asked whom they had ever sent a sext to, and participants who reported that they had ever received a sext were asked whom they had ever received a sext from. Table 8 reports the people whom participants reported sending a sext to by gender and sexual orientation.

Overall. Participants were most likely to sext with a significant other (Sent = 90.1%, Received = 82.6%), someone they only knew online (Sent = 60.2%, Received = 69.4%), and a casual sex partner (Sent = 56.5%, Received = 54.6%). Participants were also more likely to sext with someone of a different gender (Sent = 92.2%, Received = 93.6%) as opposed to someone of the same gender (Sent = 45.0%, Received = 50.1%).

Group Differences. Regarding the relationship between who participants sent a sext to, the most notable group differences found were related to sexual orientation rather than gender. cis-LGBPA+ women and cis-LGBPA+ men were more likely than cis-het women and men to send a sext to a friend (cis-LGBPA+ women = 53.2%, cis-het women = 29.2%, cis-LGBPA+ men = 49.4%, cis-het men = 29.0%; $p < .001$), someone they want to date or have sex with (cis-LGBPA+ women = 57.2%, cis-het women = 47.6%, cis-LGBPA+ men = 68.1%, cis-het men = 44.7%; $p < .001$), someone they only knew online (cis-LGBPA+ women = 65.5%, cis-het women = 49.6%, cis-LGBPA+ men = 83.2%, cis-het men = 48.3%; $p < .001$), and a casual sex partner (cis-LGBPA+ women = 60.2%, cis-het women = 50.4%, cis-LGBPA+ men = 71.8%, cis-het men = 49.7%; $p < .001$).

Cis-lesbian participants were more likely than cis-het women, cis-het men, and cis-gay men to send a sext to the gender that their reported sexual orientation at the time of the study would suggest that they would not be sexually attracted to. Among cis-lesbians, 50.0% reported sending a sext to a man. In contrast, only 15.2% of cis-het men sent a sext to a man, and 19.1% of cis-het women sent a sext to a woman, and 12.0% of cis-gay men sent a sext to a woman. See Supplemental Material Table S10 for the full breakdown by sexual orientation.

Motivations to Sext

Participants who reported that they had sent at least one sext were asked what their reason(s) for sending a sext were. The complete results are reported in Table 9, by gender and sexual orientation. A graphical representation of the most and least frequent motivations by gender and sexual orientation is provided in Fig. 2. A breakdown of reported motivations for sending semi-nude, nude, or both types of sexts are also available in the Supplemental Material (see Tables S11-S14).

Overall. The primary motivations to send a sext were to turn the recipient on (94.1%), because they were asked (88.2%), and to flirt (86.8%). The three least common motivations were because they were paid (8.8%), threatened to send one (6.6%), and to receive a negative reaction (2.1%).

Group Differences. Regarding the motivations for sending a sext, the most notable group differences are that cis-LGBPA+ women and cis-het women were more likely than cis-LGBPA+ men and cis-het men to send a sext due to being threatened (cis-LGBPA+ women = 10.7%, cis-het women = 8.6%, cis-LGBPA+ men = 3.4%, cis-het men = 1.3%; $p < .001$), or pressured (cis-LGBPA+ women = 39.9%, cis-het women = 37.2%,

Table 9 Motivations to send a sext by subgroup

Motivation	Overall ($N=2325$)	Cis-LGBPA+ Women ($n=754$)	Cis-het Women ($n=564$)	Cis-LGBPA+ Men ($n=378$)	Cis-het Men ($n=629$)	p-value
Flirt	1915 (86.8%)	653 (88.4%)	494 (89.0%)	309 (86.6%)	459 (82.7%)	0.007
Attention	1255 (57.1%)	525 (71.2%)	347 (62.7%)	166 (46.8%)	217 (39.3%)	<0.001
Wanted a picture in return	1552 (70.7%)	481 (65.4%)	347 (63.3%)	286 (80.1%)	438 (78.9%)	<0.001
Make the recipient happy	1839 (83.5%)	646 (87.5%)	475 (85.9%)	287 (80.4%)	431 (77.8%)	<0.001
Show trust	1172 (53.7%)	406 (55.6%)	281 (51.3%)	192 (54.4%)	293 (53.2%)	0.475
Show love	1263 (58.0%)	438 (60.0%)	335 (61.0%)	177 (50.4%)	313 (57.0%)	0.008
Turn the recipient on	2075 (94.1%)	698 (94.6%)	534 (96.4%)	334 (93.6%)	509 (91.5%)	0.007
Turn the respondent on	1666 (76.2%)	586 (79.9%)	411 (75.0%)	287 (80.6%)	382 (69.5%)	<0.001
Receive a compliment	1395 (63.8%)	553 (75.4%)	371 (67.7%)	215 (60.9%)	256 (46.5%)	<0.001
Expected	956 (43.8%)	360 (49.0%)	246 (45.0%)	166 (46.9%)	184 (33.5%)	<0.001
Dared	259 (11.9%)	80 (11.0%)	38 (6.9%)	56 (15.9%)	85 (15.5%)	<0.001
Drunk	557 (25.5%)	234 (32.0%)	128 (23.3%)	96 (27.0%)	99 (18.0%)	<0.001
Elicit a positive reaction	1547 (70.4%)	590 (80.1%)	393 (70.9%)	229 (64.5%)	335 (60.6%)	<0.001
Elicit a negative reaction	46 (2.1%)	17 (2.3%)	7 (1.3%)	10 (2.8%)	12 (2.2%)	0.405
Fun	1733 (79.1%)	606 (82.7%)	427 (77.9%)	286 (80.3%)	414 (74.9%)	0.006
Asked	1941 (88.2%)	640 (87.0%)	475 (86.2%)	337 (94.4%)	489 (87.9%)	0.001
Paid	191 (8.8%)	112 (15.4%)	35 (6.4%)	28 (7.9%)	16 (2.9%)	<0.001
Pressured	620 (28.4%)	291 (39.9%)	204 (37.2%)	63 (17.7%)	62 (11.3%)	<0.001
Threatened	144 (6.6%)	78 (10.7%)	47 (8.5%)	12 (3.4%)	7 (1.3%)	<0.001
To shock	299 (13.7%)	105 (14.4%)	86 (15.7%)	37 (10.4%)	71 (13.0%)	0.136
Other	57 (3.5%)	19 (3.8%)	15 (3.7%)	8 (3.3%)	15 (3.3%)	0.973

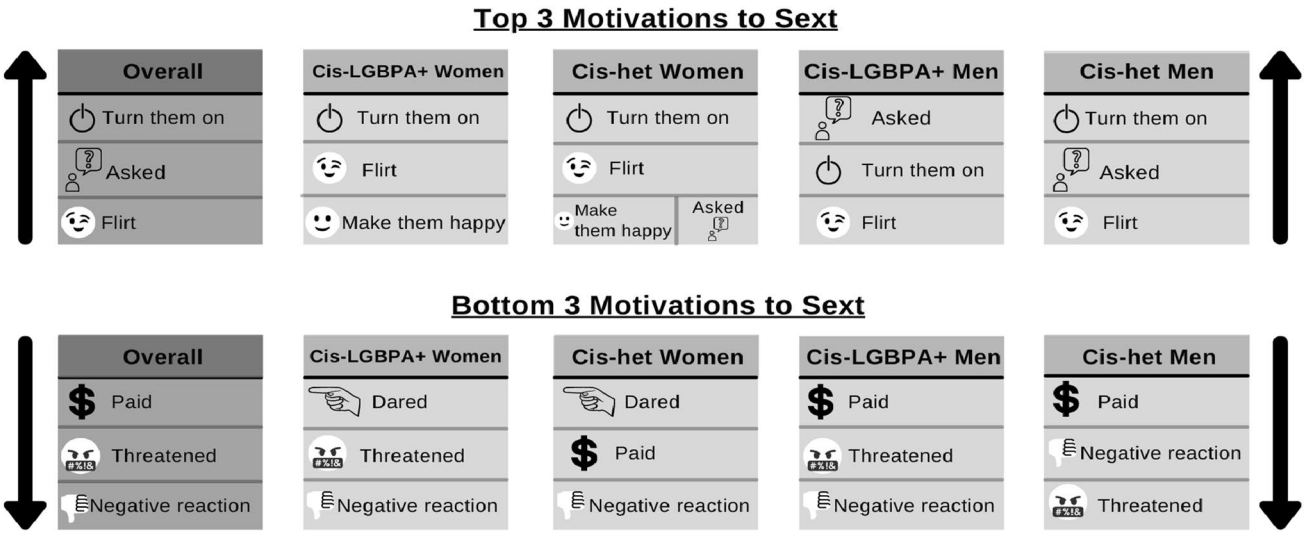

Fig. 2 Motivations to send a sext by subgroup

cis-LGBPA+ men = 17.7%, cis-het men = 11.3%; $p < .001$). Also, when compared to all other groups, cis-LGBPA+ women were the most likely group to have sent a sext due to being paid (cis-LGBPA+ women = 15.4%, cis-het women = 6.4%, cis-LGBPA+ men = 7.9%, cis-het men = 2.9%; $p < .001$).

Asexual participants were less likely than other participants to endorse sexual reasons for sexting. As only five asexual men sent a sext, we grouped asexual men and women for the purpose of these comparisons. The asexual participants sent a sext to turn the recipient on (73.3% vs. 94.1% overall), to turn themselves on (50.0% vs. 76.2% overall),

and to flirt (63.3% vs. 86.8% overall). Asexual participants were more likely than other participants to send a sext due to negative reasons, such as due to it being expected of them (53.3% vs. 43.8% overall), being pressured (40% vs. 28.4% overall), or being threatened (13.3% vs. 6.6% overall). See Supplemental Material Table S15 for the full breakdown by sexual orientation.

Discussion

Prevalence

Most (85%) of our sample reported that they had sent or received a consensual sext, with younger participants reporting higher rates than older participants. The rates found in the current study is higher than a meta-analysis sampling 110,380 youth aged 12–17 (mean age = 15), which found that 15% sent and 27% received a sext (Madigan et al., 2018) and the meta-analysis sampling adults aged 18–29, which found 38% have sent sexts and 42% have received sexts (Mori et al., 2020). As such, our study adds to the cumulative evidence that sexting is more prevalent in contemporaneous samples and, in fact, may now be a normal part of a modern-day adolescent's life, with the median age of first sending a sext being 16–17 years of age for all groups. More specifically, 59% of those who sent a sext did so before the age of 18 and 67% who received a sext received it prior to the age of 18. As such, the prevalence of sexting in youth is higher than the prevalence of engaging in sexual intercourse (21% of girls and 26% of boys aged 15–18 years old; Young et al., 2018).

In this sample, sexting was also a repeated behavior, with 60% of cis-LGBPA+ women, 50% of cis-het women, 62% of cis-LGBPA+ men, and 33% of cis-het men reporting having sent 11 or more sexts. In concordance with prior research (e.g., Mori et al., 2020), our findings support the notion that sexting is a normative technology-mediated sexual behavior in the modern world. Though sexting may be commonplace, this practice was also found to carry potential risk, with a smaller yet sizable proportion of participants reporting experience with sending (34%) or receiving (60%) a non-consensual sext.

While the rates of sending and receiving consensual sexts were similar between semi-nude and nude images or videos, participants sent and received non-consensual semi-nude images and videos at higher rates than non-consensual nude images and videos (e.g., 32% of participants sent a non-consensual semi-nude image, while 19% of participants sent a non-consensual nude image). This could reflect that sending a non-consensual nude image is crossing a stricter social boundary than a non-consensual semi-nude image, or that semi-nude images convey different messages than nude images. Indeed, sending nude sexts—especially with identifiable features (e.g., face)—has been reported as a means to express and enhance intimacy (Amundsen, 2022). Future research should investigate the potential differing societally prescribed perceived meanings and implications of nude and semi-nude, as this would provide key information for sexual education programming.

Sexting appears to be an easy and accessible way for young people to experiment and explore their sexuality, particularly among sexual minorities. Individuals belonging to sexual minorities may feel freer to express their sexuality through technology-facilitated means, rather than offline. Prior research suggests that online experiences can facilitate coming out for sexual minorities and help affirm their identity (Giano, 2021). Additionally, exploring sexuality online, rather than offline, might help mitigate potential homophobic backlash and represent a safer way for sexual minority individuals to explore their sexuality (Giano, 2021). Heteronormativity and the fear of negative reactions can make it difficult for sexual minority youths to be open about their sexual orientation and establish contact with sexual minority peers (DeHaan, 2013). Perhaps it is because of these barriers that our study found a higher proportion of cis-LGBPA+ participants reporting having sexted more generally, sending their first sext at a younger age, and more likely to have sent sexts to casual sex partners, friends, someone they want to date or have sex with, and someone they only know online than other groups (see also Garcia et al., 2016).

While consensual sexting may be a way to explore and affirm one's sexuality, we must also acknowledge the high rates of non-consensual sexting among cis-LGBPA+ men. While this may be indicative of increased rates of technology-facilitated sexual violence perpetration and victimization among sexual minority men, another explanation may be that in at least certain contexts, some gay and bisexual men do not view unsolicited sexts as problematic or non-consensual (Dietzel, 2022; Marcotte et al., 2020). Failure to account for such cultural and contextual differences may result in an overestimation of sexual violence perpetration, contributing to homophobic attitudes, and downplay the seriousness of the violation in cases where an unsolicited sext was also unwanted. Additional research is needed to parse apart and better understand the perception and meaning of sexts in different demographic groups, such as sexual and gender minority communities.

Context

In the current study, sexts were most often sent to a significant other (90.1% of those who send a sext), suggesting that sexting is a normative sexual practice within relationships. Due to this, relevant stakeholders should work to develop guidelines to promote safer sexting practices, with potential utility for specific recommendations for different

relational contexts (e.g., established relationship vs. new relationship). Guidelines could address topics such as risk mitigating behaviors (e.g., not showing face), and education on the implications and impacts of sending a sext to someone without consent and sharing a sext with others without the original sender's permission.

Half of lesbian participants reported having sent a sext to men, which was a far greater proportion than cis-het women, cis-het men, and cis-gay men sending a sext to the gender that their reported sexual orientation would suggest they would not be sexually attracted to. This finding corresponds to prior results gleaned from the National Survey of Family Growth dataset that found lesbians were more likely than heterosexual and gay men to have sexual orientation-incongruent sexual partners (Brown & England, 2016). In contrast, Korchmaros et al. (2013) found that heterosexual women were more likely to have sexual orientation-incongruent sexual partners than lesbians.

The majority (79%) of our participants reported actively hiding their face at least some of the time in nude photos, which might indicate that they are aware of some of the potential risks associated with sexting (e.g., having a sexual image shared beyond the intended recipient). Interestingly, cis-het men were the least likely group of participants to actively hide their face in a nude sext (66%), which might reflect having less concern for the potential risks posed by this behavior. This reflects prior findings that show that men are harmed less by image-based sexual abuse (IBSA) than women (Powell et al., 2022; Ruvalcaba & Eaton, 2020), which may result in lower concern towards the consequences. It is important to note though that despite cis-het men hiding their face less frequently than any other group, the majority still did hide their face at least some of the time, likely suggesting that this demographic group is aware of the potential safeguarding offered by this behavior. This group of men engaging in this potential safeguarding behavior is also consistent with other research that has indicated that both men and women report being adversely impacted by technology-facilitated sexual violence victimization experiences (Champion et al., 2022).

In our sample, the median age for first sending a sext was 16–17 years old. This is notable because in Canada and the United States, image-based sexual material depicting teens under 18 years of age that could be produced while sexting would fall under child pornography statutes, with some jurisdictions in these countries providing exceptions in certain circumstances (Canada; R v. Sharpe, 2001; Lee & Darcy, 2020; O'Connor et al., 2017). Despite this material being a technical violation of the law, it is notable that prosecutors appear hesitant to prosecute sexting cases involving teens, and err towards allowing for consensual teen sexting, provided that those involved in the sexting exchange are similar in age and the images are not forwarded or posted more broadly (O'Connor et al., 2017). Given the prevalence of sexting among teens, it would be impractical to use the threat of prosecution to decrease the incidence of this behavior.

Approximately 40% of the participants who first received a sext when they were under 18 years old received that sext from someone who was over 18 years old. Of particular concern, 80% (97 of 122) of the participants who received their first sext when they were 11 years of age or younger were sent that sext by someone who was 16 years of age or older. These finding highlight that primary prevention of child sexual abuse perpetration efforts should include a strong focus on preventing adolescents and adults sexting with minors.

Reasons for Sexting

Participants indicated a variety of reasons for sexting, with the three most common being (1) to turn their partner on, (2) because they were asked to send a sext, and (3) to flirt. These reasons might suggest that sexting is used as a means of communicating sexual interest or desire. The three least common reasons for sexting were (1) to receive a negative reaction, (2) because they were threatened, and (3) because they were paid. The high prevalence of sexting paired with the primarily sexual motives for sexting identified by participants aligns with prior research indicating sexting to be a part of modern culture, as well as a normal and a generally positive experience in sexual relationships (Amundsen, 2022; Bonilla et al., 2021; Brodie et al., 2019).

The current study found evidence suggesting that coercive sexting is a gendered phenomenon. Both cis-LGBPA+ (asexual participants in particular) and cis-het women were more likely than cis-het men to report that they had sent a sext due to being pressured or threatened. This is consistent with previous work on sexting (Gassó et al., 2021; Kernsmith et al., 2018), as well as findings related to in-person sexual coercion (Cotter & Savage, 2019). Given that victimization of coercive sexting is associated with negative mental health outcomes, such as depression and anxiety (Gassó et al., 2021; Klettke et al., 2019), incorporating sexting into sexual education curricula could open a timely discussion with teens to help protect them from these impacts. Particularly, it might be useful to educate adolescents about how to sext safely, as well as the importance of setting and respecting boundaries in relationships, online and offline. Efforts should also be made to provide this form of education in an accessible way to adults who would not be reached through school-based sexual education curricula, potentially through content circulated through social media or community-based workshops.

We found that asexual participants were less likely to endorse sexual reasons for sexting, and more likely to report being coerced into sexting as compared to other groups. Many asexual people do have romantic and sexual relationships, so

even though "to turn my partner on" was understandably a less common reason for sexting among asexual people compared to other participants, over three quarters of asexual participants still endorsed that as a reason for sending a sext (Prause & Graham, 2007; Rothblum et al., 2020).

Limitations and Future Directions

Although more generalized than university samples, our sample had a higher proportion of cis-LGBPA+ and highly educated individuals (76% completed some college or more) than established percentages in either Canada (60% with a tertiary education) or the United States (62% completed some college or more); therefore, our findings may not generalize to the general population. Future studies using quota-based sampling to mimic the general population would provide more accurate overall prevalence rates. Our survey took a median of 22 min to complete and, as such, decisions had to be made regarding which questions should be included and excluded. As a result, a second limitation of the current study is that questions pertaining to additional details about sexting behaviors (e.g., motivations for sending a sext, relationship to the recipient, etc.) were not asked separately for consensual and non-consensual sexts precluding comparison analyses. Finally, the definition used for sending a non-consensual sext (i.e., "without permission") may not have adequately differentiated between non-consensual sexting and those sexting within established relationships whereby expectations and boundaries have been set about sexting practices. Indeed, it is possible that, in some relationships or demographic groups (as discussed earlier about cis-LGBPA+ men), sending a sext without explicit permission might not be perceived as non-consensual by the receiver, but this manner of sexting would be captured by our definition of non-consensual sexts. Future researchers seeking to examine the concept of non-consensual sexting should carefully consider the myriad of possible relationship dynamics that exist when operationalizing their study concepts. Finally, the current study sampled adults aged 18–30 and asked them to recall their sexting experiences. It is possible that some recollections were imprecise. The younger participants also had higher rates of sexting than the older participants, suggesting a cohort of effect (i.e., samples of younger participants will have higher sexting rates than samples of older participants). Future research should sample adolescents (e.g., representative sample of youth aged 14–18) to gain more contemporary estimates of sexting practices, which would also be less influenced by recall.

Conclusions

In an online sample of 2,828 young adults aged 18 to 30, we found that sexting is a normative sexual behavior and typically begins during adolescence. Sexting was particularly common among cis-LGBPA+ women and men, suggesting that this type of sexual behavior might be an important part of their sexual development. We also found that participants most commonly reported sexting for positive and sexual reasons, and in the context of a relationship. However, as with any sexual behavior, coercion can and does occur. Some participants, particularly women and asexual participants, may be pressured or threatened into sending a sext. As such, education efforts should focus on informing individuals how to establish and maintain consent and boundaries while sexting, as well as underscore the seriousness of disregarding the rights of their sexting partners through such acts as sharing sexual materials with others without the sender's permission.

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Data Availability The data are made available by request from the corresponding author.

Code Availability The code is made available by request from the corresponding author.

Declarations

Conflict of Interest The authors report no conflict of interest.

Ethical Approval This study has received clearance by The Royal Ottawa Health Care Group's Research Ethics Board (Reference # 2018044). All participants provided informed consent.

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