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Safe sexting, sexual orientation, and gender: Risky sexting in a community sample

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Abstract

Among young adults, engaging in sexting (i.e., sharing sexually explicit materials of oneself with others) can be a healthy and normative sexual experience. However, there is risk associated with some types of sexting. The present study examined the rates and characteristics of high-risk sexting in a community sample of emerging adults (i.e., aged 18-30 years; $N = 3,022$). High-risk sexting was defined as participating in at least three of the following behaviours: showing one's face in a sext, sexting someone met online, sexting before the age of 16, sexting while intoxicated, or posting one's sext to a website. Over a quarter of participants had ever sent a high-risk sext (28%). Cisgender LGBPA+ (lesbian, gay, bisexual, pansexual, asexual, and other non-straight sexual orientations; 38%, 462/1,220) and transgender (34%; 106/309) participants were significantly more likely to have sent a high-risk sext than heterosexual cisgender participants (18%; 271/1,493). When examining the strength of the relationship between impulsivity, susceptibility to peer pressure, perceptions of sexting, and sexual history with high-risk sexting, we found that the effect sizes overlapped across all three groups, meaning that the relationship between each of the correlates and high-risk sexting was not significantly different across the three groups. We suggest that peer pressure, perceptions of sexting, and impulsivity could be promising targets to inform effective sexual education content, regardless of sexual orientation or gender.

Keywords: Sexting; Risky sexual behaviours; Impulsivity; Perceptions of sexting; Peer pressure; Sexual history.

Safe sexting, sexual orientation, and gender: Risky sexting in a community sample

Sexting (i.e., sharing sexually explicit materials of oneself with others) has become a normative sexual behaviour among emerging adults (i.e., aged 18 – 30; Thorne et al., 2024). Sexting can be a healthy sexual practice (Burić et al., 2021) and negative consequences, such as shame, are not commonly reported by university students who have consensually sexted (Dir & Cyders, 2015; Holmes et al., 2021). However, as with any sexual behaviour, there are risks associated with sexting (e.g., non-consensual dissemination). Previous research has highlighted showing one's face in a sext (Döring, 2014; Patchin & Hinduja, 2020), sexting someone who is not trusted or who is only known online (Patchin & Hinduja, 2020), sexting as a minor (Finkelhor et al., 2023; Finkelhor et al., 2024; Patchin & Hinduja, 2020), posting one's sexts online, and sexting while intoxicated (Morelli et al., 2020; Morelli et al., 2023) as risky sexting behaviours.

Risky sexting is not uncommon. Two international surveys of individuals under the age of 35 have found that between 38% (1,113/2,931; Morelli et al., 2023) and 43% (2,366/5,542; Morelli et al., 2020) reported having sexted while intoxicated or having sexted someone they met online. Clinicians have reported that high-risk sexting is associated with worsened mental health and worsened relationships (Weigle, 2017). Specific risks associated with risky sexting include, for example, social consequences associated with having one's identifiable sexts circulated (i.e., when one's face is shown in a sext; Döring, 2014; Patchin & Hinduja, 2020) and the risks associated with sharing a sext with someone whose identity you cannot confirm (i.e., sharing a sext online; Patchin & Hinduja, 2020). Further, despite child sexual exploitation material (known legally as child pornography) being defined as sexual materials of children under 18 in Canada and the United States (*Criminal Code*, 1985; The Protection of Children Against Sexual

Exploitation Act of 1977, 1977), youth are unlikely to be prosecuted for consensually sexting other youth (Cyberbullying Research Center, 2022; R. v. Sharpe, 2001). Sexting by youth, however, can generate child sexual exploitation material when their sexts are non-consensually disseminated by other youth or by adults (Finkelhor et al., 2023). Decreasing high-risk sexting (i.e., sexting while underage; sharing online) could thus ultimately help decrease the amount of child sexual exploitation material in circulation.

Sexual Orientation and Sexting

While sexting behaviours are common in the general population, they may be more common amongst transgender and LGBPA+[1] individuals (lesbian, gay, bisexual, pansexual, asexual, and other non-straight sexual orientations; Kokkinos & Krommida, 2022; Thorne et al., 2024). Non-heterosexual participants have been found to be more likely to sext, within both North American (Thorne et al., 2024) and non-North American populations (Kokkinos & Krommida, 2022). Studies have found that not being heterosexual was independently associated with one's likelihood of having sent a risky sext (as defined as sexting while intoxicated and sexting someone met online), when controlling for other demographic variables (Morelli et al., 2020; Morelli et al., 2023). Sexual- or gender-minority individuals may sext at higher rates because technology-mediated relationships—such as sexting—offer protection from negative social reactions (e.g., social ostracization due to one's gender or sexual orientation; Barroso et al., 2023; Hertlein et al., 2015). Due to the negative social consequences that non-heterosexual couples may experience, technology mediated sexual relationships may also help people who are not heterosexual feel more connected to others and gain a sense of empowerment (Herlein et al., 2015).

[1] LGBPA+ is a term that will be used throughout this paper to refer to cisgender individuals who are not heterosexual.

Correlates of Risky Sexting

To the best of our knowledge, no research has yet to examine the correlates of risky sexting, beyond demographic variables. However, in the literature, impulsivity, susceptibility to peer pressure, perceptions of sexting, and sexual history have emerged as correlates that may be related to sexting, in general (i.e., not specifically risky sexting). Generally, studies have found that adults who had sexted were more impulsive than those who had not sexted (Dir et al., 2013; Dir & Cyders, 2015). However, one study found that college students who had never sexted were more impulsive than those who had sexted (Branch et al., 2017). Similarly, while susceptibility to peer pressure has been associated with the likelihood of having sexted (Barroso et al., 2023; Gassó et al., 2020), one study found that almost no participants felt that they had ever experienced peer pressure to sext (Perkins et al., 2014). More consistently, research has shown that viewing sexting more positively (Brodie et al., 2019; Holmes, Healey et al., 2024; Hudson & Marshall, 2018; Ingram et al., 2019), and having more sexual experience (i.e., participating in one-night stands; having multiple sexual partners) were associated with a greater chance of having sexted (Hall et al., 2020; Holmes, Healey et al., 2024; Kosenko et al., 2017; Perkins et al., 2014).

Additionally, some of the above correlates may be more strongly related to the sexting behaviour of transgender and LGBPA+ individuals than to that of cisgender and heterosexual individuals. For example, transgender youth have reported feeling greater pressure to sext than their cisgender peers (Van Ouytsel et al., 2020) and lesbian, gay, and bisexual individuals have tended to perceive sexting significantly more positively than their heterosexual peers (Hertlein et al., 2015).

Although we do not yet know much about the correlates of risky sexting, the literature on in-person risky sexual behaviour is much more advanced. Researchers have conceptualized sexting as a type of normative sexual behaviour, alongside normative, in-person sexual behaviours (Döring, 2014). Given the nascent stage of research on sexting and its conceptualization in the literature alongside in-person sexual behaviours, it may be useful to draw upon research concerning in-person risky sexual behaviours to inform the present study.

Among undergraduates (Bradley & Wildman, 2002; Derefinko et al., 2014) and men who have sex with men (Dudley et al., 2004), impulsivity was found to be positively related to risky sexual behaviours (e.g., sex with a stranger and unprotected anal sex). Peer pressure (Bradley & Wildman, 2002) and sexual experience (Dudley et al., 2004) were likewise correlated with risky sexual behaviours. Risky in-person sexual behaviours have been found to be more prevalent among people who were not heterosexual; LGBPA+ people tended to have had a higher number of sexual partners (Dewaele et al., 2017; Kattari et al., 2021; Mercer et al., 2016), were more likely to have had sex while intoxicated (Mercer et al., 2016), and tended to have had sex for the first time at a younger age (Austin et al., 2008; Kattari et al., 2021; Tornello et al., 2014) compared to those who were heterosexual. This pattern seems to be consistent when comparing the sexual behaviours of transgender and cisgender youth (Eisenberg et al., 2017; Johns et al., 2019; Kattari et al., 2021).

Taken together, the above offers further evidence that factors such as impulsivity, peer pressure, and sexual experience may be related to risky sexting behaviours. Likewise, the above suggests that non-heterosexual people and transgender people may be at a higher risk of engaging in risky sexting behaviours than cisgender heterosexual individuals.

Current Study

Sexting while underage (Finkelhor et al., 2023; Finkelhor et al., 2024; Patchin & Hinduja, 2020), showing one's face (Döring, 2014; Patchin & Hinduja, 2020), sexting someone met online (Patchin & Hinduja, 2020), posting a sext online, and sexting while intoxicated (Morelli et al., 2020; Morelli et al., 2023) are behaviours that can increase the risks of sexting. As with other sexual behaviours, encouraging safety while sexting should be a priority. Historically, sexual education has consisted of fear-based abstinence programs—a model of behaviour change that is not effective (Santelli et al., 2006; Trenholm et al., 2007). A better understanding of risky sexting could inform improved targets for sexual education and could thus aid in the prevention of risky sexting. Further, given that the sexting behaviour of LGBPA+ and transgender individuals may be more strongly related to factors such as perceptions of sexting (Hertlein et al., 2015) and peer pressure (Van Ouytsel et al., 2020) and that LGBPA+ individuals might be more likely to engage in risky sexting (Morelli et al., 2020; Morelli et al., 2023), it is imperative that these populations be included in research on this topic. Given past evidence that these populations may have different risk factors (Hertlein et al., 2015; Morelli et al., 2020; Morelli et al., 2023; Van Ouytsel et al., 2020), risk factors for each group should be examined separately.

As such, this study was concerned with answering two research questions: (RQ1) to what extent are heterosexual cisgender, LGBPA+ cisgender, and transgender individuals engaging in high-risk sexting and (RQ2) what are the correlates of high-risk sexting for these groups of individuals? Due to the limited nature of research on risky sexting, the present study was exploratory, and no hypotheses were specified.

Method

Participants

The present sample represents a subsample of a larger data set, and as such, a portion of the sample overlapped with participants from three other studies on the non-consensual forwarding of sexts (Holmes, Baskurt et al., 2024), consensual and unsolicited sexting (Holmes, Healey et al., 2024), and the rates and characteristics of sexting (Thorne et al., 2024). Across these studies, the inclusion criteria differed for each subsample that was analyzed; of these studies, this one is the first that has analyzed data from transgender participants and the first that has measured risky sexting as the outcome variable. Recruitment took place online, via social media ($n_{\text{Facebook and Instagram}}$ = 3,954; $n_{\text{Other social media}}$= 34) and research-focused web pages (n = 129). Of the 4,117 participants who consented to participate in the survey, data from 1,095 were removed because they did not pass all validity checks (i.e., reported two different ages for themselves), they provided responses that did not make sense, they did not provide their gender or sexual orientation, or they did not respond to the outcome variables (i.e., the risky sexting behaviour items). The final sample size was 3,022 (see Table 1 for demographic information and scores on correlates of high-risk sexting). Data collection occurred pre-COVID-19 pandemic, in August through November of 2019. The median survey completion time was 22.1 minutes. The Royal Ottawa Health Care Group's Research Ethics Board (Reference #2018044) gave ethical approval for this study.

--Insert Table 1 about here--

On average, participants were 22.5 years old. Most had at least begun post-secondary education (76.1%; 2,300/3,022). Most participants were American (58.0%; 1,754/3,022). In terms of gender identity (which is distinct from—and thus not always concordant with—natal sex), about half of the sample were women (50.7%; 1,532/3,022). One in ten participants identified as transgender (10.2%; 309/3,022). Half of the sample identified as heterosexual

(50.5%; 1,525/3,022). A quarter of participants identified as bisexual (25.6%; 773/3,022), 10.3% as pansexual (312/3,022), 8.2% as gay or lesbian (248/3,022), 2.5% as asexual (77/3,022), and 2.9% identified with a sexual orientation that was not listed in the response options (e.g., queer or demisexual; 87/3,022).

Measures

Demographic Information

The following demographic information were collected: age, gender, sexual orientation, country of residence, and educational attainment. The online supplement includes all survey questions. In terms of gender, participants selected whether they were a woman, a man, non-binary, genderfluid, agender, or participants could self-describe their gender. Participants also indicated whether they were heterosexual, gay or lesbian, bisexual, pansexual, asexual, or a self-described sexual orientation.

Correlates of Risky Sexting

Based on empirical research, the following correlates of risky sexting were collected: impulsivity (Bradley & Wildman, 2002; Derefinko et al., 2014; Dir et al., 2013; Dir & Cyders, 2015; Dudley et al., 2004), peer pressure (Barroso et al., 2023; Bradley & Wildman, 2002; Gassó et al., 2020), perceptions of sexting (Brodie et al., 2019; Holmes, Healey et al., 2024; Hudson & Marshall, 2018; Ingram et al., 2019), and sexual history (Dudley et al., 2004; Hall et al., 2020; Holmes, Healey et al., 2024; Kosenko et al., 2017; Perkins et al., 2014).

Impulsivity. Participants responded to items from the second domain of the *Barratt Impulsiveness Scale - 15* (BIS-15; Spinella, 2007). This five-item subscale assessed how often participants engaged in impulsive behaviours, via a 4-point Likert scale (e.g., "*I act on the spur of the moment"*). The scale was scored by taking the mean of the five items. Higher scores

indicated greater impulsivity. The BIS-15 is strongly correlated with the *Barratt Impulsiveness Scale – 11*, a longer measure of impulsivity (Patton et al., 1995; Spinella, 2007) and has demonstrated good internal consistency in past research (α = .79; Spinella, 2007). Internal consistency in the current sample was good (ω = .82; α = .82).

Peer Pressure. The 11-item *Peer Pressure* scale (Santor et al., 2000) measured how readily participants tend to change their behaviour when pressured by a peer (e.g., "*I give into peer pressure easily"*). The items were rated on a 7-point Likert scale and the total score reflected the mean of the items. This scale has demonstrated high internal consistency in adolescents (α = .84; Santor et al., 2000), Dutch adults (α = .83; Utz et al., 2012), and in the current study (ω = .88; α = .88).

Perceptions of Sexting. Two items from the *Perceptions Towards Sexting and Forwarding Pictures* scale (Branch et al., 2017) were presented to participants: "*Sending nude or semi-nude images/videos is a good way to increase your popularity*" and "*Sending your partner nude or semi-nude images/videos is a way to show them how much you care about them*". Each of these were measured on a 4-point Likert scale. In the present study, the scale was modified to take the context of the sext into account. The stem of each item was modified to reflect four different contexts; whether the sext was nude or semi-nude and whether the sext showed the sender's face or not. The measure was scored by taking the mean of the items. Higher scores indicated more positive perceptions of sexting. In past research, the full scale had low internal consistency (α = .67; Branch et al., 2017). In the current study, internal consistency was excellent (ω = .88, α = .90).

Sexual History. Participants responded to a modified version of the *Sexual History Questionnaire* (Lalumière et al., 1996). The modified scale assessed lifetime sexual history

instead of history in the past year and was made shorter to decrease the cognitive load of the survey on participants. To compute a score for sexual history, we standardized and then summed four of the six items that load onto the 'Sexual Experience' factor (data for two of the items were not collected in the modified version; Lalumière et al., 1996). Sexual experience refers to how sexually experienced one is; the scale measured age at first sexual intercourse, number of sexual partners since age 16 (a proxy for the age of puberty), the percentage of relationships that were casual (i.e., versus serious), and the number of one-night stands. Internal reliability for the modified version of the sexual experience scale was acceptable ($\omega = .76$, $\alpha = .58$).

Sexting Behaviours

Sexting was defined as a sexually suggestive semi-nude or nude video or image of oneself that was sent to someone else.

Consensual Sexting was assessed by the endorsement of four types of sexting behaviours: (1) sending a semi-nude image with the consent of the recipient, (2) sending a semi-nude video with consent, (3) sending a nude image with consent, and (4) sending a nude video with consent. These four items were used to code a dichotomous variable that captured whether an individual had ever sent a consensual sext.

High-risk Sexting was captured via a dichotomous variable that divided participants by whether they had participated in no or lower-risk sexting, versus high-risk sexting. Risky sexting behaviours included (1) showing one's face in a sext; (2) sexting with someone they knew only online; (3) posting a sext to a website or social media; (4) sexting while intoxicated; and (5) sexting before the age of 16 (i.e., the median age of first sending a sext in Thorne et al., 2024). For each of the risky sexting behaviours, participants indicated whether they had never sent that type of risky sext, or had done so via a nude sext (genitals and breasts (for women) are fully

exposed), a semi-nude sext (underwear or naked, but genitals and breasts (for women) are not exposed) or both a nude and a semi-nude sext. Participation in each risky sexting behaviour was then dichotomised such that each variable represented whether a participant had engaged in the risky sexting behaviour or not (regardless of whether the sext was nude or semi-nude). We classified participants as engaging in any high-risk sexting if they had at least three of these five indicators. Most participants had engaged in at least two risky sexting behaviours, suggesting that engaging in two risky sexting behaviours was normative in this sample. Thus, the cut off of three was chosen to represent an above average number of risky behaviours.

Statistical Analyses

Bivariate Logistic Regression

The relationship between each of the correlates and high-risk sexting were first analyzed by modelling a bivariate logistic regression for each correlate within each sub-group of interest (i.e., individuals who were cisgender and heterosexual, cisgender but not heterosexual, or who were transgender). Bivariate logistic regression yields odds ratios (OR) which represent the relationship between a given correlate and the odds of an outcome occurring – in this case high-risk sexting. When OR > 1, a higher score on the correlate is related to a greater chance of the outcome occurring; when OR < 1, a higher score on the correlate is related to a decreased chance of the outcome occurring. When OR = 1, the correlate is not associated with the outcome. An OR between 0.76 and 1.31 is not considered meaningfully large (i.e., the relationship is too weak to have any meaningful effect on the outcome), while scores equal to, or below 0.76, and scores equal to, or above 1.31 are considered meaningfully large. These threshold values are equivalent to a Cohen's *d* of -0.15 and 0.15, respectively, which reflect meaningful effect sizes (Mann et al., 2010).

Multiple Logistic Regression

Multiple logistic regression can be used to test the incremental validity of the relationship between multiple variables and a dichotomous outcome; multiple regression assesses the unique effect of a correlate, by controlling for the effects of the other correlates in the model. Three multiple logistic regressions were modelled; one for each of the sub-groups of interest. In each case, the outcome variable was the dichotomous high-risk sexting variable. The correlates that had a significant bivariate relationship with high-risk sexting (i.e., a significant OR) were entered into the multiple regression model. Multiple logistic regression yields an adjusted odds ratio (aOR) that reflects the relationship between the correlate and the odds of the outcome occurring (i.e., risky sexting), when all other correlates in the model are taken into account. The interpretation of the value of aOR is identical to OR; values between 0.76 and 1.31 are not meaningful, while values outside of this threshold are meaningfully large (an aOR is an OR that has been adjusted for the effect of other variables). By comparing the 95% CI around aOR values for different groups, risk factors can be compared across groups – if 95% CI do not overlap between groups, then the difference between the two values reaches statistical significance thresholds (in this case, $p < .01$; Cumming & Finch, 2005).

Missing Data

In the current study, missing data consisted of participants selecting “prefer not to answer.” Across all items, there was less than 5% missing data. When computing scales, prorated means were used to compensate for missing data. In any other circumstance, listwise deletion was employed.

Results

RQ1: To What Extent are Heterosexual Cisgender, LGBPA+ Cisgender, and Transgender Individuals Engaging in High-Risk Sexting?

Transgender and cisgender LGBPA+ participants were more likely to have sent a consensual sext than cisgender heterosexual participants (see Table 2). Over one quarter of participants had engaged in at least three risky sexting behaviours (i.e., high-risk sexting), with cisgender LGBPA+ and transgender participants being significantly more likely to have sent a high-risk sext than cisgender heterosexual participants (see Table 2). Most participants who had engaged in risky sexting had sent a sext that showed their face (see online supplement Table 1S). Transgender and cisgender LGBPA+ participants were significantly more likely than heterosexual cisgender participants to have sexted someone they knew online only, sexted while intoxicated, sexted before age 16, and to have posted a sext to a website (see online supplement Table 1S).

--Insert Table 2 about here--

RQ2: What are the Correlates of High-Risk Sexting for Heterosexual Cisgender, LGBPA+ Cisgender, and Transgender Individuals?

All the correlates were significant bivariate correlates of high-risk sexting across the full sample and each of the subgroups (see Table 3). In addition, except for sexual experience, all of the correlates were meaningfully related to high-risk sexting at the bivariate level (i.e., OR > 1.31; see Table 3). Across the three groups, the confidence intervals of each correlate overlapped. That is, at the bivariate level, the correlates did not have a differential association with high-risk sexting across the groups ($p < .01$).

--Insert Table 3 about here--

In the full sample (N = 2,913), when controlling for the effects of the other correlates, each correlate reached statistical significance ($p < .05$). Being more impulsive (aOR = 1.43, 95% CI [1.23, 1.66]) and having more positive perceptions of sexting (aOR = 1.50, 95% CI [1.32, 1.71]) were meaningfully related (i.e., aOR > 1.31) to an increased chance of high-risk sexting. Similarly, when controlling for the effects of the other correlates in the subsample of 1,439 cisgender heterosexual participants, impulsivity (aOR = 1.44, 95% CI [1.13, 1.82]) and positive perceptions of sexting (aOR = 1.38, 95% CI [1.13, 1.70]) were the only correlates that were meaningfully associated with high-risk sexting. Amongst 1,182 cisgender LGBPA+ participants, higher impulsivity (aOR = 1.41, 95% CI [1.12, 1.77]) and more positive perceptions of sexting (aOR = 1.64, 95% CI [1.36, 1.98]) were meaningfully related to an increased likelihood of high-risk sexting. Contrary to the other sub-groups, only perceptions of sexting (aOR = 1.51, 95% CI [1.001, 2.28]) were meaningfully associated with high-risk sexting for the 292 transgender participants. Across all groups, although there was not a meaningfully large relationship between greater sexual experience and high-risk sexting (i.e., aOR < 1.31), there was a small statistically significant relationship (see Table 3). The aOR values for each of the correlates overlapped across all three groups, meaning that the relationship between each of the correlates and high-risk sexting was not significantly different across the three groups (see Figure 1).

--Insert Figure 1 about here--

Discussion

This research examined the rates and correlates of high-risk sexting in a community sample of emerging adults (i.e., between 18 and 30 years old; N = 3,022). High-risk sexting was defined as engaging in at least three of the following risky sexting behaviours: (1) showing one's face in a sext; (2) sexting with someone known only online; (3) posting a sext to a website or

social media; (4) sexting while intoxicated; and (5) sexting before the age of 16. Cisgender LGBPA+ (38%) and transgender participants (34%) engaged in high-risk sexting at significantly higher rates than their heterosexual cisgender peers (18%). This is consistent with past research that has found that sexual orientation is related to high-risk sexting (Morelli et al., 2020; Morelli et al., 2023). The present research expands on these findings, by suggesting that gender identity was also related to high-risk sexting and that LGBPA+ and transgender people were engaging in high-risk sexting at similar rates.

Despite differences in the prevalence of high-risk sexting across groups, we found no significant differences in the strength of the relationships between impulsivity, perceptions of sexting, peer pressure, and sexual experience with high-risk sexting, across the groups (i.e., all the confidence intervals overlapped; see Cumming & Finch, 2005). This indicated that there were no significant differences in the strength of the relationships between each of the correlates and high-risk sexting, across the three groups.

The present results suggest that high-risk sexting was related to the same factors as consensual sexting and that high-risk sexting resembles other risky sexual behaviours. Namely, similar to those who have sent a consensual sext or who have engaged in risky sexual behaviours, participants who had sent a high-risk sext were more impulsive (Bradley & Wildman, 2002; Derefinko et al., 2014; Dir et al., 2013; Dir & Cyders, 2015; Dudley et al., 2004) and were more susceptible to peer pressure (Barroso et al., 2023; Bradley & Wildman, 2002; Gassó et al., 2020) than those who had not sent a high-risk sext. Consistent with research on consensual sexting, participants who had sent a high-risk sext perceived sexting more positively than those who had not (Brodie et al., 2019; Holmes, Healey et al., 2024; Hudson & Marshall, 2018; Ingram et al., 2019).

However, the present results were not in line with past research that suggested that LGBPA+ individuals were more influenced by positive perceptions of sexting (Hertlein et al., 2015) or that transgender people were more influenced by peer pressure (Van Ouytsel et al., 2020) than their heterosexual and cisgender peers, respectively. There are a few potential reasons for this discrepancy. The proportion of non-heterosexual (around 7%; Hertlein et al., 2015) and transgender participants (1.4%; Van Ouytsel et al., 2020) in past research were considerably lower than those observed in the present study (49.5% and 10.2%, respectively); it is possible that past results reflect low variability and low sample sizes in these earlier studies. Additionally, the present study sampled emerging adults, while the work of Van Ouytsel et al. (2020), sampled children in middle schools and high schools. It is possible that peer pressure differentially affects the sexting behaviour of young transgender people, but that this effect disappears with age. Further, although many of the multivariate correlates were no longer statistically significant for the transgender sub-group (likely due to our small sample of 292 transgender individuals), the effect sizes were similar across groups.

Practical Implications

This study proposed that better understanding high-risk sexting could be an important step in improving sexual education surrounding sexting; knowing the factors that are related to high-risk sexting could inform targets for intervention or prevention. Sexual education that teaches skills related to recognizing and counteracting impulsivity or resisting peer pressure may be effective in preventing high-risk sexting. Given the overlap of the confidence intervals across the subsamples of interest in this study, interventions targeting these factors may be similarly effective across folks of diverse genders and sexual orientations. Currently, sexual education

surrounding sexting tends to encourage abstinence (Döring, 2014; Finkelhor et al., 2021) which tends to be ineffective in yielding behaviour change (Santelli et al., 2006; Trenholm et al., 2007).

Alternatively, sexual education campaigns could decrease risky sexting practices, and thus the risk of sexting, by encouraging safe sexting practices (e.g., not showing one's face in sexts; Döring, 2014; Patchin & Hinduja, 2020). However, research examining underage sexting has found that sexting less frequently does not sufficiently reduce the harmful outcomes of underage sexting (Finkelhor et al., 2024). As such, a multi-pronged approach, targeting the reduction of high-risk behaviours while increasing awareness of safe-sexting practices may be most appropriate. In terms of the implementation of such an educational campaign, large-scale media campaigns have been successful in increasing condom usage (Wakefield et al., 2010). Therefore, media campaigns targeting perceptions of sexting and safe sexting practices may be effective strategies to encourage safe sexting and decrease risky sexting.

Limitations and Future Directions

While the present study makes a meaningful contribution to our understanding of risky sexting, this research was not without limitations. Sexting is a relatively new sexual behaviour and there are few well-validated scales measuring sexting. Future research should focus on validating scales related to sexting. Data analyzed in this study were recorded pre-pandemic and research has found that the prevalence of sexting increased during the COVID-19 pandemic among people who did not live with their sexual partner (Lehmiller et al., 2021). As such, our results may underestimate the rates of sexting behaviours.

We were not able to differentiate whether high-risk sexts were being sent consensually (i.e., the receiver consented to receive the sext) or non-consensually (i.e., the receiver did not consent). Consensual and non-consensual sexting are distinct behaviours with distinct

consequences (Dir & Cyders, 2015; Holmes et al., 2021). Future research should distinguish between consensual and non-consensual high-risk sexting as these too may represent distinct behaviours. Further, the present study employed a composite measure of high-risk sexting (i.e., participation in at least three of five risky sexting behaviours). Future research may wish to investigate whether possible correlates of individual risky sexting behaviours differ from one another.

Future research should employ longitudinal designs to determine the causal direction between relevant correlates (i.e., peer pressure susceptibility, perceptions of sexting, and impulsivity) and high-risk sexting. Future research should also examine whether targeting relevant correlates is effective in decreasing high-risk sexting behaviour.

Conclusion

This study explored the rates and characteristics of high-risk sexting in a community sample (N = 3,022). Our results suggest that, while cisgender LGBPA+ and transgender adults participated in high-risk sexting at higher rates than heterosexual cisgender people, similar factors (namely susceptibility to peer pressure, perceptions of sexting, and impulsivity) were related to high-risk sexting for all three groups. We suggest that these factors could inform effective sexual education content, but that more research is needed to ascertain the nature of the relationship between these correlates and high-risk sexting as well as their ability to impact behaviour change.

Declarations

Ethical Approval

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

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Conflicts of interest

The authors have no competing interests to declare that are relevant to the content of this article.

Availability of Data

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

Code Availability

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

Author Contributions

Emma Holmes: Formal analysis, Writing - Original Draft, Writing - Review & Editing. **Kelly Babchishin**: Writing - Review & Editing, Supervision, Funding acquisition, Project administration.

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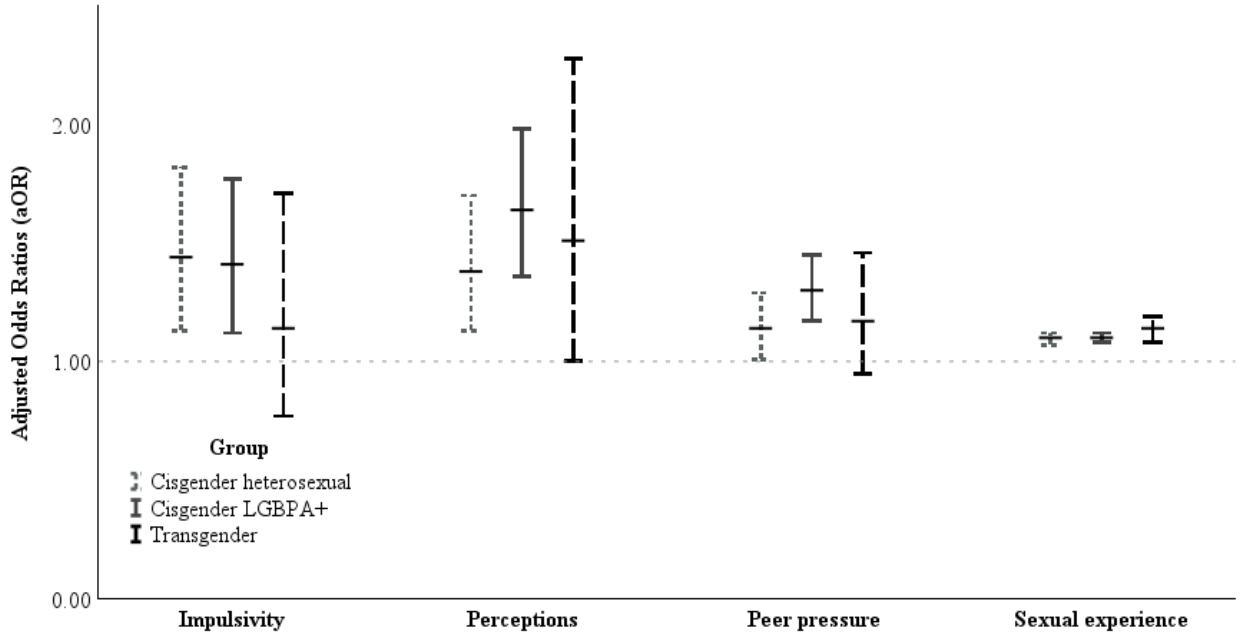
Figures

Figure 1

Incremental Validity of Correlates, Separated by Group



Note. Bars that cross the dashed line (i.e., aOR = 1.00) are not statistically significant (i.e., $p > .05$). Within correlates, bars that overlap are not significantly different (i.e., $p > .01$; Cumming & Finch, 2005)

Tables

Table 1

Demographics and Descriptive Statistics

	Proportion (*n*)	
Gender[a]		
Woman	50.7% (1,532)	
Man	46.8% (1,414)	
Non-binary	1.5% (44)	
Genderfluid	0.4% (13)	
Agender	0.2% (7)	
Not otherwise listed	0.4% (12)	
Transgender	10.2% (309)	
Sexual orientation		
Heterosexual	50.5% (1,525)	
Bisexual	25.6% (773)	
Pansexual	10.3% (312)	
Gay or lesbian	8.2% (248)	
Asexual	2.5% (77)	
Not otherwise listed	2.9% (87)	
Country		
United States	58.0% (1,754)	
Canada	39.8% (1,202)	
Other[b]	2.2% (66)	
Highest education achieved		
Less than highschool	2.9% (88)	
High school or equivalent	20.4% (616)	
Began post-secondary	42.3% (1,277)	
Associate degree	7.9% (240)	
Bachelor's degree	19.8% (597)	
Graduate degree	6.2% (186)	
Prefer not to answer	0.6% (18)	
	Mean (SD)	Observed range
Age	22.5 (3.45)	18 - 30
Correlates of risky sexting		
Impulsivity (*n* = 3,020)	2.02 (0.63)	1 - 4
Peer pressure (*n* = 2,990)	2.72 (1.27)	1 - 7
Perceptions of sexting (*n* = 2,984)	2.00 (0.72)	1 - 4
Sexual experience (*n* = 2,960)	2.51 (6.53)	-3.8 - 25.5[c]

Note. Unless otherwise specified, *N* = 3,022. [a] Participants reported their gender and whether they were transgender separately. As such, each gender category could include individuals who

are cis- and transgender. [b] Most frequently, the United Kingdom (0.5%, n = 15), Australia (0.3%, n = 10), and Germany (0.2%, n = 7). [c]Values were standardized before being summed.

Table 2

Prevalence of Sexting Behaviours

	Proportion (*n*)			
	Overall [a]	Cisgender and heterosexual [b]	Cisgender and LGBPA+[c]	Transgender [d]
Ever sent a…				
Sext	82.3% (2,487)	74.5% (1,113)	89.9% (1,097)	89.6% (277)
Sext that showed face	80.0% (1,981)	79.9% (883)	79.6% (872)	81.9% (226)
Sext before turning 16 years old	30.2% (743)	24.1% (264)	34.8% (378)	36.7% (101)
Sext to someone known only online	60.7% (1,506)	48.9% (543)	71.3% (781)	66.4% (182)
Sext by posting it to a website	11.7% (290)	8.2% (91)	14.4% (158)	14.9% (41)
Sext while intoxicated	25.8% (634)	20.6% (227)	30.4% (330)	28.3% (77)
High-risk sext[e]	27.8% (839)	18.2% (271) [f]	37.9% (462) [g]	34.3% (106) [g]

Note. Thorne et al., 2024 presented the prevalence of sexting for non-transgender participants. Cisgender heterosexual females had a significantly higher prevalence of high-risk sexting than cisgender heterosexual males; there were no other significant differences across sexes within groups (see online supplement Table 2S). [a]Sample sizes varied from 2,458 to 3,022. [b]Sample sizes varied from 1,101 to 1,493. [c]Sample sizes varied from 1,086 to 1,220. [d]Sample sizes varied from 272 to 309. [e]High-risk sexting was defined as having participated in at least 3 of 5 risky sexting behaviours (i.e., showing face in sexts, starting sexting before age 16, sexting someone known only online, posting sexts to a website, and sexting while intoxicated). [f/g] Across each row, matching superscripts indicate that the values are not significantly different at $p < .05$. Superscripts that do not match indicate the values are different at $p < .05$.

Table 3

Correlates of High-risk Sexting for the Full Sample and Separated by Group

	Full sample N = 2,901				Sub-groups											
					Cisgender heterosexual n = 1,434				Cisgender LGBPA+ n = 1,175				Transgender n = 292			
	OR [95% CI]	*p*	aOR [95% CI]	*p*	OR [95% CI]	*p*	aOR [95% CI]	*p*	OR [95% CI]	*p*	aOR [95% CI]	*p*	OR [95% CI]	*p*	aOR [95% CI]	*p*
Impulsivity	**1.99 [1.75, 2.26]**	**<.001**	**1.43 [1.23, 1.66]**	**<.001**	**1.93 [1.57, 2.38]**	**< .001**	**1.44 [1.13, 1.82]**	**.003**	**1.97 [1.63, 2.39]**	**< .001**	**1.41 [1.12, 1.77]**	**.004**	**1.49 [1.06, 2.10]**	**.023**	1.14 [0.77, 1.71]	.510
Perceptions of sexting	**1.87 [1.66, 2.10]**	**<.001**	**1.50 [1.32, 1.71]**	**<.001**	**1.68 [1.40, 2.03]**	**< .001**	**1.38 [1.13, 1.70]**	**.002**	**2.02 [1.71, 2.39]**	**< .001**	**1.64 [1.36, 1.98]**	**<.001**	**1.91 [1.34, 2.73]**	**.003**	**1.51 [1.001, 2.28]**	**.049**
Peer pressure	**1.45 [1.36, 1.54]**	**<.001**	**1.24 [1.15, 1.33]**	**<.001**	**1.34 [1.21, 1.49]**	**< .001**	**1.14 [1.01, 1.29]**	**.029**	**1.49 [1.35, 1.63]**	**< .001**	**1.30 [1.17, 1.45]**	**<.001**	**1.39 [1.16, 1.68]**	**<.001**	1.17 [0.95, 1.46]	.144
Sexual experience	**1.12 [1.11, 1.14]**	**<.001**	**1.11 [1.09, 1.12]**	**<.001**	**1.11 [1.09, 1.14]**	**< .001**	**1.10 [1.07, 1.12]**	**< .001**	**1.11 [1.09, 1.13]**	**< .001**	**1.10 [1.08, 1.12]**	**<.001**	**1.15 [1.10, 1.21]**	**<.001**	**1.14 [1.08, 1.19]**	**<.001**
Nagelkerke R^2			.22				.15				.24				.24	

Note. Results did not significantly differ when participants were analyzed separately by sex (see online supplement Table 3S). Bolded values denote statistically significant effects at $p < .05$. When 95% CI around two OR/ aOR for a variable overlap, the OR/aOR are not significantly different at $p < .01$ (Cumming & Finch, 2005). Sample sizes were restricted to participants without missing data on the four correlates of interest (i.e., impulsivity, perceptions of sexting, peer pressure, and sexual experience).