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# Sexting and sexual behaviour in Australian adolescents

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## ABSTRACT

**Background.** Previous studies have tried to determine the relationship between sexting and risky behaviour to discover whether sexting fits into a deviance or normalcy discourse. This study investigated the relationship between sexting and sexual risk behaviours, contraception use and gender. **Methods.** The design was a cross-sectional analysis of data from the sixth National Survey of Secondary Student and Adolescent Sexual Health, collected in 2018. There were 8263 Australian adolescents (aged 14–18 years). Participants were fairly evenly split by gender, and 73% identified as heterosexual. Participants were asked a series of questions about their engagement in sexting, sexual behaviour and sexual health behaviours. **Results.** A total of 52% of participants had sent a sext in the previous 2 months, with most being text-based sexts. Sexters were 3.29 times more likely to have engaged in anal or vaginal intercourse, and 2.88 times more likely to have gotten pregnant than non-sexters. Sexters ( $M = 2.76$ ) had significantly more partners than non-sexters ( $M = 2.35$ ),  $t(3763) = -10.99$ ,  $P < 0.001$ . There were no significant differences in STI rates,  $X^2(1) = 0.38$ ,  $P = 0.535$ , or contraceptive use based on sexting status. **Conclusions.** Sexters are more likely to have engaged in sexual intercourse and have more partners than non-sexters. Sexting is not strongly associated with other risky behaviours. Evidence for differences between sexters and non-sexters in protecting against STIs and pregnancy was not found, as there were no significant differences in contraceptive use.

**Keywords:** adolescents, Australia, contraception, pregnancy, sexting, sexual behaviour, sexual intercourse, STIs.

Researchers are increasingly concerned about adolescent sexting; that is, sending or receiving of sexually explicit text messages, photos, or videos. Whether this concern is warranted is under investigation.<sup>1</sup> The current study furthers research determining if sexting is linked to other sexual behaviours in adolescence.

Although the percentage of adolescents sexting varies, many studies, primarily in the USA, note that 20–25% of adolescents (age range 12–18 years) are sexting.<sup>2–11</sup> This was further supported by a meta-analysis with a pooled average of 22% of adolescents sending sexts.<sup>12</sup> Older adolescents and those in relationships being more likely to sext.<sup>2–4,7,9–13</sup> It remains unclear how gender and sexual orientation are related to sexting rates. Regarding gender, some studies indicate that males sext more,<sup>8,10</sup> some indicate that females sext more<sup>11</sup> and some have found no significant sexting differences based on gender.<sup>2,4,9,13</sup> Although some studies of adolescents have found no significant differences in sexting status based on sexual orientation,<sup>2</sup> most have found that those in the LGBTQ+ community are more likely to sext compared with their heterosexual peers.<sup>8–10</sup>

There are three main ways researchers have investigated sexting and sexual behaviours; engagement in sexual activity, number of sexual partners and condom use. The findings on all three sexual behaviours have been mixed. Although many studies have found that adolescents (age range 12–18 years) who sext are more likely to have engaged in sexual activity than those who have not sexted,<sup>2–4,6–17</sup> the frequency of sexting was not associated with vaginal or anal experiences.<sup>2</sup> Some research has found those who sext have had more sexual partners than those who do not sext, although relationships between variables have been inconsistent, with age and gender

moderating the effects.<sup>3,10,11,13–15,17</sup> Other research, including a longitudinal study, found no significant connection between sexting and the number of sexual partners.<sup>5,16</sup> The discrepancies in the research may be due to other factors that are impacting the relationship between sexting and sexual experiences, including frequency of sexting, the definition of sexting and demographic variables (e.g. relationship status, age).<sup>6,17</sup>

The third commonly used measure of sexual behaviour is condom use. Most researchers have found no significant difference between sexting status and condom use at last intercourse,<sup>8,9</sup> or frequency of condom use.<sup>10,11,16</sup> However, some studies on adolescents have found that those who sexted were more likely not to use a condom during their most recent sex act compared with non-sexters.<sup>7,17</sup> It is unclear how condom use and sexting are related, particularly given the different ways condom use was measured. The current study will measure condom use in two different ways to investigate these potential differences.

Few studies have investigated other contraceptives, but the studies that have, found mixed results. Some studies results indicate no differences in contraceptive use,<sup>2</sup> some have found that sexters were less likely than non-sexters to use contraception at last intercourse,<sup>3,14,15</sup> and others have found that female sexters were more likely to use hormonal contraception and emergency contraception compared with non-sexters.<sup>10</sup> Given the limited studies in this area, more research is needed to understand the relationship between sexting and contraceptive use.

Given that the main concern regarding physical sexual behaviours is the risk of STI transmission and unintended pregnancy, understanding how sexting is impacting these outcomes is useful. Very few studies have investigated these variables, but the little research there is indicates that there is no significant difference between sexting status in regard to STI diagnosis<sup>2,10</sup> or unplanned pregnancy.<sup>2</sup> In fact, Ybarra and Mitchell<sup>11</sup> found that males who do not sext are more likely to be unaware of their partners' STI status than males who do sext.

The current study aimed to further understand the connection between sexting and demographics, as well as sexual behaviour. The following hypotheses are proposed:

H1: Those in the LGBTQ community will be more likely to sext than heterosexual participants.

H2: Sexters will be more likely to have engaged in sexual intercourse (anal/vaginal) than non-sexters.

H3: Sexters will have had more sexual partners than non-sexters.

H4: There will be no significant difference in STI diagnosis and pregnancy rates based on sexting status.

Additionally, the study investigated gender differences in sexting and contraception use.

## Methods

### Participants

Participants completed the sixth National Survey of Secondary Student and Adolescent Sexual Health.<sup>18</sup> The sample included 8263 participants aged 14–18 years who lived in Australia. Most participants were aged between 16 and 18 years, with an average age of 16.26 years. The majority of participants were heterosexual (73%). Participants were fairly evenly split by gender, with slightly more females (53%). Demographic characteristics are shown in Table 1.

### Materials

#### Demographics

Participants selected their gender, birth year and sexual orientation. Participants also rated their sexual attraction to other people on a Kinsey-like scale, in which the

**Table 1.** Demographic information of the sample of adolescent participants collected in Australia in 2018.

Variable	n (%)
Gender	
Male	3685 (44.6)
Female	4377 (53.0)
Other	201 (2.4)
Sexual orientation	
Heterosexual/straight	5959 (73.0)
Gay/lesbian	417 (5.1)
Bisexual	1317 (16.1)
Not sure	421 (5.2)
Sexual attraction	
Only opposite sex	4888 (62.6)
Mostly opposite sex	1860 (23.8)
Both sexes equally	462 (5.9)
Mostly same sex	308 (3.94)
Only same sex	293 (3.75)
Have a boyfriend/girlfriend?	
Yes	3172 (39.2)
No	4928 (60.8)
Year in school	
Year 9	605 (7.3)
Year 10	1632 (19.8)
Year 11	2387 (28.9)
Year 12	2308 (27.9)
Not in school	1219 (14.8)
Unspecified	112 (1.4)

participants indicated if they were only opposite sex attracted, mostly opposite sex attracted, equally both sex attracted, mostly same sex attracted or only same sex attracted. Participants were asked if they 'currently have a girlfriend or boyfriend?'

### Sexual activity

Participants were asked if they had ever had sex (defined as anal or vaginal intercourse). Those that said yes ( $n = 4027$ ) were directed to a series of questions about their sexual experiences.

### Sexual experiences

Participants were asked to select all forms of contraception (the pill, intrauterine device, diaphragm, emergency contraception, withdrawal, rhythm method, condom, injection and implant) they used to prevent pregnancy the last time they had sex. Participants indicated if a condom had been used the last time they had vaginal and/or anal sex. Those who responded 'no' to this question ( $n = 1640$ ) were asked to select all reasons why they had not used a condom. The options included: not liking condoms, their partner not liking condoms, trusting their partner, sex just happening, having both been tested for HIV/STIs, being too embarrassed, knowing their partner's sexual history and it not being their responsibility. Participants stated how many people they had anal or vaginal intercourse with over the past year, if they had ever been diagnosed with an STI and if sex had ever resulted in pregnancy.

### Sexting

Sexting behaviours included sending in the past 2 months (yes/no) sexually explicit written text messages, sexually explicit nude or nearly nude photo or video of themselves and sexually explicit nude or nearly nude photo or video of someone else. Participants were put into two groups, sexters and non-sexters. Those who had sent any sext in the past 2 months were considered sexters, and those who had not sent any type of sext in the past 2 months were considered non-sexters. This study focused on sending sexts, as we were interested in the active behaviour of sexting.

### Procedure

Participants were recruited through Facebook advertising targeting profiles of 14–18-year-olds living in Australia. Potential participants could click on the advertisement to be directed to the survey homepage, where they could start the survey or learn more about the study.<sup>18</sup> Data was collected in April and May 2018. Participation was voluntary, and participants could enter to win one of 20 A\$100 Visa gift cards. The university's Human Ethics Committee approved (HEC18030) the methods and procedures for this study.

### Analysis

For the analyses of sexting's relationship to other variables, only sending sexts (sexually explicit messages or photos) was used. A series of chi-squared tests were conducted to assess the relationship between sexting and demographic information (sexual orientation and gender), sexual behaviours (engagement in sexual activity, condom use at last vaginal/anal intercourse, contraception use for pregnancy prevention, STI status and if pregnancy had occurred) and why condoms were not used. Then, *t*-tests were run to test the relationship between sexting and sexual attraction, number of partners, and frequency of condom use. Finally, two follow-up logistic regressions were run to determine if condom frequency and use of the pill were still significant when accounting for relationship status.

### Results

In the current sample ( $n = 8263$ ), 52% of participants had sent a sext in the previous 2 months. Specifically, 46% had sent a text-based sext, and 6% had sent a photo-based sext. There were no male/female gender differences in sending sexts (Table 2).

We investigated sexual orientation in two ways. The first used labels (heterosexual, gay/lesbian, bisexual and not sure). Gay/lesbian and bisexual adolescents were more likely to sext than heterosexual and adolescents unsure of their orientation. The second was based on sexual attraction to opposite, both or same sex. Similar results were found, in that those who sexted ( $M = 1.69$ ) had a significantly higher mean  $t(7389) = -5.38$ ,  $P < 0.001$  than those who had not sexted ( $M = 1.56$ ), indicating that those who sext are on average further away from opposite only attraction. Cohen's effect size was  $d = 0.13$ , indicating a small effect.

Almost half of the participants (48.7%) had engaged in anal or vaginal sex. Sexters were 3.29 times more likely to have had anal or vaginal sex than those who had not sexted (Table 2). This relationship held true when controlling for age, relationship status, and sexual orientation (Table 3). Sexters ( $M = 2.76$ ) had significantly more partners than non-sexters ( $M = 2.35$ ),  $t(3763) = -10.99$ ,  $P < 0.001$ , and this result had a small to moderate effect ( $d = 0.39$ ). Sexters were 2.88 times more likely to have had sex result in a pregnancy than non-sexters, but there were no differences in reported STI diagnoses (Table 2).

Condom use was measured in two different ways, both of which indicated there were no significant differences. Specifically, there were no significant differences between sexters and non-sexters when condom use was measured by asking which forms of contraception were used at last vaginal sex experience or when asked if a condom was used at last vaginal/anal intercourse (Table 2).

**Table 2.** Differences between adolescent sexters and non-sexters from data collected in Australia in 2018.

Variable	Chi-squared test of independence	Sexter engaged n (%)	Non-sexters engaged n (%)	Sexters did not engage n (%)	Non-sexters did not engage n (%)
Gender – sending sexts	$\chi^2(1) = 1.24, P = 0.266$				
Sexual orientation	$\chi^2(3) = 80.70, P < 0.001$				
Sexually active	$\chi^2(1) = 614.63, P < 0.001$	2461 (35)	1232 (16)	1484 (20)	2403 (32)
Condom used at last vaginal/anal intercourse	$\chi^2(1) = 2.11, P = 0.146$	1354 (37)	714 (19)	1111 (30)	529 (14)
Condom used at last vaginal intercourse	$\chi^2(1) = 3.21, P = 0.073$	1279 (34)	694 (18)	1240 (33)	595 (16)
Pill use	$\chi^2(1) = 5.43, P = 0.020$	1038 (27)	582 (15)	1481 (39)	707 (19)
Intrauterine device	$\chi^2(1) = 3.29, P = 0.070$	47 (1)	14 (>1)	2472 (65)	1275 (33)
Diaphragm use	$\chi^2(1) = 0.09, P = 0.768$	5 (>1)	2 (>1)	2514 (66)	1287 (34)
Emergency contraception use	$\chi^2(1) = 0.00, P = 0.986$	98 (3)	50 (1)	2421 (64)	1239 (33)
Injection use	$\chi^2(1) = 3.05, P = 0.081$	13 (>1)	13 (>1)	2506 (66)	1276 (34)
Implant use	$\chi^2(1) = 1.56, P = 0.212$	221 (6)	129 (3)	2298 (60)	1160 (30)
Withdrawal	$\chi^2(1) = 0.18, P = 0.669$	523 (14)	260 (7)	1996 (52)	1029 (27)
Rhythm	$\chi^2(1) = 2.32, P = 0.128$	36 (1)	11 (>1)	2483 (65)	1278 (34)
STI diagnosis	$\chi^2(1) = 0.38, P = 0.535$	71 (2)	32 (1)	2444 (64)	1259 (33)
Pregnancy	$\chi^2(1) = 20.12, P < 0.001$	109 (3)	21 (1)	2214 (62)	1203 (34)

Analysis of sexual activity  $n = 7580$ ; analysis of condom use at last vaginal/anal intercourse  $n = 3708$ ; analysis of all types of contraceptive use  $n = 3808$ ; analysis of STIs  $n = 3806$ ; analysis of pregnancy  $n = 3547$ .

**Table 3.** Logistic regression results analysing adolescents' sexual activity and pill use significance when controlling for age and partner status from data collected in Australia in 2018.

	Chi-squared test	Lower	Odds ratio	Upper	P-value
Sexual activity model	1003.71*				
Constant			0.52		
Age		0.92	0.97	1.01	0.160
Partner status		1.60	1.78	1.98	<0.001
Sexual orientation		1.10	1.16	1.23	<0.001
Sexual activity		3.13	3.49	3.89	<0.001
Contraception use model	27.26*				
Constant			6.69		
Age		0.87	0.94	1.01	0.082
Partner status		1.04	1.20	1.39	0.013
Condom frequency		0.90	0.86	0.95	<0.001
Pill use		0.78	0.90	1.04	0.155

\* $P < 0.0001$ .

Those who had not used condoms at last vaginal/anal intercourse were asked why. There were no significant differences between sexters and non-sexters for most of the reasons (Table 4). There were significant differences when the reason was it just happened, and another form of contraception was used. Specifically, sexters were 1.36 times more likely to not use a condom because sex just happened than non-sexters. Non-sexters were 1.49 times more likely to not use a condom because they used another form of contraception than sexters. There was no significant

difference in other contraceptive use between sexters and non-sexters (Table 2). Additionally, there was no significant difference in contraceptive pill use when controlling for age and partner status (Table 3).

## Discussion

The current study focused on sexting as the sending of sexually explicit texts, photos or videos. A total of 52% of

**Table 4.** Differences between sexters and non-sexters based on the reason for not using condoms.

Reason for not using condoms	Chi-squared test of independence	Sexter yes n (%)	Non-sexters yes n (%)	Sexters no n (%)	Non-sexters no n (%)
Tested for HIV/STIs	$\chi^2(1) = 0.53, P = 0.465$	216 (13)	111 (7)	895 (55)	418 (25)
Too embarrassed	$\chi^2(1) = 0.42, P = 0.515$	29 (2)	11 (1)	1082 (66)	518 (32)
Know partner's history	$\chi^2(1) = 3.09, P = 0.079$	418 (25)	223 (14)	693 (42)	306 (19)
Did not consider it their responsibility	$\chi^2(1) = 1.04, P = 0.308$	12 (1)	3 (>1)	1099 (67)	526 (32)
Lack of access	$\chi^2(1) = 0.03, P = 0.856$	40 (2)	20 (1)	1071 (65)	509 (31)
It just happened	$\chi^2(1) = 7.01, P = 0.008$	388 (24)	150 (9)	723 (44)	379 (23)
Another form of contraception was used	$\chi^2(1) = 9.71, P = 0.002$	196 (12)	128 (8)	915 (56)	401 (24)

All analysis  $n = 1640$ .

participants had sent a sext in the previous 2 months, but the vast majority only sent text-based sexts, with only 6% sending photo-based sexts.

In line with previous studies, the current study found that those who sexted were more likely to have engaged in anal or vaginal sex.<sup>2,3,6-8,10-12</sup> Given the consistent finding of past research that sexting usually occurs in a relationship<sup>2,17</sup> and that older adolescents are more likely to sext,<sup>3,4,7,9-12</sup> it makes sense that those sexting are also engaging in sexual activity. The goal here is to document the sexual behaviours adolescents are engaging in to better understand the development of sexuality, not to assume that there is something inherently bad or risky about the behaviours.<sup>19</sup> It appears that sexting is a part of a range of sexual behaviours that adolescents use to explore their sexual selves.<sup>7,19</sup> Similar to past research, the current study found that those who sexted had significantly more sexual partners than those who did not sext.<sup>3,10,11,13,17</sup> However, the average number of sex partners in an adolescent population was 3.39,<sup>20</sup> which both groups in this study were below.

To gain a better understanding of the relationship between sexting and condom use, condom use was measured in two different ways: used at last anal/vaginal intercourse and used to prevent pregnancy at last vaginal intercourse. We found that there were no significant differences between sexters and non-sexters regarding condom use at last intercourse or to prevent pregnancy. This aligns with some previous research that has indicated the same.<sup>8,9</sup> These results indicate that condom use is not related to sexting, which supports Ybarra and Mitchell's<sup>11</sup> national study conducted in the USA. There are very few national studies investigating sexting and sexual risk behaviours, but this indicates that there are similarities between the USA and Australia. Relationship status may play a role, given that many of the sexters were in a relationship and previous studies<sup>21</sup> have found that those in relationships are more likely to use forms of contraception other than condoms (e.g. using the pill), it may be that condom use is more directly related to relationship status than sexting.

The research on sexting has focused on two dominant narratives, a deviance discourse and a normalcy discourse.<sup>1</sup> Döring<sup>1</sup> found that most sexting research fell into the deviance discourse. The deviance discourse sees sexting as a problematic behaviour<sup>1</sup> or one of a number of sexual risk behaviours, including early sexual activity, numerous sexual partners and unprotected sex. The normalcy discourse sees sexting as a part of adolescent sexual and intimate relationships, a form of sexual expression, not consistently related to risky sexual behaviour, and has sexual benefits.

Research shows that approximately one-quarter of adolescents are sexting,<sup>2-11</sup> so this behaviour is occurring. What we need to know is whether this is something we need to be concerned about. The deviance discourse indicates that this is a concern, but the findings of previous and the current studies show that sexting is not broadly linked to risky sexual behaviours, but is instead, a part of sexual expression and development for adolescents. The research, including the current study, supports the normalcy discourse. Although it is understandable why people might be concerned about sexting in adolescents, the fear around sexual risk does not appear to match the reality. It is important that we work within the accurate discourse, as if sexting is not harmful (as related to risky sexual behaviour) and we do not want to demonise it, as this can create problems for these individuals later in their sexual lives.<sup>19</sup>

The current study showed a lack of differences between sexters and non-sexters regarding condom use, which is supported by some previous studies.<sup>8,9</sup> When investigating other contraception, non-sexters used the pill more than sexters, but this relationship was no longer significant when controlling for age and partner status. Very few other studies have investigated contraception other than condoms, and generally those that have, have not broken down the different types of contraceptives. The limited research that has been done has found mixed results, with some finding sexters are more likely to use contraceptives,<sup>10</sup> some finding sexters are less likely to use contraceptives<sup>3</sup> and others finding no differences.<sup>2</sup> This study indicates that other variables,

such as age and relationship status, may be playing an important role.

The current study found no significant differences in reported STI rates between sexters and non-sexters. This provides further evidence that sexting is not part of a group of risky behaviours. The minimal past research that exists supports the current findings.<sup>2,10</sup> Finally, sexters were found to be more likely to become pregnant than non-sexters. This relationship had a small effect and contradicted previous studies that indicated there was no significant differences in unintended pregnancy rates based on sexting status.<sup>2</sup>

The biggest concern with having more partners is the risk of STI transmission, as past longitudinal studies have not linked the number of dating or sexual partners and negative psychological well-being.<sup>20</sup> The risk of STI transmission may not be an issue, given that sexters and non-sexters seem to have limited differences in reported STI rates and condom use, and their number of partners are in the normative range. It can be determined that the difference in the number of partners between sexters and non-sexters is not a substantial factor. Overall, this study indicates that there are limited differences between sexters and non-sexters in their sexual behaviours, and the differences that do exist can be explained by other factors, such as age.

The importance of viewing sexting from the normative discourse is furthered by Tolman and McClelland,<sup>19</sup> who pose that there are costs associated with inherently understanding adolescents' sexuality as problematic, including negative impacts on adult sexual outcomes. Sexual development is a part of the adolescent life stage and allows people to become themselves as sexual people.<sup>19</sup> As technology progresses, this development will also apply to technology, such as sexting. This is seen in the developing narrative of a normalcy discourse for sexting.<sup>1</sup> Additionally, it is common for adolescents to have several dating sexual partners and have casual sex.<sup>20</sup> It seems that sexting is a behaviour to add to the list of common and normal experiences in adolescence. Although understanding the risks of sexual behaviour, including sexting, is important, it does not appear that sexting is an inherently risky behaviour, nor does it seem to be part of a cluster of risky behaviours, but instead a normal part of intimate relationships and sexual development.

Understanding the risks of sexual behaviour allows researchers, policy makers, and educators to proactively prevent and limit the risks through appropriate education and harm reduction. This should involve a relationships and sexuality education curriculum that encourages adolescents to actively make decisions about their sexual lives<sup>19</sup> and teaches safer sexting behaviours. This can include how to be protective of their privacy when sexting and considering who they choose to sext with. Additionally, those who are involved with adolescents should be aware that many will engage in sexting, and should take a normalcy discourse when having discussions around the topic. Similarly, to the

understanding that comprehensive sex education is more effective than abstinence only sexual education, an approach to sexting that is comprehensive rather than abstinence based is valuable. More research could assist in fully understanding what other factors are influencing the connection between sexting and risky sexual behaviour, but research as to the benefits and the way for people to protect themselves when sexting is important.

As with any study, this study was not without limitations. The data were collected through non-probability sampling, which is not representative of the population of Australia's adolescents. Although we had a large diverse sample and weighted data based on census data, there may still have been a self-selection bias and underrepresentation due to the recruitment methods used (a social networking platform). Additionally, when asking about number of partners, we did not enquire as to whether these partners were concurrent or consecutive.

## Conclusion

This study aimed to further understand the connection between sexting behaviours and other sexual behaviours, such as sexual intercourse, number of partners, contraceptive use, and STI and pregnancy experiences. Through this investigation, it was determined that there are limited differences in sexual behaviours between sexters and non-sexters, and the differences that do exist may be influenced by other factors (e.g. age, relationship status). Sexters were more likely to have engaged in intercourse and have more sexual partners than non-sexters, but no differences emerged regarding contraceptive use (including condoms and hormonal contraceptives) and STI status. These results further add to the normative discourse around sexting, that sexting is another sexual behaviour that adolescents engage in while developing their sexual identity.

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