

# Acceptance and use of condoms among school-aged young people in Australia

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## ABSTRACT

**Background.** Despite availability of vaccines or medical prophylaxis for some sexually transmissible infections (STIs), promoting condom use remains an important public health strategy for the prevention of STIs. Recent research shows that regular condom use among young people in Australia has declined over the past decade, while the rate of common STIs has increased. **Method.** In this paper, we report findings from a large survey of school-aged young people in Australia (14–18 years old) in which we looked at the association between condom use and positive feelings about sex, beliefs about social acceptability of condoms and confidence talking with partners about sex and condoms. **Results.** Communication and relational factors supported more consistent condom use. Participants were more likely to regularly use condoms if they discussed condom use with a sexual partner, perceived condom use to be easy (a measure that included perceived ease of discussing condoms with a partner) and perceived condom use to offer social or relational benefits, including perceiving condom use as a demonstration of care for a partner. Young men were more likely to report positive feelings about sex and regular condom use than young women. Young women were less likely than young men or trans and non-binary young people to report regular condom use. **Conclusions.** The study shows the importance of supporting young people to build confidence expressing sexual needs and wants with partners. Public health approaches to STI prevention need to consider condom promotion in the context of young people's contemporary sexual, gendered and relationships cultures.

**Keywords:** Australasia, condom use, relationships and sexuality education, sexual communication, sexual health promotion, STI prevention, young people.

## Introduction

Condoms are an affordable and effective means to prevent sexually transmissible infections (STIs) and have been at the forefront of safer sex campaigns for young people since the emergence of the HIV epidemic in the late 1980s. For most common STIs, including gonorrhoea and chlamydia, condoms are the most effective means of prevention.<sup>1,2</sup>

Today, STI/HIV prevention encompasses multiple methods – condoms, vaccines, medical prophylaxis, testing and treatment – while holistic approaches to safer sex include a focus on consensual, respectful and pleasurable sex as necessary for STI prevention.<sup>3</sup> However, in the late 1980s and 1990s, when HIV prevention, testing and treatment options were limited, condom use was the major component of safe sex practice. As a result, there are volumes of research on condom use among young people.<sup>4</sup> Often informed by feminist or queer theory, much of this research explores the ways in which acceptability and use of condoms among young people is shaped by cultural perceptions of sex, the symbolism of condoms in the context romantic relationships, and gender-based inequalities.<sup>2,5–8</sup> Many young people view condoms as interrupting or negating what they perceive to be ‘natural’, ‘real’ or intimate sex, and condomless sex can symbolise trust or commitment to a partner.<sup>5,9–13</sup> Gender-based inequalities may also impact upon young women's capacity to insist on condom use in heterosexual sexual encounters.<sup>6,14</sup> This body of research establishes an important framework for understanding condom use among young people in the context of gender, social and relational practices and the emotions and intimacies of sex.<sup>12</sup>

Recent research suggests that the number of young people in Australia who consistently use condoms is low and has declined over the past decade.<sup>15</sup> In part, this is because young people tend to view condoms as contraception, rather than for STI prevention, and prefer hormonal contraceptives.<sup>15</sup> Normative attitudes toward condoms are also significant in these trends. Many young people do not believe condom use is common among their peer group and are less likely to use condoms regularly as a result.<sup>15–20</sup>

In this paper, we report findings from the 2021 iteration of a large, periodic survey of school-aged young people in Australia (14–18 years), the Secondary Students and Sexual Health (SSASH) survey.<sup>15</sup> While a quantitative survey offers only limited insight into the nuance of condom use as it relates to contemporary sexual cultures, our aim was to explore condom use in the context of young people's sexual and relationship experiences. With this in mind, we look at two aspects of condom use: (1) drawing on comprehensive definitions of safer sex that recognise the importance of pleasure,<sup>21</sup> we look at whether condom use is associated with positive experiences of sex; and (2) we look at the relationship between condom use and social and relational variables, including perceptions of condom use among peers and whether young people feel confident talking about condoms with sexual partners.

Data were collected in 2021. The study is timely given recent decades have seen increasing STI rates among young people in Australia.<sup>22–24</sup> Young people, aged 15–29 years, are more likely than people in other age groups to contract common STIs (i.e. chlamydia and gonorrhoea) while syphilis is an increasing concern in some populations of young people.<sup>23</sup> As such, young people are recognised as a priority population in the Australian National STI strategy.<sup>1</sup>

## Materials and methods

The study was granted ethical approval by the La Trobe University Human Research Ethics Committee (HEC 20401).

### Sample

There were 6841 valid responses to the SSASH survey from young people aged 14–18 years and living in Australia at the time of the data collection.

Data were collected via an online survey that was advertised through social media. Minimum quota sampling was employed based on Australian Bureau of Statistics data on school enrolments with proportional quotas calculated for: gender and school year for students in years 10 and 12.<sup>25</sup> Not all quotas were met resulting in a disproportionate representation of young women in the sample, all analyses are therefore controlled for gender.

Participants were included in this analysis if they provided answers to all relevant variables and were sexually active

( $n = 1810$ ), defined as having experienced vaginal or anal intercourse, as explained below.

## Measures

### Outcome measures

**Use of condoms.** Participants were asked how often they used condoms for sex, with responses collected using a 5-point Likert scale, 'never' to 'always'.

Participants were asked whether they had used a condom during their most recent (or only) sexual encounter, with responses recorded as yes or no. If they had not used a condom, participants were asked the reasons why and could select multiple responses from a range of options including condoms being unavailable, use of hormonal contraception and disliking condoms.

**Feelings about most recent sexual encounter.** Participants were asked how they felt after their most recent sexual experience by ranking the extent to which they felt a series of emotions, including four positive emotions (excited, happy, satisfied and fantastic). Responses were recorded on a five-point Likert scale, 'not at all' to 'extremely'. Results were summed into a scale for 'positive feelings' (excited, happy, satisfied, fantastic; Cronbach's  $\alpha = 0.93$ ).

### Explanatory (or independent) variables

**Demographic characteristics.** Standard questions were used to record participant's age, language spoken at home, place of birth, place of residence (urban, regional, rural/remote), sexual identity and gender (male, female, or trans and non-binary). We report the gender that young people self-identified. Some young people with transgender experience identified as male or female, while others used the term 'trans and non-binary'.

**Sexual experiences.** Participants were asked about their sexual experiences including: age at which they first had sex, whether condoms were used for first sex, number of sexual partners over their lifetime, whether their most recent sexual experience was with a regular partner, whether they/their partner used hormonal contraception, and whether they had discussed use of condoms. For this paper, we have defined sex as vaginal (penis in vagina) and anal (penis in anus) intercourse given the focus of these analyses is condoms. In other publications, we have defined sex in more expansive terms to include other sexual practices, in line with the varied ways young people define sex.<sup>15</sup>

**Perceptions of condoms.** Eleven items were included that related to use, beliefs and attitudes toward condoms. These items were adapted from the Debrief Survey of young adults.<sup>16</sup> Items related to: beliefs about the efficacy of condoms (e.g. 'Condoms protect people from STIs'); perceived social/relational benefits of condom use (e.g. 'Using a condom

shows care for a partner’); perceived peer attitudes to condoms (e.g. ‘My best friends believe I should use condoms’); and perceived challenges to using condoms (e.g. ‘Talking about using a condom with a partner is difficult’). Responses were recorded on a 5-point Likert scale, strongly disagree to strongly agree.

**Learning about condoms and STI prevention and perceptions of school-based relationships and sexuality education (RSE).** Young people were asked whether they had ever discussed condom use in school-based RSE and whether they found their school-based RSE to be relevant to them. Confidence to discuss STI precautions, including condom use, were assessed using a summed score of 12 items asking participants how confident they would be to discuss sexual matters with their general practitioner/doctor, parents, friends, or school staff. Responses were scored on a five-point Likert scale, ‘not at all’ to ‘extremely confident’, and summed score ranged from 0 to 30 (Cronbach’s  $\alpha = 0.82$ ).

**Knowledge about condoms and STIs.** Twenty-nine items assessed young people’s STI knowledge (e.g. symptoms, transmission, vaccine availability) which were summed together to form an STI knowledge scale (range = 0–29, Cronbach’s  $\alpha = 0.88$ ).

## Data analysis

Open-source statistical programs R<sup>26</sup> and RStudio<sup>27</sup> were used for the data analysis. The R-package psych<sup>28</sup> was used to conduct the exploratory factor analysis for attitudes to condom use items, gtsummary,<sup>29</sup> tidyverse<sup>30</sup> and flextable<sup>31</sup> were used to conduct analyses and present descriptive statistics describing characteristics of young people’s condom use and regression analyses.

## Attitudes toward condoms: factor analysis

As noted, 11 items related to beliefs about condom use were included. The Kaiser-Meyer-Olkin Test<sup>32</sup> resulted in a value of 0.78 indicating that the items were suitable for factor analysis. Next a parallel analysis suggested a four-factor model. However, one factor only contained the variable ‘My best friends believe I should use condoms’; therefore, a three-factor model was selected by examining the eigenvalues and the scree plot. Three factors were extracted with a root mean square error of approximation of 0.042 and Tucker-Lewis Index of 0.95, suggesting adequate validity of the model. Factor 1, social perceptions of condom use, was comprised of four items (‘People my age should use condoms with any new partner’; ‘My best friends believe I should use condoms’; ‘Sex with condoms would be less stressful’; and ‘Using a condom shows care for a partner’) with factor loadings from 0.49 to 0.62. Factor 2, ease of condom use, consisted of three items (‘I know where to get condoms’; ‘Talking about using a

condom with a partner is difficult’; and ‘Using condoms is easy’) with factor loadings from 0.53 to 0.61. Factor 3, benefits of condom use, was comprised of two items (‘Condoms protect people from STIs’ and ‘Condoms prevent pregnancy’) with factor loadings of 0.73 and 0.80. Loading scores of these three factors were used in the analyses with higher scores indicating greater agreement with the factor. One item ‘Using condoms with new partners is common among people my age’ did not load onto any factors.

## Regression analysis

Multiple linear regression analyses using ordinary least squares estimation were conducted to examine the effects of predictor variables on frequency of condom use and positive emotions regarding most recent sex. No interaction effects were estimated. Adjusted beta coefficients are reported with negative values indicating a negative relationship between the outcome and the predictor variable and positive values indicating a positive relationship. Multiple logistic regression analyses using maximum likelihood estimation were used to examine effects of predictor variables on condom use during most recent sexual encounter. Adjusted odds ratios (OR) are reported with values above 1 indicating a positive relationship and values below 1 indicating a negative relationship between reported variables. All analyses controlled for age, gender and sexuality.

## Results

Demographic characteristics of the sample are shown in Table 1. The mean age of participants was 16.6 years (s.d. = 0.98). Most participants were female ( $n = 1311$ , 72.4%), and over one-third identified as lesbian, gay, bisexual, queer or other terms that described non-heterosexual sexual identity (LGBQ+;  $n = 692$ , 38.2%). The majority spoke English as their first language, with 14.3% ( $n = 246$ ) from a non-English speaking background. There were 102 (5.8%) young people who identified as Aboriginal or Torres Strait Islander. The majority lived in major cities, with less than half (40.1%,  $n = 573$ ) living in remote or regional areas in Australia rather than major cities.

## Condom use for past sexual experiences

Most participants reported that they had used a condom for their ‘first sexual experience’ (1378, 82.6%) (excluding young people who reported only one sexual experience,  $n = 142$ , 7.8%) (Table 2). The mean age at which young people had their first sexual experience (defined for these purposes as vaginal or anal intercourse) was 15.4 years (s.d. = 1.19) and there were 108 (6.1%) young people who reported that their first sexual experience had occurred when they were younger than 14 years. The average number of sexual partners

**Table 1.** Demographics of the sample.

Characteristics	<i>n</i>	Young men <i>n</i> = 421	Young women <i>n</i> = 1311	Trans and non-binary <i>n</i> = 78	Total 1810
Age in years, mean (s.d.)	1810	16.65 (1.01)	16.66 (0.96)	16.37 (1.06)	16.64 (0.98)
LGBQ+, <i>n</i> (%)	1810	106 (25.2)	509 (38.8)	77 (98.7)	692 (38.2)
Language other than English, <i>n</i> (%)	1722	58 (14.6)	180 (14.4)	8 (10.7)	246 (14.3)
Aboriginal or Torres Strait Islander, <i>n</i> (%)	1754	21 (5.1)	79 (6.2)	2 (2.7)	102 (5.8)
Living in regional/remote area, <i>n</i> (%)	1429	127 (37.2)	420 (41.2)	26 (38.2)	573 (40.1)

**Table 2.** Characteristics of participant's sexual experiences (*n*, %).

Characteristics	<i>n</i> <sup>A</sup>	Young men	Young women	Trans and non-binary	Total	<i>P</i> -value <sup>B</sup>
One sexual experience, <i>n</i> (%)	1810	37 (8.8)	96 (7.3)	9 (11.5)	142 (7.8)	0.29
Used condoms at first sex, <i>n</i> (%)	1668	328 (85.4)	993 (81.7)	57 (82.6)	1378 (82.6)	0.25
Age at first sex in years, mean (s.d.)	1810	15.55 (1.22)	15.37 (1.17)	15.05 (1.29)	15.40 (1.19)	<0.001
Sexual experiences before 14 years, <i>n</i> (%)	1810	18 (4.3)	78 (5.9)	12 (15.4)	108 (6.0)	0.002
Number of sexual partners, mean (s.d.)	1810	1.90 (1.32)	2.20 (1.49)	2.12 (1.50)	2.13 (1.46)	0.001
Most recent sexual encounter, <i>n</i> (%)						
Condom used (any sex)	1810	242 (57.5)	639 (48.7)	45 (57.7)	926 (51.2)	0.004
Condom used (vaginal sex)	1621	211 (60.6)	593 (49.1)	40 (60.6)	844 (52.1)	<0.001
Condom used (anal sex)	456	65 (50.8)	121 (39.2)	9 (47.4)	195 (42.8)	0.076
Talk about condoms with partner	1810	242 (57.5)	717 (54.7)	48 (61.5)	1007 (55.6)	0.3
In a steady relationship	1810	234 (55.6)	810 (61.8)	49 (62.8)	1093 (60.4)	0.070
Hormonal contraception used	1810	184 (43.7)	698 (53.2)	32 (41.0)	914 (50.5)	<0.001
No hormonal contraception or condoms used	1810	81 (19.2)	239 (18.2)	15 (19.2)	335 (18.5)	0.9
Vaginal sex	1796	328 (78.3)	1217 (93.7)	62 (79.5)	1607 (89.5)	<0.001
Anal sex	1796	40 (9.5)	3 (0.2)	4 (5.1)	47 (2.6)	<0.001
Vaginal and anal sex	1796	24 (5.7)	41 (3.2)	4 (5.1)	69 (3.8)	0.041
Frequency of condom use, <i>n</i> (%)	1383					0.033
Never		32 (9.9)	141 (14.1)	6 (10.0)	179 (12.9)	
Rarely		32 (9.9)	165 (16.5)	9 (15.0)	206 (14.9)	
Sometimes		37 (11.5)	120 (12.0)	7 (11.7)	164 (11.9)	
Often		75 (23.2)	199 (19.9)	11 (18.3)	285 (20.6)	
Always		147 (45.5)	375 (37.5)	27 (45.0)	549 (39.7)	
School-based RSE, <i>n</i> (%)						
RSE classes were very/extremely relevant	1810	109 (25.9)	301 (23.0)	19 (24.4)	429 (23.7)	0.5
Condoms discussed during RSE	1810	312 (74.1)	974 (74.3)	54 (69.2)	1340 (74.0)	0.6
Confidence discussing STI precautions scale (0–60)	1810	22.3 (10.73)	22.3 (9.16)	21.8 (9.12)	22.3 (9.54)	>0.9
Total STI knowledge scale (0–29)	1810	14.5 (6.49)	15.4 (5.89)	15.8 (6.28)	15.2 (6.06)	0.016

<sup>A</sup>Sample sizes vary due to missing data.<sup>B</sup>One-way ANOVA used for continuous variables; Fisher's exact test used when cell size <5; Pearson's Chi-squared test for all other categorical tests.

young people reported over their lifetime was 2.1 (s.d. = 1.46; Table 2).

With respect to their most recent (or only) sexual encounter, 51.2% (*n* = 926) reported they had used a condom. Young women were less likely than young men or trans and non-binary young people to have used a condom

(*P* = 0.0045). A higher percentage had used a condom during their last vaginal sexual experience (*n* = 844, 52.1%) compared to anal sexual experience (*n* = 195, 42.8%). With regards to contraception, 50.5% (*n* = 914) reported that hormonal contraception was used (for vaginal sex) instead of condoms and 18.6% (*n* = 335) reported that no

contraception (either hormonal or condoms) was used (Table 2).

With respect to their most recent sexual encounter, 55.6% ( $n = 1007$ ) reported that they had a conversation about condoms with their partner prior to sex.

### Reasons for not using a condom

For those who had not used a condom for their most recent sexual encounter ( $n = 884$ ), the most commonly reported reasons related to pregnancy, with more than half indicating they did not use a condom because they used another form of contraception ( $n = 463$ , 52.4%) and 30.3% ( $n = 268$ ) indicating they saw no risk of pregnancy. Not being concerned about STIs or trusting/knowing a partner were also common responses: 37.0% ( $n = 327$ ) indicated they knew their partner's sexual history; 34.7% ( $n = 307$ ) indicated they were not concerned about STIs and 31.6% ( $n = 279$ ) indicated they did not use a condom because they trust their partner. Around one in five reported that they did not like condoms ( $n = 172$ , 19.5%) or their partner did not like them ( $n = 209$ , 23.6%). A small number referred to lack of planning with 15.5% ( $n = 137$ ) indicating they forgot to use a condom or the sex 'just happened' ( $n = 223$ , 25.2%) (Table 3).

### Frequency of condom use over lifetime

When asked about frequency of condom use across their lifetime, over half the participants reported that they 'often' or 'always' use a condom when having sex ( $n = 834$ , 60.3%). Young women were significantly less likely than young

men or trans and non-binary young people to report 'always' using condoms ( $P = 0.033$ ).

### Perceptions of condom use

The majority of participants ( $n = 1691$ , 93.4%) agreed that young people should use a condom when having sex with a new partner, although fewer agreed that their best friends believed they should use condoms ( $n = 1241$ , 68.6%) and just over half ( $n = 1017$ , 56.2%) agreed that using condoms with new partners was common among young people of their age (Table 4).

Over 70% ( $n = 1323$ , 73.1%) agreed that use of a condom showed care for a partner and a similar number agreed that sex with a condom would be less stressful than without ( $n = 1295$ , 71.5%). Very few agreed that talking to a sexual partner about condoms was difficult ( $n = 166$ , 9.2%).

The majority of participants knew where to obtain condoms ( $n = 1746$ , 96.5%) and agreed that using condoms was easy ( $n = 1542$ , 85.2%). Over 90% agreed that condoms protect against STIs ( $n = 1652$ , 91.3%) and pregnancy ( $n = 1641$ , 90.7%).

When asked about school-based RSE, the majority ( $n = 1340$ , 74.0%) had discussed condoms in RSE but fewer than one in four ( $n = 429$ , 23.7%) reported that they found RSE classes to be relevant to their lives (Table 2).

### Condom use and feelings about sexual experiences

Table 5 shows predictors of young people's feelings about their most recent sexual encounter. Young people who reported more positive feelings about their most recent sexual

**Table 3.** Reported reasons for not using a condom at last sexual encounter ( $n$ , %).

Reasons <sup>A</sup>	Young men 179 (20.2)	Young women 672 (76.0)	Trans and non-binary 33 (3.73)	Total 884	P-value <sup>B</sup>
Other contraception used, $n$ (%)	78 (43.6)	371 (55.2)	14 (42.4)	463 (52.4)	0.011
I know my partner's sexual history, $n$ (%)	55 (30.7)	258 (38.4)	14 (42.4)	327 (37.0)	0.14
No risk of pregnancy, $n$ (%)	60 (33.5)	194 (28.9)	14 (42.4)	268 (30.3)	0.15
Not worried about STIs, $n$ (%)	73 (40.8)	223 (33.2)	11 (33.3)	307 (34.7)	0.16
I trust my partner, $n$ (%)	54 (30.2)	216 (32.1)	9 (27.3)	279 (31.6)	0.76
It just happened, $n$ (%)	44 (24.6)	173 (25.7)	6 (18.2)	223 (25.2)	0.61
My partner does not like condoms, $n$ (%)	44 (24.6)	162 (24.1)	3 (9.1)	209 (23.6)	0.13
I do not like condoms, $n$ (%)	41 (22.9)	129 (19.2)	2 (6.1)	172 (19.5)	0.076
Forgot at the time, $n$ (%)	25 (14.0)	107 (15.9)	5 (15.2)	137 (15.5)	0.81
We wanted to but did not have one, $n$ (%)	20 (11.2)	64 (9.5)	4 (12.1)	88 (10.0)	0.64
One of us did not want to use one, $n$ (%)	3 (1.7)	34 (5.1)	1 (3.0)	38 (4.3)	0.12 <sup>C</sup>
Only had oral sex, $n$ (%)	12 (6.7)	13 (1.9)	3 (9.1)	28 (3.2)	<0.001 <sup>C</sup>
Condoms not my responsibility, $n$ (%)	0 (0.0)	4 (0.6)	0 (0.0)	4 (0.5)	0.64 <sup>C</sup>

<sup>A</sup>Multiple responses allowed.

<sup>B</sup>Pearson's Chi-squared test.

<sup>C</sup>Fisher's exact test used due to small cell sizes.



**Table 4.** Perceptions of condom use (*n*, %).

Percent who agree to each statement	Man	Woman	Trans and non-binary	Total
Factor 1. Social perceptions of condom use, <i>n</i> (%)				
People my age should use condoms with any new partner	381 (90.5)	1235 (94.2)	75 (96.2)	1691 (93.4)
My best friends believe I should use condoms	275 (65.3)	906 (69.1)	60 (76.9)	1241 (68.6)
Using a condom shows care for a partner	325 (77.2)	935 (71.3)	63 (80.8)	1323 (73.1)
Sex with condoms would be less stressful	294 (69.8)	941 (71.8)	60 (76.9)	1295 (71.5)
Factor 2. Ease of condom use, <i>n</i> (%)				
I know where to get condoms	403 (95.7)	1268 (96.7)	75 (96.2)	1746 (96.5)
Using condoms is easy	370 (87.9)	1099 (83.8)	73 (93.6)	1542 (85.2)
Talking about using condoms with a partner is difficult	24 (5.7)	135 (10.3)	7 (9.0)	166 (9.2)
Factor 3. Benefits of condom use, <i>n</i> (%)				
Condoms protect people from STIs	388 (92.2)	1192 (90.9)	72 (92.3)	1652 (91.3)
Condoms prevent pregnancy	391 (92.9)	1174 (89.5)	76 (97.4)	1641 (90.7)
Single item (did not load on any factor), <i>n</i> (%)				
Using condoms with new partners is common among people my age	263 (62.5)	711 (54.2)	43 (55.1)	1017 (56.2)

encounter: were young men compared to young women ( $\beta_{\text{adj}} = -0.76$ ,  $P = 0.022$ ); were heterosexual compared to LGBTQ+ ( $\beta_{\text{adj}} = -0.76$ ,  $P < 0.001$ ); were having sex with a regular or steady partner ( $\beta_{\text{adj}} = 1.8$ ,  $P < 0.001$ ); did *not* use condoms for last sexual experience ( $\beta_{\text{adj}} = -0.60$ ,  $P = 0.024$ ); felt less positive about the social benefits of condoms ( $\beta_{\text{adj}} = 0.87$ ,  $P < 0.001$ ); saw condom use as easy ( $\beta_{\text{adj}} = 1.3$ ,  $P < 0.001$ ); felt confident discussing STI precautions ( $\beta_{\text{adj}} = 0.04$ ,  $P < 0.001$ ); saw RSE classes as relevant ( $\beta_{\text{adj}} = 0.48$ ,  $P < 0.001$ ); and believed that getting an STI as unlikely for them ( $\beta_{\text{adj}} = 0.31$ ,  $P = 0.002$ ).

## Predictors of more frequent condom use

Table 6 shows results of the multiple logistic regression examining predictors of using a condom for ‘most recent (or only) sexual encounter’. The odds of having used a condom for their most recent sexual encounter were higher among those who: used condoms at first sex ( $\text{OR}_{\text{adj}} = 8.31$ ,  $P < 0.001$ ); were not using hormonal contraception ( $\text{OR}_{\text{adj}} = 0.45$ ,  $P < 0.001$ ); discussed condom use with a partner ( $\text{OR}_{\text{adj}} = 12.4$ ,  $P < 0.001$ ); were not in a steady relationship ( $\text{OR}_{\text{adj}} = 0.74$ ,  $P = 0.043$ ); held positive social perceptions of condoms ( $\text{OR}_{\text{adj}} = 2.03$ ,  $P < 0.001$ ); saw condom use as easy ( $\text{OR}_{\text{adj}} = 1.44$ ,  $P = 0.013$ ); saw fewer benefits of condom use (STI/pregnancy prevention) ( $\text{OR}_{\text{adj}} = 0.79$ ,  $P = 0.012$ ); were less confident discussing STI precautions with others ( $\text{OR}_{\text{adj}} = 0.98$ ,  $P = 0.031$ ); and were less likely to believe they would contract an STI ( $\text{OR}_{\text{adj}} = 1.17$ ,  $P = 0.026$ ).

Table 7 shows results of the multiple linear regression analysis for predictors of frequency of condom use (never through to always) controlling for age, gender and LGBTQ+ status. Those who reported more frequent/regular condom use: were young men (compared to young women,  $\beta_{\text{adj}} = -0.21$ ,

$P < 0.001$ ); had more than three sexual partners over their lifetime ( $\beta_{\text{adj}} = -0.15$ ,  $P = 0.021$ ); used condoms the first time they had sex ( $\beta_{\text{adj}} = 1.2$ ,  $P < 0.001$ ); were not using hormonal contraception (or their partner was not) ( $\beta_{\text{adj}} = -0.223$ ,  $P < 0.001$ ); had discussed condom use with their partner at most recent sex ( $\beta_{\text{adj}} = 1.3$ ,  $P < 0.001$ ); held more positive social perceptions of condom use ( $\beta_{\text{adj}} = 0.31$ ,  $P < 0.001$ ); saw condom use as easy ( $\beta_{\text{adj}} = 0.19$ ,  $P < 0.001$ ); saw fewer benefits of condom use (STI/pregnancy prevention) ( $\beta_{\text{adj}} = -0.08$ ,  $P = 0.039$ ).

## Discussion

The findings from this large study of young people in Australia reveal the significance of communication and relational factors in supporting safe sex and condom use. Among participants, consistent condom use was more common among those who had discussed using condoms with a sexual partner, those who perceived condom use to be easy (a measure that included perceived ease of discussing condoms with a partner) and those who perceived condom use to offer social or relational benefits, including agreeing that condom use demonstrates care for a partner. Using a condom was not associated with young people reporting more positive feelings about their last sexual encounter. However, young people were more likely to report positive feelings about sex if it was with a regular partner, and people having sex with a regular partner were less likely to use condoms. Non-use of condoms was usually due to use of other contraception or a sense of trust in, or knowledge about, their partner. It is likely that these findings reveal young people’s attitudes toward condom use with non-regular or casual partners as well as the ways condom use (or non-use) may be connected with feelings of

**Table 5.** Associations with positive feelings about last sexual encounter (linear regression).

Predictors	Beta (95% CI)	P-value
Age	0.08 (−0.17 to 0.33)	0.52
Gender		
Man	–	
Woman	<b>−0.54 (−1.0 to −0.08)</b>	<b>0.022</b>
Trans and non-binary	−0.99 (−2.0 to 0.05)	0.062
LGBQ+	<b>−0.76 (−1.2 to −0.34)</b>	<b>&lt;0.001</b>
Age at first vaginal or anal sex	−0.04 (−0.25 to 0.17)	0.68
3+ sexual partners	0.00 (−0.49 to 0.49)	>0.99
Used condoms at first sex		
Did not use condoms	–	
Used condoms	−0.18 (−0.75 to 0.40)	0.55
Only had one sexual experience	<b>−1.9 (−2.8 to −1.0)</b>	<b>&lt;0.001</b>
Condom used at last sex	<b>−0.60 (−1.1 to −0.08)</b>	<b>0.024</b>
Hormonal contraception used	0.21 (−0.21 to 0.63)	0.32
Talked about condoms with partner	0.41 (−0.09 to 0.91)	0.10
In a steady relationship	<b>1.8 (1.4–2.3)</b>	<b>&lt;0.001</b>
Factor 1. Social perceptions of condom use	<b>−0.87 (−1.2 to −0.51)</b>	<b>&lt;0.001</b>
Factor 2. Ease of condom use	<b>1.3 (0.96–1.7)</b>	<b>&lt;0.001</b>
Factor 3. Benefits of condom use	0.17 (−0.10 to 0.44)	0.21
Confidence discussing STI precautions scale (0–60)	<b>0.04 (0.02–0.07)</b>	<b>&lt;0.001</b>
Condoms discussed during RSE	0.18 (−0.26 to 0.62)	0.42
RSE classes were very/extremely relevant	<b>0.48 (0.02–0.94)</b>	<b>0.040</b>
Total knowledge scale (0–29)	0.01 (−0.02 to 0.04)	0.53
Believe getting an STI unlikely	<b>0.31 (0.11–0.50)</b>	<b>0.002</b>
R <sup>2</sup>	0.168	
Adjusted R <sup>2</sup>	0.159	
P-value	<0.001	
Number of observations	1810	

Values in bold are statistically significant at  $P < 0.05$ .

safety, pleasure and intimacy with regular partners. More research is needed to understand contemporary sexual cultures and the ways in which young people determine, or build, a sense of safety and trust in sexual partners. These findings support approaches to RSE that recognise condom use as a relational and social practice and focus on developing young people's insight into the dynamics of sexual relationships and communication.<sup>33</sup> Such an approach would not just be about giving young people skills to negotiate use of a condom, but confidence and capacity to have meaningful conversations about sexual needs and wants with partners.<sup>34,35</sup>

These findings reveal important differences in condom use and sexual experiences across different genders. Young heterosexual men were more likely to report positive feelings about

**Table 6.** Associations with using a condom at last sex (logistic regression).

Predictors	OR (95% CI) <sup>A</sup>	P-value
Age	0.93 (0.80–1.08)	0.33
Gender		
Man	–	
Woman	0.75 (0.54–1.03)	0.072
Trans and non-binary	0.85 (0.42–1.76)	0.66
LGBQ+	0.84 (0.63–1.12)	0.24
Early sexual experiences (<14 years)	0.69 (0.37–1.26)	0.23
Used condoms at first sex		
Did not use condoms	–	
Used condoms	<b>8.31 (5.06–14.2)</b>	<b>&lt;0.001</b>
Only had one sexual experience	<b>6.44 (3.33–12.8)</b>	<b>&lt;0.001</b>
3+ sexual partners	0.75 (0.55–1.03)	0.072
Hormonal contraception used	<b>0.45 (0.34–0.60)</b>	<b>&lt;0.001</b>
Talk about condoms with partner	<b>12.4 (9.46–16.4)</b>	<b>&lt;0.001</b>
In a steady relationship	<b>0.74 (0.56–0.99)</b>	<b>0.043</b>
Factor 1. Social perceptions of condom use	<b>2.03 (1.58–2.62)</b>	<b>&lt;0.001</b>
Factor 2. Ease of condom use	<b>1.44 (1.13–1.84)</b>	<b>0.003</b>
Factor 3. Benefits of condom use	<b>0.79 (0.66–0.95)</b>	<b>0.012</b>
Confidence discussing STI precautions scale (0–60)	<b>0.98 (0.97–1.00)</b>	<b>0.031</b>
Condoms discussed during RSE	0.85 (0.62–1.16)	0.30
RSE classes were very/extremely relevant	0.82 (0.60–1.12)	0.22
Total knowledge scale (0–29)	1.01 (0.98–1.03)	0.59
Believe getting an STI unlikely	<b>1.17 (1.02–1.33)</b>	<b>0.026</b>
Number of observations	1810	

Values in bold are statistically significant at  $P < 0.05$ .

<sup>A</sup>Adjusted odds ratios (OR) are reported with values above 1 indicating a positive relationship and values below 1 indicating a negative relationship between reported variables.

sex and regular use of condoms than young women. Young women were less likely than young men or trans and non-binary young people to have used a condom when they last had sex or to report regular use of condoms. There may be many reasons why young women report less frequent condom use, including use of hormonal contraception. However, decades of research has drawn attention to the impact of unequal gendered power dynamics in sexual relationships and the ways that this can undermine young women's confidence or capacity to understand, express or assert their desires (including a desire to use a condom) in sexual encounters.<sup>6,14,36,37</sup> The fact that young women were less likely to report positive feelings about sex than young men was not directly related to less regular condom use in these findings. However, it is worth considering the ways these experiences may both be related to more limited sexual agency among young women.<sup>38</sup> Waling's<sup>39</sup> recent qualitative

**Table 7.** Predictors of higher frequency of condom use (linear regression).

Predictors	Beta (95% CI)	P-value
Age	−0.04 (−0.09 to 0.02)	0.23
Gender		
Man	–	
Woman	<b>−0.21 (−0.34 to −0.09)</b>	<b>&lt;0.001</b>
Trans and non-binary	−0.23 (−0.52 to 0.05)	0.11
LGBQ+	0.00 (−0.12 to 0.11)	0.97
Early sexual experiences (<14 years)	0.16 (−0.11 to 0.42)	0.24
Used condoms at first sex		
Did not use condoms	–	
Used condoms	<b>1.2 (1.1–1.4)</b>	<b>&lt;0.001</b>
Only had one sexual experience	<b>0.84 (0.62–1.1)</b>	<b>&lt;0.001</b>
3+ sexual partners	<b>−0.15 (−0.29 to −0.02)</b>	<b>0.021</b>
Hormonal contraception used	<b>−0.22 (−0.33 to −0.10)</b>	<b>&lt;0.001</b>
Talk about condoms with partner	<b>1.3 (1.2–1.4)</b>	<b>&lt;0.001</b>
In a steady relationship	−0.04 (−0.15 to 0.08)	0.52
Factor 1. Social perceptions of condom use	<b>0.31 (0.22–0.41)</b>	<b>&lt;0.001</b>
Factor 2. Ease of condom use	<b>0.19 (0.09–0.29)</b>	<b>&lt;0.001</b>
Factor 3. Benefits of condom use	<b>−0.08 (−0.15 to 0.00)</b>	<b>0.039</b>
Confidence discussing STI precautions scale (0–60)	−0.01 (−0.01 to 0.00)	0.083
Condoms discussed during RSE	0.01 (−0.12 to 0.13)	0.92
RSE classes were very/extremely relevant	−0.04 (−0.16 to 0.08)	0.54
Total knowledge scale (0–29)	0.01 (0.00–0.02)	0.21
Believe getting an STI unlikely	0.02 (−0.03 to 0.07)	0.47
R <sup>2</sup>	0.564	
Adjusted R <sup>2</sup>	0.558	
P-value	<0.001	
Number of observations	1383	

Values in bold are statistically significant at  $P < 0.05$ .

study with young men highlights the ways in which normative gendered and heterosexual social codes – including ideas that women are sexual gatekeepers – indirectly undermine young women’s sexual agency. In Waling’s study, young men, in their sexual encounters, were primarily focused on ensuring the sex (intercourse) happened; seeing the need to entice the ‘gatekeeper’. Conversations about condom use or contraception were often seen as interrupting this enticement (the ‘erotic moment’) and so were avoided (p. 351).<sup>39</sup> Few of Waling’s participants expressed awareness or concern that their lack of willingness, or capacity, to communicate about safe sex limited their partner’s agency, safety or pleasure. Waling advocates the importance of developing RSE content focused on building young men’s critical awareness of gender dynamics in sexual encounters.

The findings reported in this paper also reveal some important inconsistencies in young people’s perspectives on, and use of, condoms. Notably, most young people held positive attitudes toward condoms and agreed that young people should be using condoms. However, over half did not regularly use condoms and close to half were unsure or did not believe their peers were regular condom users. As noted above, among those who did not use a condom for their most recent sexual encounter, one in three reported this was because they trusted their partner, a finding that suggests condoms may be seen by young people as problematic for romantic relationships.<sup>5</sup> HIV prevention research, particularly that done with communities of gay and bisexual men, has shown the importance of condom promotion efforts that aim to achieve collective mobilisation, community building and cultural acceptance of condoms.<sup>40,41</sup> Creative efforts to integrate condoms into young people’s sexual cultures and networks, and to change the image of condoms (e.g. from interrupting intimacy to supporting good sex) may be needed to revitalise condom promotion among young people. Results from previous iterations of the SSASH survey have shown a decrease, since the early 2000s, in the number of young people reporting condom use for their most recent sexual experience. This decrease has occurred despite a concurrent increase in the number of young people reporting they had a condom available<sup>15</sup> and mirrors a decrease in use of condoms among gay and bisexual men in response to the introduction pre-exposure prophylaxis for HIV prevention.<sup>42,43</sup> It may be timely for new qualitative work to explore how young people perceive the risk or impact of STIs as the HIV prevention environment changes.

In this study, relational and communication factors were significantly more predictive of condom use than knowledge of STIs or understanding the efficacy of condoms for STI/pregnancy prevention. However, these findings still suggest that young people make decisions about whether or not to use a condom in the context of a range of factors, most notably unwanted pregnancy. Young people were less likely to use condoms if they were using hormonal contraception, and less likely to use condoms for anal sex than vaginal sex. While knowledge-based information on its own will not guarantee young people choose to use a condom,<sup>16</sup> there is a still a need for young people to have access to information that allows them to make informed decisions about risks associated with STIs or unwanted pregnancy.<sup>12,20</sup>

There are limitations to this study. While the sample is large, it is not representative and there are likely biases, including an over-representation of young women. While we have controlled for gender in our analyses, there may be less diversity in the views of young men and people of other genders due to the smaller sample. It is also likely that young people who were more motivated to respond to the survey advertising are over-represented in this study. It is also worth noting that the survey instrument did not differentiate between internal and external (or ‘male’/‘female’) condoms



and assumed young people were most likely to understand condoms to be the more commonly used external condom.

## Conclusion

This study is timely and important given recent increases in common STIs among young people<sup>24</sup> and a reduced focus on condoms for HIV prevention in Australia.<sup>44</sup> The study shows the importance of supporting young people to build confidence to communicate about sex and relationships with partners, as well as with people who can provide support to them, including friends, parents, educators and healthcare professionals. This should occur as part of a comprehensive approach to supporting safe sex among young people, in which condom promotion initiatives are built on recognition of the complex ways in which public health concerns – STI prevention or unwanted pregnancy – are connected to sexual politics and the gendered cultures that shape young people's experiences of sexual relationships, consent and pleasure. More work may be needed to reinvigorate condom use for STI prevention in Australia.

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**Data availability.** Due to sensitivity of the subject matter and young age of participants, the dataset for this project is not publicly available. Access to the data can be arranged on request to the corresponding author, subject to appropriate ethics committee approval.

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