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Descriptive norms about condom use predict odds of using a condom during last sexual experience in a large, national survey of adolescents from Australia

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ABSTRACT

Background. Reducing sexually transmitted infections among adolescents is an important public health goal in Australia and worldwide. This study estimated the association between condom use during last heterosexual sexual experience with two descriptive norms among a large, national sample of secondary school students from Australia. **Methods.** A large, national online survey of 14- to 18-year-olds in Australia was conducted in 2018; a sub-analysis of sexually active participants ($n = 2989$) used multivariable logistic regression to estimate the relationships between condom use during last sexual experience and condom use norms. The analysis controlled for the effects of age, sex, sexual orientation, religious affiliation, remoteness and knowledge of sexually transmitted diseases. **Results.** Overall, 1673 (56.0% [95% confidence interval: 54.2%, 57.8%]) sexually active respondents reported using condoms during their last sexual experience. Perceiving that all same-age peers used condoms conferred higher odds of using condoms during their last heterosexual sexual experience (adjusted odds ratio: 3.06 [95% CI: 1.6, 6.0]). Perceptions about whether the suggestion to initiate condom use came from boys, girls, or both boys and girls was not associated with condom use. Differences in condom use related to socio-demographic characteristics are reported. **Conclusions.** As part of a holistic approach to sexuality education, health educators and service providers may emphasise that young people frequently choose to use condoms.

Keywords: adolescents, Australia, condoms, condom use, descriptive norms, logistic regression social norms, Theory of Planned Behaviour.

Introduction

Reducing the prevalence of sexually transmitted infections (STIs) remains a priority worldwide. In Australia, preventing STIs remains an important public health goal, especially in light of disparities that disproportionately burden young people, people in custodial settings, Aboriginal and Torres Strait Islander people, and other groups.^{1–3} The Australian Government's Department of Health articulated a multi-prong approach to reduce STIs by better meeting the needs of priority populations and addressing key areas for action across domains which address STI detection and treatment, reducing stigma, and improving education and prevention, including by increasing condom use.³ Key to addressing young people's disproportionate rates of STIs in Australia are prevention education and interventions (i.e. addressing sociocognitive predictors of condom use) through sexuality education and community-based interventions.³

The Theory of Planned Behaviour (TPB) is a commonly used framework for articulating the connection between a range of health behaviours and their sociocognitive predictors.⁴ Many prior studies about condom use,^{5–10} including many systematic reviews and meta-analyses,^{11–15} have supported the TPB's major tenets, which are that behaviour is predicted by *intentions*; intentions are predicted by *attitudes*, *subjective norms*, and *perceived behavioural control*. Attitudes are then predicted by *behavioural beliefs* (i.e. positive and

negative assessments about the outcomes of condom use, such as making condom use more fun or reducing the risk of STIs); subjective norms are predicted by *normative beliefs* (i.e. perceptions of the expectations held by important groups, such as friends or parents, known as *referents*); and perceived behavioural control is predicted by *control beliefs* (i.e. barriers or facilitators to condom use).⁴ Fig. 1 shows a visual display of TPB.¹⁶ Previous studies about adolescents have found that attitudes, subjective norms, perceived behavioural control and normative beliefs are important predictors of intentions to use condoms in diverse samples, including students from the UK,⁵ Norway,⁸ Spain⁶ and Ghana.⁷

In addition, prior research indicates not only that peer norms are especially influential with respect to developing adolescent sexuality,^{17,18} but there is variability in the extent to which three different types of social norms contribute to sexual behaviour outcomes among adolescents.^{19,20} This conceptualisation includes *descriptive norms* (perceptions about peers' behaviours); *injunctive norms* (perceptions about peers' sexual attitudes); and *peer pressure*.^{19,20} These studies suggest that descriptive norms influence adolescents' engagement in sexual activity²⁰ and online sexual behavior²⁰ to greater extent than injunctive norms and peer pressure.

Previous studies have not described the extent to which descriptive norms are associated with condom use behaviours among a large, national sample of adolescents. The purpose of this analysis was to estimate the association of condom use during last heterosexual sexual experience with two descriptive norms among a large, national sample of secondary school students from Australia.

Methods

The sixth National Survey of Secondary Students and Adolescent Sexual Health was administered in April and May of 2018 among Australian adolescents as an anonymous, online, cross-sectional survey covering the domains of HIV and STI knowledge; sexual behaviour; social media use; sexual health education; condom use norms; and

socio-demographic variables. The study was developed using a community-engaged research approach,²¹ which included extensive consultation with stakeholders regarding the instrument's domains and items and the study's recruitment methods. A full account of the study protocol, including methods and measures, has been published elsewhere.²²

Briefly, the 23-min survey used minimum quota sampling²³ based on Australian Bureau of Statistics data on school enrolments²⁴ with proportional quotas calculated for two strata: (1) school type (government, Catholic and other non-government schools); sex (male and female); and year in school for year 10 and 12 students; and (2) states and territories populations with oversampling quotas for small populations (e.g. Northern Territory). The recruitment goals of each stratum were met through Facebook advertisements targeted to users who met the inclusion criteria of living in Australia and being between 14 and 18 years of age (screening questions at the start of the survey confirmed eligibility to participate). Participants had the opportunity upon completing the survey to enter a draw for 1 of 20 AUD100 gift cards. This study was funded by the Commonwealth of Australia Department of Health. This study's protocol was approved by La Trobe University Human Ethics Committee.

Measures

Descriptive condom use norms were measured using two items. The first was a measure of perceptions of how many peers use condoms; it asked, 'Do you think that people about the same age as you mostly use condoms if they have sex?'. Response options included *I do not think they have sex; none of them do; a few of them do; about half of them do; most of them do; all of them do; and prefer not to answer*. Respondents were then asked about descriptive norms related to condom use initiation. The question asked, 'For those young people who use condoms when having sex, who do you think mostly suggests using a condom?'. Response options included *boys; girls; both; and prefer not to answer*.

Condom use at last sexual event was measured by asking students who had reported ever having had sex, 'Was a condom used the last time you had vaginal and/or anal sex?' with response options of *yes; no; don't remember; and prefer not to answer*.

Socio-demographic variables serving as covariates in analyses included age, sex (*male; female; prefer not to answer*), sexual identity (*heterosexual; lesbian, gay, bisexual; not sure; prefer not to answer*), Indigenous status (Aboriginal and/or Torres Strait Islander: *no; yes; prefer not to answer*), religious affiliation (*none; Catholic; other Christian; other; prefer not to answer*), remoteness (*major city of Australia, inner regional Australia; outer regional Australia, remote Australia or very remote Australia; prefer not to answer*), and STI knowledge. STI knowledge was comprised of 51 true/false type items with 'don't know' options coded as incorrect.²² Survey variables were drawn from previous

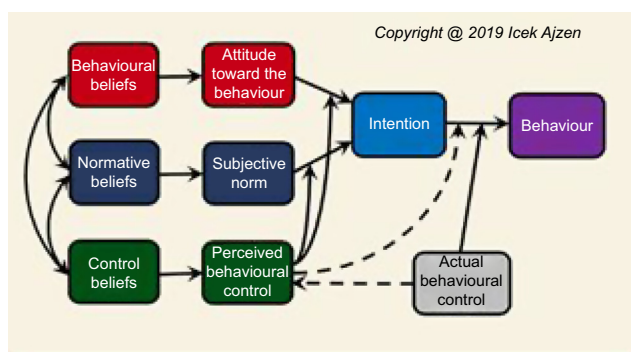


Fig. 1. Visual depiction of the Theory of Planned Behaviour.

iterations of the same survey, which were drawn from validated questions about items of interest.²²

Data analysis

We used chi-squared tests and unadjusted logistic regression analyses to evaluate the bivariable relationships between the model covariates and the outcome of interest, which was condom use during last sexual experience. We used multivariable logistic regression to estimate the association between condom use during last sexual experience, condom use norms and socio-demographic characteristics. The present analyses were limited to respondents who reported ever having anal or vaginal sex, whose last sexual experience was with an opposite-sex partner, who did not identify as transgender, who did not select *prefer not to answer* to any relevant questions and who did not have any missing values for any relevant variables. Individuals were excluded from the analysis if they reported they had never engaged in anal or vaginal sex ($n = 4149$), if they identified as transgender ($n = 83$), if their last sexual experience was with a same-sex partner ($n = 216$), or if they answered *prefer not to answer* or had missing values for any relevant variables ($n = 826$). This left a final analytic sample of 2989.

Results

A total of 8263 respondents participated in this survey, of whom 2989 people (36.2% of the total sample) were included in the present analysis.

Respondents ranged from 14 to 18 years of age. The mean age was 16.6 years (range: 14–18). There were more females than males included in this analysis ($n = 1792$, 60.0%). About one-fifth of the respondents identified as lesbian, gay, bisexual, or unsure ($n = 595$; 19.9%). Relatively consistent with Australian census data, about two-thirds indicated no religious affiliation ($n = 2018$; 67.5%), almost 5% of the respondents identified as Aboriginal or Torres Strait Islander ($n = 138$, 4.6%) and almost three-quarters were from a major city of Australia ($n = 2193$; 73.4%). Respondents' scores on the STI knowledge scale were moderate (mean = 29.8, s.d. = 7.3). See Table 1 for additional information.

Most participants in this analysis reported that they used a condom during their last vaginal or anal sexual experience ($n = 1673$; 56.0% [95% CI: 54.2%, 57.8%]). Most reported they thought same-aged peers used condoms most or all of the time when they had sex ($n = 1922$; 64.3%). Few people thought that boys suggested condom use most frequently ($n = 172$, 5.8%); rather, most respondents thought that girls ($n = 1360$; 45.5%) or both girls and boys suggested condom use ($n = 1457$; 48.8%). See Table 2 for additional information.

Perceptions of how many peers use condoms were associated with condom use at the bivariable and

Table 1. Sample description ($N = 2989$).

	<i>n</i>	(%)
Age, years: mean, (range)	16.6	(14–18)
Sex		
Female	1792	(60.0)
Male	1197	(40.1)
Sexual orientation		
Heterosexual	2394	(80.1)
Gay, lesbian, bisexual, or not sure	595	(19.9)
Religious affiliation		
None	2018	(67.5)
Catholic	519	(17.4)
Other Christian	360	(12.0)
Other	92	(3.1)
Aboriginal or Torres Strait Islander		
No	2851	(95.4)
Yes	138	(4.6)
Remoteness		
Major city of Australia	2193	(73.4)
Inner regional Australia	576	(19.3)
Very remote, remote or outer regional Australia	220	(7.4)
STI knowledge scale score: mean (s.d.)	29.8	(7.3)

multivariable levels. Compared to those who reported that *most* of their same-age peers used condoms, those who perceived *all* of their same-age peers used a condom when they had sex had higher odds of condom use (adjusted odds ratio (aOR): 3.1 [95% CI: 1.6, 6.0]) and those who perceived that *a few* or *about half* of same-aged peers had lower odds of condom use (aOR: 0.3 [0.2, 0.3]; aOR: 0.4 [0.4, 0.5], respectively) during last sexual experience. Perceptions of who suggests condom use initiation were not associated with condom use.

Most socio-demographic characteristics were not associated with condom use during last sexual experience, including sexual orientation, Indigenous heritage, religious affiliation and remote location. Similarly, scores on the STI knowledge scale were not predictive of condom use during last sex. Gender was associated with reporting condom use; however, respondents who identified as male were also more likely to report condom use during last sexual experience in the adjusted and unadjusted models (aOR: 1.3 [1.1, 1.5]). See Table 3 for additional information.

Discussion

This study used a large, national sample of 14- to 18-year-olds in Australia to estimate the relationship between condom use during last sex with two descriptive norms about condom use:

Table 2. The distribution of descriptive condom use norms by reported condom use during last sexual experience among a national sample of 14- to 18-year-olds in Australia, 2018 (N = 2989).

	Condom use during last sexual experience			P-value
	No n (%)	Yes n (%)	Total n (%)	
Perceptions of how many peers use condoms				<0.001
I do not think they have sex	10 (0.8)	10 (0.6)	20 (0.7)	
None use condoms	13 (1.0)	12 (0.7)	25 (0.8)	
A few do	295 (22.4)	143 (8.6)	438 (14.7)	
About half do	336 (25.5)	248 (14.8)	584 (19.5)	
Most of them do	652 (49.5)	1199 (71.7)	1851 (61.9)	
All of them do	10 (0.8)	61 (3.7)	71 (2.4)	
Total	1316 (100.0)	1673 (100.1)	2989 (100.0)	
Perceptions of who suggests condom use				<0.001
Boys	78 (5.9)	94 (5.6)	172 (5.8)	
Girls	685 (52.1)	675 (40.4)	1360 (45.5)	
Both	553 (42.0)	904 (54.0)	1457(48.8)	
Total	1316 (100.0)	1673 (100.0)	2989 (100.1)	

perceptions of how many peers use condoms if they have sex and perceptions of who suggests condom use initiation, which related to whether respondents thought that girls, boys or both mainly suggested condom use. Respondents who thought all their same-age peers used condoms had higher odds of reporting condom use during last sex. There was no evidence of an association between self-reported condom use and perceiving that boys, girls, or both usually suggest using a condom.

This analysis is consistent with other studies demonstrating a relationship between condom use behaviour and descriptive condom use norms in adolescents. Specifically, compared to those who perceived *most* peers used condoms if they had sex, those who perceived *all* used a condom had higher odds of condom use and those who perceived that *about half* or *a few* used condoms had lower odds of condom use. This finding harmonises with prior literature, which has documented that varied types of peer norms are associated with condom use intentions and condom use among adolescents^{5,7,8,15} and adds that even in light of important socio-cultural changes, social norms remain an important predictor of behaviours for adolescents. Therefore, social norms continue to represent an important leverage point which future interventions can address.

A measurement challenge present in this body of knowledge; however, is that the concepts of descriptive norms, subjective norms, injunctive norms and peer pressure are somewhat blurred across studies and operationalised in many ways.^{25,26} Future research could further refine these concepts and relate them to perceptions of control, social power, condom negotiation, reciprocity²⁵ and pleasure.²⁷

The second main finding in this analysis was that very few people in the sample reported they thought boys mainly initiated condom use; rather, nearly half reported they thought girls mainly initiate condoms use and nearly half reported they thought both boys and girls mainly initiate condom use. Though it did not predict condom use behaviour, its univariate distribution is notable. In prior research, gender stereotypes are related to condom use beliefs and behaviour.^{7,28-30} Other work explores condom use using the TPB, with an eye towards social power (i.e. gender, educational attainment, racial/ethnic background), finding that it attenuates the relative importance of the components of the TPB such that intentions to use condoms are more important for groups with greater social power while perceived behavioural control is more important for groups with less social power.¹³

The univariate distribution of this variable suggests that sexual health educators may want to continue addressing gender stereotypes in Australia's required sexuality education courses and draw on other best practices to improve intervention effectiveness, including using interventions that are theory-based,^{31,32} having racial/ethnic and gender concordance between facilitators and students as well as providing factual information³¹ and skills training.^{31,32} Skills training may be particularly applicable for young women in Australia as prior research suggests an opportunity to improve condom use self-efficacy.³³ Additionally, sexual health educators may relate these concepts to social power¹³ and comfort with discussing contraception³⁴ and condom use.

A minor limitation of the present analysis was the use of social norms measured at the individual level. This is

Table 3. Odds of reporting condom use during last sexual experience in a national sample of 14- to 18-year-olds in Australia, 2018 (N = 2989).

	Unadjusted OR	95% CI	Adjusted OR	95% CI
Perceptions of peers' condom use				
I do not think they have sex	0.5	[0.2, 1.3]	0.5	[0.2, 1.2]
None use condoms	0.5	[0.2, 1.1]	0.5	[0.2, 1.1]
A few do	0.3	[0.2, 0.3]	0.3	[0.2, 0.3]
About half do	0.4	[0.3, 0.5]	0.4	[0.4, 0.5]
Most of them do	Ref.	Ref.	Ref.	Ref.
All of them do	3.3	[1.7, 6.5]	3.1	[1.6, 6.0]
Perceptions of who suggests condom use				
Boys	Ref.	Ref.	Ref.	Ref.
Girls	0.8	[0.6, 1.1]	1.0	[0.7, 1.4]
Both	1.4	[1.0, 1.9]	1.2	[0.9, 1.7]
Age	1.0	[0.9, 1.0]	0.9	[0.9, 1.0]
Sex				
Female	Ref.	Ref.	Ref.	Ref.
Male	1.4	[1.2, 1.6]	1.3	[1.1, 1.5]
Sexual orientation				
Heterosexual	Ref.	Ref.	Ref.	Ref.
Gay, lesbian, bisexual, or not sure	0.9	[0.8, 1.1]	1.0	[0.8, 1.2]
Aboriginal or Torres Strait Islander				
No	Ref.	Ref.	Ref.	Ref.
Yes	0.7	[0.5, 0.9]	0.9	[0.6, 1.2]
Religious affiliation				
None	Ref.	Ref.	Ref.	Ref.
Catholic	1.0	[0.8, 1.2]	1.1	[0.9, 1.3]
Other Christian	1.1	[0.9, 1.4]	1.1	[0.9, 1.4]
Other	1.3	[0.8, 1.9]	1.3	[0.8, 2.0]
Remoteness				
Major city of Australia	Ref.	Ref.	Ref.	Ref.
Inner regional Australia	0.9	[0.7, 1.1]	0.9	[0.8, 1.1]
Very remote, remote, or outer regional Australia	0.8	[0.6, 1.1]	0.9	[0.7, 1.2]
STI knowledge scale score	1.0	[1.0, 1.0]	1.0	[1.0, 1.00]

Multivariable logistic regression controlled for the effects of age, sex, sexual orientation, religious affiliation, remoteness and knowledge of sexually transmitted infections. Bold numbers indicate statistical significance at the $P = 0.05$ level.

aligned with many previous studies using the TPB framework, which enables comparisons to be made more readily. A macro-level approach to measuring collective norms would also have been informative but was not used in this study. Another important limitation was that the interpretations of the analysis used the TPB framework, but the survey did not include all relevant variables, as it was a secondary analysis of existing data collected to inform public health education, programs, and policy in Australia.

One important strength of this study was its use of a minimum quota sampling technique based on year in school, gender and school type and secondly, state/territory.²² This

study enjoyed a large sample size, which exceeded the sample size goals, including oversampling Aboriginal and Torres Strait Islander youth and recruiting a substantial minority of respondents who identified as lesbian, gay or bisexual. Thus, a major strength of the study overall is its similarity to the overall population, which enables meaningful inferences to be made from the sample.

This study found that perceptions about how many peers use condoms predicted condom use during last sex among a large, national sample of 14- to 18-year-olds in Australia. However, perceptions of whether boys, girls, or both boys and girls mainly suggest condom use did not predict

condom use during last sex. Future research could build on these findings by including additional variables relevant to the TPB, addressing social power, and considering dyadic analyses. Health educators and health service providers may emphasise that young people frequently choose to use condoms.

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Data availability. The data that support this study cannot be publicly shared due to ethical or privacy reasons. Requests to access the data should be directed to Dr. Christopher Fisher (c.fisher2@latrobe.edu.au).

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