

Sexual risk and testing for sexually transmissible infections in Aboriginal and Torres Strait Islander peoples and non-Indigenous young South Australians: results of an online survey

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ABSTRACT

Background. Disproportionate rates of sexually transmissible infections (STIs) among Aboriginal and Torres Strait Islander young people are often attributed to risk-taking behaviours, but research rarely conducts direct comparison with their non-Indigenous peers to address this negative discourse.

Methods. ‘Let’s Talk About It 2019’ was a cross-sectional online survey of South Australians (16–29 years). It prioritised recruitment of Aboriginal and Torres Strait Islander respondents to compare behaviours with non-Indigenous peers using multivariable Poisson regression models.

Results. Aboriginal and Torres Strait Islander ($n = 231$) and non-Indigenous ($n = 2062$) respondents reported similar condom use (40% vs 43%, $P = 0.477$) and sexual debut median ages (16 years vs 17 years). Higher proportions of Aboriginal and/or Torres Strait Islander respondents reported a recent health check (48% vs 38%, $P = 0.002$), STIs (60% vs 49%, $P < 0.001$) and HIV (37% vs 28%, $P = 0.006$) testing, STI diagnosis (29% vs 21%, $P = 0.042$), and intoxication during last sex (30% vs 18%, $P < 0.001$).

Conclusions. Behaviours associated with STI transmission were mostly similar among Aboriginal and Torres Strait Islander and non-Indigenous respondents. Higher STI/HIV testing among Aboriginal and Torres Strait Islander respondents suggests effectiveness of targeted programs. Interventions targeting substance use and condom use among all young people are needed. Future interventions need to focus beyond behaviours and explore social determinants of health and sexual networks as contributors to disproportionate STI rates.

Keywords: Aboriginal and Torres Strait Islander, Australasia, Indigenous, public health, sexual behaviours, STIs, young people, youth.

Introduction

Sexually transmissible infections (STIs) are easy to diagnose and treat but can lead to serious sexual and reproductive health consequences if left untreated.^{1–3} It is critical we understand the drivers of STI transmission among priority populations so appropriate and culturally safe public health interventions are in place to address and respond to their diverse needs and practices. Notification rates of STIs are increasing among young Australians.⁴ In South Australia (SA), notifications for all STIs increased by 11% from 2018 ($n = 8605$) to 2019 ($n = 9516$).⁵ In 2019, young people aged 15–29 years accounted for a majority (63%) of the new STI notifications in SA, attributable to their being responsible for a high proportion (75%) of chlamydia diagnosis rates.⁵ As such young people are considered a priority population for STI intervention. Among Aboriginal and Torres Strait Islander peoples living in SA, the relative risk of diagnoses of chlamydia, gonorrhoea and infectious syphilis was 3-, 10-, and 10-times higher, respectively, than non-Indigenous people in 2019.⁵ Additionally, rates of STIs among Aboriginal and Torres Strait Islander peoples in regional and remote areas of Australia have been consistently high for over two decades.⁴ Given the disproportionate rates of STIs, it is appropriate that Aboriginal and Torres Strait Islander peoples are considered a priority population in National and South Australian STI and blood borne virus (BBV) strategies.^{6–8}

Cross-sectional surveys are often used to collect evidence for these public health interventions and strategies; however, previous sexual health surveys of young Australians have not included adequate representation of Aboriginal and Torres Strait Islander young people to provide results by Indigenous status.^{9–13} This has precluded comparison between the two populations^{14,15} to identify variations in STI risks and drivers that can help guide development and implementation of interventions targeted to the nuanced needs of the different groups of young people. Strategies to reduce STI and BBV rates among Aboriginal and/or Torres Strait Islander young people and non-Indigenous young people alike have historically prioritised education based behavioural change.^{6,7} While strategies also address the broader context of STI and BBV prevention, the prevalence of the education based behaviour change approaches in public facing campaigns may have inadvertently fostered the assumption that the disproportionate rates of STIs among Aboriginal and/or Torres Strait Islander young people are attributable to greater engagement in behaviours linked to transmission risk. Understanding of the similarities and disparities in risk and protective behaviours across these two groups may assist in dispelling the ongoing negative discourse around the sexual health of Aboriginal and Torres Strait Islander young people and generate greater understanding of factors influencing these disproportionate notification rates.

‘Let’s Talk About It 2019’ was an online survey of the sexual health, knowledge, and behaviour of young South Australians that boosted recruitment of Aboriginal and Torres Strait Islander participants through targeted online advertising. The aim of this study was to compare survey responses linked to risk and prevention of STIs in Aboriginal and Torres Strait Islander and non-Indigenous young people to better understand sexual health needs of different population groups and address negative discourse which contributes to shame and stigma.

Materials and methods

Methods of the ‘Let’s Talk About It 2019’ survey have been described elsewhere.¹⁶ Briefly, South Australians aged 16–29 years were recruited using targeted paid posts on social media over a 6-week period in 2019. Advertising was specifically targeted to Aboriginal and Torres Strait Islander young people to maximise the chances of sufficient Aboriginal and/or Torres Strait Islander respondents for the exploration of group differences. The questionnaire collected data on respondents’: demographics; knowledge of STIs; sexual behaviours; alcohol and drug use; and health service access, including testing and diagnosis of STIs and BBVs. Prior to conducting the study, Aboriginal and Torres Strait Islander and non-Indigenous young people were consulted to provide feedback on the questionnaire and marketing of

the survey. The study was led by a leading Aboriginal principal investigator and conducted by Aboriginal and non-Indigenous researchers. Analysis and interpretation were also led by an Aboriginal researcher. Ethics approval for the study was received from the Aboriginal Human Research Ethics Committees (South Australia) (04-18-797), the Australian National University Human Research Ethics Committee (2019/311), Flinders University Social and Behavioural Research Ethics Committee (OH-00202), and University of Queensland Human Research Ethics Committee (2023/HE001751). The study aligned with the ‘CONSIDER statement for health research involving Indigenous peoples’.¹⁷

Statistical analysis

We examined and compared demographic characteristics, behaviours, sexual activities (linked to STI and HIV risk and prevention), and health service engagement (including STI and HIV testing) among Aboriginal and Torres Strait Islander and non-Indigenous young people. Missing data rates ranged from 0% to 9% with the highest rates of non-responding observed on the sexual activity (oral, anal, or vaginal sex) items (Supplementary material Tables S1–S3). For respondents who indicated that they were sexually active, the highest rate of missing responses was observed on the number of sexual partners item ($n = 109$, 6%). Missing data rates did not differ by Indigenous status. We used descriptive analysis including frequencies and percentages for categorical variables, and median and interquartile range (IQR) for continuous, not normally distributed measures (age of respondent, age of sexual debut). Chi-squared tests were used to assess differences in distribution of socio-demographic variables between Aboriginal and Torres Strait Islander and non-Indigenous young people (Table 1). The Wilcoxon test was used to assess difference in median age across the two groups. Counts less than five are reported as <5 and counts less than 10 are reported without a percentage. A categorical variable was created to group participants according to number of illicit drugs used (0, 1 and 2 or more).

Multivariable robust Poisson regression models for dichotomous outcomes¹⁸ and quantile regressions for continuous outcomes were used to estimate the association of Indigenous status with sexual activities and health service engagement adjusting for the confounding effects of age, gender, and remoteness to allow identification of differences attributed to Indigenous status that were explained by these key sociodemographic variables. Tests with an associated P -value <0.05 were considered indicative of statistically significant associations; however difference effect sizes were also considered for interpretation of the implications of results. Percentages, chi-squared tests, and Poisson regression analyses of count data all excluded missing responses. Analyses were conducted using STATA (17.0; Stata Corp, USA).¹⁹

Table 1. Survey participant characteristics by Indigenous status, South Australia ('Let's Talk About It 2019').

	Aboriginal and/or Torres Strait Islander <i>n</i> (%)	Non-Indigenous <i>n</i> (%)	<i>P</i> -value
Respondents (<i>n</i>)	231 (10%)	2062 (90%)	
Gender			
Female	168 (73%)	1019 (49%)	
Male	55 (24%)	980 (48%)	
Trans female	<5	6	
Trans male	<5	24 (1%)	
Other	<5	27 (1%)	<0.001
Age years, median [IQR]	21 [18–26]	20 [17–24]	<0.001
Age group			
16–19 years	76 (33%)	924 (45%)	
20–24 years	85 (37%)	716 (35%)	
25–29 years	66 (29%)	404 (20%)	<0.001
Remoteness			
Urban	172 (77%)	1631 (81%)	
Regional	38 (17%)	332 (17%)	
Remote	12 (5%)	41 (2%)	0.007
Sexuality			
Straight/heterosexual	156 (68%)	1484 (72%)	
Gay	7	84 (4%)	
Lesbian	<5	37 (2%)	
Bisexual	49 (21%)	342 (17%)	
Unsure	9	71 (3%)	
Other	5	38 (2%)	0.508
Marital status			
Married/de facto	64 (28%)	448 (22%)	
Not married	164 (72%)	1599 (78%)	0.034
Currently studying			
Yes	115 (50%)	1299 (63%)	
No	114 (50%)	756 (37%)	<0.001
Highest level of education completed			
Primary school	<5	33 (2%)	
Before Year 10	12 (5%)	17 (1%)	
Completed Year 10	60 (26%)	577 (28%)	
Completed Year 12	82 (36%)	771 (38%)	
TAFE ^A /college	52 (23%)	293 (14%)	
University undergraduate	16 (7%)	294 (14%)	
University postgraduate	<5	63 (3%)	<0.001
Employed			
Yes, casual/part-time/full-time	127 (55%)	1543(75%)	
No	102 (45%)	514 (25%)	<0.001

Counts less than five are presented as <5, and counts less than 10 are reported without a percentage; percentages have been rounded up to the nearest whole number and do not include missing responses to individual items, columns may not equal 100%. *P*-values are based on chi-squared or Wilcoxon tests. Bolded *P*-values indicate significant difference.

^ATAFE, Technical and Further Education (vocational education provider).

Results

Of the 2380 respondents who completed the survey, 4% ($n = 87$) did not disclose their Indigenous status and have been excluded from further analysis. Of those 2293 participants included in the analysis, 10% identified as Aboriginal and/or Torres Strait Islander peoples, 90% as non-Indigenous. **Table 1** shows the socio-demographics for Aboriginal and/or Torres Strait Islander respondents and non-Indigenous respondents. Aboriginal and Torres Strait Islander respondents were older than non-Indigenous respondents. Relative to non-Indigenous respondents, a higher percentage of Aboriginal and/or Torres Strait Islander respondents were female, lived in remote locations, identified as bisexual, and were married or in a de facto relationship. A lower percentage of Aboriginal and/or Torres Strait Islander respondents were male, currently studying, or employed. Reported highest level of education completed differed by Indigenous status.

STI and HIV testing and health services access

After adjusting for gender, age, and remoteness among the 1804 sexually active respondents, a higher percentage of Aboriginal and/or Torres Strait Islander respondents reported having had a full health check-up in the past 12 months. Among respondents who had a health check, a higher proportion of Aboriginal and/or Torres Strait Islander respondents were offered an STI test during their health check (**Table 2**) and a higher proportion of Aboriginal and/or Torres Strait Islander respondents reported ever having had an STI test and/or an HIV test. Results for diagnosis of HIV are not reported here because $n < 5$. Among those who reported having an STI test, a higher proportion of Aboriginal and/or Torres Strait Islander participants had tested positive and received a diagnosis. Chlamydia, genital herpes, and gonorrhoea were the three most diagnosed STIs for both groups. Diagnoses rates for chlamydia and gonorrhoea reflected overall STI diagnosis patterns with a higher proportion of Aboriginal and/or Torres Strait Islander respondents compared to non-Indigenous respondents testing positive for chlamydia (23% vs 15%, $P = 0.045$) and gonorrhoea (5% vs 2%, $P = 0.039$), respectively. There was no difference ($P = 0.950$) in genital herpes diagnosis rates for Aboriginal and/or Torres Strait Islander respondents (4%) and non-Indigenous (4%) respondents.

For health checks, STI testing and HIV testing, most Aboriginal and/or Torres Strait Islander peoples attended a medical clinic/general practice (GP) or an Aboriginal Medical Service. Non-Indigenous people almost exclusively attended a medical clinic/GP for health checks and were most likely to report attending a medical clinic/GP or a family planning/sexual health clinic for STI and HIV testing (**Table 2**). Of note, respondents' location impacted their usage of Aboriginal Medical Services with a higher proportion of Aboriginal and/or Torres Strait Islander respondents who lived remote,

compared to urban or regional, using Aboriginal Medical Services.

Sexual activity and factors influencing risk of STIs and HIV

After adjusting for age, gender, and remoteness, analyses showed similar proportions of non-Indigenous and Aboriginal and/or Torres Strait Islander respondents reported being sexually active (oral, vaginal, or anal sex) (**Table 3**). Condom use during last sexual intercourse was relatively low for Aboriginal and/or Torres Strait Islander respondents and non-Indigenous respondents alike. For most respondents their last sexual encounter was wanted, and this did not differ based on Indigenous status. The number of different drugs used, and the number of sexual partners respondents reported for the past 12 months were also similar. Finally, among those who reported a regular sexual partner, similar proportions of Aboriginal and/or Torres Strait Islander respondents and non-Indigenous respondents reported mutual partner monogamy, indicating that they and their partner only had sex with each other (**Table 3**). Although statistically significant in the adjusted analyses, differences between Aboriginal and/or Torres Strait Islander and non-Indigenous respondent's median age of first oral and vaginal sex were negligible (both 16 years vs 16 years).

Despite the similarities, there were some key differences between Aboriginal and/or Torres Strait Islander respondents and non-Indigenous respondents. Relative to non-Indigenous respondents, higher proportions of Aboriginal and/or Torres Strait Islander respondents reported consumption of more than five drinks in a typical session of drinking and being drunk or high during their last sexual encounter. Observed differences in reported relationship with last sexual partner were primarily driven by a higher percentage of Aboriginal and/or Torres Strait Islander respondents reporting that their last sexual partner was someone they knew but not their current partner. Excluding rates of being sexually active, significant differences between the two populations remained in the adjusted analysis, indicating that the association of these factors with Indigenous status was independent of age, gender, and remoteness.

Discussion

Our analysis described young South Australians' health care and behaviours linked to sexual health. In this study we deliberately over-recruited Aboriginal and Torres Strait Islander young people to allow direct comparison of sexual health behaviours among Aboriginal and/or Torres Strait Islander respondents and non-Indigenous South Australians. This comparison was done with the aim of identifying similarities and differences that could be used to inform sexual health interventions and promote healthier discourse

Table 2. STI and HIV testing and access to health care by Indigenous status, South Australia ('Let's Talk About It 2019').

	Unadjusted			Adjusted ^A		
	Aboriginal and/or Torres Strait Islander	Non-Indigenous	P-value	Aboriginal and/or Torres Strait Islander	Non-Indigenous	P-value
	n (%)	n (%)		n (%)	n (%)	
Had a health check in the past 12 months (N)	182	1556				
Yes	95 (52%)	605 (39%)	0.001	48%	39%	0.010
Offered a STI test (N)	95	605				
Yes	64 (67%)	267(44%)	<0.001	63%	45%	<0.001
Ever tested for an STI (N)	182	1564				
Yes	128 (70%)	746 (48%)	<0.001	60%	49%	<0.001
Ever tested for HIV (N)	182	1564				
Yes	77 (42%)	432 (28%)	<0.001	37%	28%	0.006
Tested positive for any STI (N)	128	746				
Yes	38 (30%)	158 (21%)	0.034	29%	21%	0.042
Location of health check (N)	95	605				
Medical clinic/GP	64 (67%)	592 (98%)		70%	98%	
Aboriginal Medical Service	31 (33%)	<5		28%	<1%	
Other	<5	12 (2%)	<0.001	2%	1%	<0.001
Location of STI test (N)	128	746				
Medical clinic	77 (60%)	534 (72%)		60%	72%	
Aboriginal Medical Service	28 (22%)	<5		20%	<1%	
Family planning/sexual health clinic	21 (16%)	199 (27%)		18%	26%	
Other	<5	11 (1%)	<0.001	2%	2%	<0.001
Location of HIV check (N)	77	432				
Medical clinic/GP	44 (57%)	291 (67%)		58%	68%	
Aboriginal Medical Service	19 (25%)	<5		23%	<1%	
Family planning/sexual health clinic	10 (13%)	124 (29%)		14%	28%	
Hospital	<5	7		5%	2%	
Other	<5	9	<0.001	<1%	2%	<0.001

Counts less than five are presented as <5, and counts less than 10 are reported without a percentage; percentages have been rounded up to the nearest whole number, variable column totals may not equal 100%. Bolded *P*-values indicate significant difference.

N, total number of respondents for each question and vary depending on inclusion criteria and missing responses.

^ACovariates were respondent's age (continuous), gender (categorical), and remoteness (categorical).

about the sexual health of Aboriginal and/or Torres Strait Islander young people. No previous sexual health survey in Australia has done this.

Similarities in behaviours associated with STI transmission among Aboriginal and/or Torres Strait Islander respondents and non-Indigenous respondents were found, however differences in patterns of health access and some STI risk behaviours were identified. Of note, Aboriginal and/or Torres Strait Islander respondents were more likely to have had a health check in the past 12 months, been offered an STI test and been tested for STIs and/or HIV than their non-Indigenous peers. For the majority of both Aboriginal and/or Torres Strait Islander respondents and non-Indigenous respondents, health checks and STI and HIV testing were provided in a GP. Aboriginal Medical Services were the second most common service

provider for Aboriginal and/or Torres Strait Islander respondents. In previous surveys, most Aboriginal and Torres Strait Islander young people reported getting their STI testing at Aboriginal Medical Services.^{20,21} Our findings may reflect a higher proportion of urban-dwelling Aboriginal and Torres Strait Islander participants than previous studies, however, this disparity highlights the importance of supporting culturally appropriate and responsive delivery of care for Aboriginal and/or Torres Strait Islander young people seeking STI, HIV and other BBV testing in all health care settings not just Aboriginal Medical Services.^{22,23}

Across all service provider types, relative to non-Indigenous respondents, the greater engagement of Aboriginal and/or Torres Strait Islander respondents with sexual health care services may reflect the positive influence of various

Table 3. Sexual activity and factors influencing risk of STIs and HIV, by Indigenous status, South Australia ('Let's Talk About It 2019').

	Unadjusted			Adjusted ^A		
	Aboriginal and/or Torres Strait Islander	Non-Indigenous	P-value	Aboriginal and/or Torres Strait Islander	Non-Indigenous	P-value
	n (%)	n (%)		n (%)	n (%)	
Sexually active (oral, vaginal, or anal) (N)	203	1879				
Yes	186 (92%)	1618 (86%)	0.028	88%	87%	0.419
Ever had sexual intercourse (vaginal or anal) (N)	203	1876				
Yes	180 (89%)	1516 (81%)	0.006	85%	82%	0.173
Age at first vaginal sex [median, IQR] ^B	16 (15–17)	17 (15–18)	<0.001	16 (15–17)	16 (15–18)	<0.001
Age at first anal sex [median, IQR] ^B	18 (17–20)	19 (17–21)	0.073	18 (17–21)	19 (17–21)	0.305
Ever had oral sex (N)	202	1880				
Yes (n, %)	174 (86%)	1591 (85%)	0.570	83%	85%	0.328
Age at first oral sex [median, IQR] ^B	16 (15–17)	16 (15–17)	0.035	16 (15–17)	16 (15–18)	0.048
Regular sexual partner (N)	186	1614				
Yes	120 (65%)	1156 (71%)	0.043	61%	72%	0.003
Only have sex with your partner (N)	120	1154				
Yes	104 (87%)	1017 (88%)	0.639	86%	88%	0.430
Partner only has sex with you (N)	120	1154				
Yes	104 (87%)	1039 (90%)	0.248	86%	90%	0.198
Number of sexual partners in the past year (N)	180	1515				
Three or more people	55 (31%)	392 (26%)	0.178	32%	26%	0.092
Relationship with last sexual partner (N)	186	1606				
Current partner	108 (58%)	1036 (64%)		54%	65%	
Just met for the first time	12 (6%)	162 (10%)		8%	10%	
Known for a while, not current partner	66 (35%)	408 (25%)	0.008	38%	25%	<0.001
Condom used at last sexual encounter	180	1516				
Yes	65 (36%)	654 (43%)	0.071	40%	43%	0.477
Last sex wanted? (N)	185	1596				
Yes	174 (94%)	1521 (95%)	0.454	95%	95%	0.811
Consumed alcohol in past 12 months	183	1590				
Yes	166 (91%)	1480 (93%)	0.239	90%	93%	0.217
How many alcohol drinks consumed per session	166	1478				
≥5	97 (58%)	574 (39%)	<0.001	62%	39%	<0.001
'Drunk' or 'high' during their last sexual encounter (N)	186	1600				
Yes	52 (28%)	283 (18%)	0.001	30%	18%	<0.001
Drug score (N)	186	1618				
0	81 (44%)	838 (52%)		43%	52%	
1	56 (30%)	400 (25%)		30%	25%	
2 or more	49 (26%)	380 (23%)	0.095	28%	23%	0.063

Percentages have been rounded up to the nearest whole number, variables column totals may not equal 100%. Bolded P-values indicate significant difference. N, the total number of respondents for each question and vary depending on inclusion criteria and missing responses.

^ACovariates were respondent's age (continuous), gender (categorical), and remoteness (categorical).

^BMedian and mean are similar, multivariable adjustment of mean by age, sex, and remoteness also does not change the results.

initiatives to improve sexual health. These include ongoing focused sexual health programs and health promotion campaigns (which target both clinicians and communities to

encourage STI and HIV testing, particularly in the age group 15–29 years) such as Young Deadly Free²⁴ and the Aboriginal and Torres Strait Islander Peoples Health Assessment

(a preventative health assessment under Medicare, Australia's universal health insurance scheme that is inclusive of STI/HIV testing).^{22,25} However, our findings highlight the need for strategies designed to increase the proportion of all young people living in Australia being routinely offered STI and HIV testing as part of a health check or encouraging opportunistic screening.^{22,25} These strategies should also include mechanisms for improving timely treatment and follow up protocols and ongoing clinician education and support to ensure access to culturally safe and responsive sexual health care in all primary healthcare settings offering sexual health care.⁶

Reflective of the SA and national notification data,^{4,5} Aboriginal and/or Torres Strait Islander respondents were more likely to have received an STI diagnosis when tested despite findings from this survey suggesting largely similar age of sexual debut and patterns of sexual behaviours for Aboriginal and/or Torres Strait Islander respondents and non-Indigenous respondents. Consistent with similar studies of young Australians' sexual health behaviours,^{20,26,27} condom use among respondents was universally low, suggesting the increased risk of acquiring an STI among our Aboriginal and/or Torres Strait Islander respondents is not solely linked to low condom use and other risk-taking behaviours.

A higher proportion of Aboriginal and/or Torres Strait Islander respondents than non-Indigenous respondents reported consuming more than the daily recommended limit (five or more alcoholic drinks)²⁸ in a typical drinking session, and being drunk or high during their last sexual encounter. This reflects established literature indicating that although Aboriginal and Torres Strait Islander populations are more likely than non-Indigenous populations to abstain from alcohol consumption, they also have higher rates of harmful drinking behaviours such as binge drinking.²⁹ Binge drinking has been linked to an increased likelihood of having sex while intoxicated,³⁰ which in turn is linked to sexual risk behaviours such as failure to use a condom.^{31,32} There is a need for a broader approach to sexual health that incorporates strategies to address alcohol and other drug use and better coordination of services for STIs and substance use. Although intoxication during sex and alcohol consumption may play a role in the higher rates of STIs among Aboriginal and/or Torres Strait Islander respondents, the largely similar behaviours of Aboriginal and/or Torres Strait Islander respondents and non-Indigenous respondents again illustrate a need to look beyond the widely accepted behavioural explanations of STI risk.

The ongoing higher STI prevalence rates that exist within the sexual networks of Aboriginal and/or Torres Strait Islander young people, particularly those who live in remote locations^{4,33} may contribute to the disparity in STI diagnosis rates, even among those whose behaviour should make them low risk. Our findings support the need for better understanding of sexual networks and their influence on risk and STI acquisition among Aboriginal and Torres Strait Islander populations. Interventions also need to consider how the

impact of sexual networks intersects with social determinants of health such as access to prompt, stigma free, affordable, high quality, and confidential health care, which may impact people's ability to receive testing and treatment in a way that suits their needs. The higher health check and STI testing rates reported by Aboriginal and/or Torres Strait Islander young people in this study show the promise of existing interventions; however, in the absence of corresponding discrepancies in behavioural risk, ongoing discrepancies in STI diagnosis rates highlight the need for further research and investment to address social and structural barriers to health equity for Aboriginal and/or Torres Strait Islander young people.

Limitations of the study are apparent in the study design as cross-sectional surveys have inherent biases and may not be representative. However, they also make it possible to collect data in a relatively short period, providing a snapshot overview of current trends of sexual health behaviours in the population and with repeated use, help with identifying trends over time or anomalies in STI diagnoses data in the future. Efforts made to recruit a representative sample were generally successful.¹⁶ However, some sampling biases still occurred. We had an under-representation of Aboriginal and Torres Strait Islander men, as compared to women, despite targeted efforts to recruit from this population. Although the gender gap was more pronounced in this study, men were also under-represented in the GOANNA surveys, suggesting a persistent barrier to recruitment of young Aboriginal and Torres Strait Islander men.²⁰ This limits the generalisability of the findings to the broader population of Aboriginal and Torres Strait Islander men. However, it should be acknowledged that apart from the GOANNA survey, 'Let's Talk About It 2019' was able to recruit more Aboriginal and Torres Strait Islander males than any previously conducted sexual health and behaviours survey. Beyond marketing, possible explanations for the under-representation of Aboriginal and Torres Strait Islander men include overall willingness to participate in research, or willingness to participate in a sexual health and behaviours survey specifically. The finding that among respondents, the rates of missing responses were highest on items asking about personal sexual behaviours would lend some credence to the possibility that non-responding reflects disinterest or discomfort with the topic of sexual health and behaviours. However, it is not possible to make inferences regarding how non-responders may compare behaviourally to those who did respond to the survey. The under-representation of Aboriginal and Torres Strait Islander men in the survey may reflect a need to prioritise destigmatising sexual health among this population in particular.

The study also included an over-representation of urban respondents for both Aboriginal and Torres Strait Islander and non-Indigenous young people. Sexual activity and factors influencing risk of STIs and HIV and testing may be different for regional/remote populations where we know STI rates are particularly high among Aboriginal and Torres

Strait Islander peoples and barriers to accessing resources to support safer sex practises are likely to be more pronounced.^{4,34,35} To combat these representativeness concerns, multivariable models were used in our analyses which mitigated any confounding bias due to differences in age, gender, and remoteness, in assessing differences between the two populations. It is also recommended that further research should be conducted with regional populations as different strategies may be required for young people in rural and remote settings, particularly Aboriginal and Torres Strait Islander young people.

Despite these limitations, as the first sexual health survey to include both Aboriginal and Torres Strait Islander peoples and non-Indigenous people in sample sizes allowing in-depth analysis and comparisons, this study makes a valuable contribution to knowledge of sexual activity and health service engagement among young Australians. Pivotaly, these data highlight some of the complexity associated with addressing STIs and HIV control among both groups young people. Outcomes of this survey can be used in conjunction with findings from the GOANNA survey which exclusively surveyed Aboriginal and Torres Strait Islander people^{36,37} to highlight the sexual health needs of Aboriginal and Torres Strait Islander young people in a way that addresses the negative discourse commonly presented.

Conclusion

‘Let’s Talk About It 2019’ was the first sexual health survey to intentionally include both Aboriginal and Torres Strait Islander peoples and non-Indigenous young people with the aim of making group comparisons. It offers important insight to inform future sexual health interventions. STI testing rates among Aboriginal and/or Torres Strait Islander young people were higher, suggesting that insights from Aboriginal and Torres Strait Islander targeted campaigns may be of value to similarly increase testing rates among non-Indigenous young people. Substantial proportions of young people reported condomless sex, illicit drug use or alcohol consumption that exceeds recommended amounts, and being drunk or high during their last sexual encounter. Strategies aimed at preventing STI acquisition should prioritise behavioural interventions to increase condom use and reduce drug and alcohol use, in coordination with the provision of safe, accessible sexual health and substance use care for Aboriginal and Torres Strait Islander and non-Indigenous sexually active young people. However, STI and BBV interventions and supporting policies and strategies should go beyond behavioural targets and service provision to focus on the social determinants of health and the contexts in which behaviours occur, including sexual networks.

Supplementary material

Supplementary material is available [online](#).

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