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SHORT REPORT

A cross-sectional study of HIV and STIs among male sex workers attending Australian sexual health clinics

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ABSTRACT

Objectives Although sex work is frequently characterised as a practice with high risk for HIV and other STIs, little is known about the epidemiology of these infections among men who sell sex in Australia. This study reports the prevalence of chlamydia, gonorrhoea, infectious syphilis and HIV among men who have sex with men attending Australian publicly funded sexual health clinics and compares prevalence between sex workers and non-sex workers.

Methods From 2011 to 2014, de-identified patient data were extracted from 40 sexual health clinics in four Australian jurisdictions. The χ^2 and multiple logistic regression analyses were used to compare the prevalence of HIV and STIs among men attending these services who did and did not report sex work in the 12 months prior to consultation. All analyses were restricted to men who reported sex with other men and to each patient's first consultation at participating services.

Results In total, 27 469 gay, bisexual and other men who have sex with men attended participating clinics; 443 (1.6%) reported sex work. At first consultation, 18% of sex workers and 17% of non-sex workers were diagnosed with HIV or an STI ($p=0.4$): 13% of sex workers were newly diagnosed with chlamydia, 15% with gonorrhoea, 0.5% with infectious syphilis and 0.6% with HIV. After controlling for demographic and behavioural factors, sex work was not independently associated with an HIV or STI diagnosis.

Conclusions These findings provide estimates of HIV and STI prevalence among men who sell sex in Australia and they challenge assumptions of sex work as inherently risky to the sexual health of gay bisexual and other men who have sex with men.

reported 4% chlamydia positivity, 5% gonorrhoea, 2% syphilis and 0.9% HIV.⁶

The challenge with existing research on HIV and STIs among male sex workers is that it has been limited to individual clinics, reliant on self-reported data, or is too old to represent current epidemiology. Furthermore, Australia's growing sexual health surveillance capacity provides an opportunity for more comprehensive prevalence markers than previously possible. This study used routinely collected surveillance data to update epidemiological estimates of HIV and STIs among male sex workers and explore the association of sex work with infection among gay, bisexual men and other men who have sex with men.

METHODS

As part of a national sexual health surveillance network known as the *Australian Collaboration for Coordinated Surveillance of STIs and Bloodborne Viruses* ('ACCESS'), de-identified patient data were extracted from 40 sexual health clinics across Australia for 2011–2014. Analyses were restricted to men aged 16 years and older who reported same-sex partners in the 12 months prior to consultation. Male patients reporting female partners only were excluded from the analysis given differing epidemiological and risk profiles. Men were classified as a 'sex worker' if they reported paid sex in 12 months prior to consultation and as a 'non-sex worker' if there was no record of paid sex. Information on sex work and other potential risk practices was collected as part of patient consultations, although the manner and completeness of collection varied between clinics. In some clinics, clinicians collected behavioural details while others used electronic or paper surveys.

Given high testing rates in our sample, positivity was used as a proximal marker for prevalence. To account for the effects of repeat testing, analyses were restricted to each man's first clinical visit, determined using a unique identifier within each service. In the event that patients used aliases to test anonymously (a potential risk for sex workers⁷), identifying first visit was possible so long as the alias was consistent at subsequent visits. Positivity was calculated as the number of diagnoses divided by the number tested, including among asymptomatic patients only. For chlamydia and gonorrhoea, diagnoses were determined by a

INTRODUCTION

Much historical and contemporary research has conceptualised the sale of sex by men as 'high risk' for HIV and other STIs.¹ Men who sell sex, however, are not a neatly homogenous population with global HIV prevalence estimates ranging from 0% to 50% and 2% to 25% for chlamydia, <1% to 17% for gonorrhoea and 1% to 8% for infectious syphilis.² In Australia, male sex worker surveys have reported HIV prevalence between 7% and 14%,^{3 4} while an older sexual health clinic-based study reported 2% chlamydia positivity, 5% gonorrhoea and 3% syphilis.⁵ More recently, a Melbourne-based study of male sex workers attending one sexual health clinic

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Epidemiology

positive test result (any anatomical site), while infectious syphilis relied on a recorded diagnosis for primary, secondary or early latent syphilis. HIV status was determined using the recorded date of diagnosis or, for new infections, serology confirmed by western blot testing.

The χ^2 analyses compared demographics and prevalence and assessed annual trends in patient demographics and prevalence. A multiple logistic regression (accounting for clinic clustering) was used to assess factors associated with an HIV/STI diagnosis, restricted to patients who had at least one HIV or STI test.

Factors considered in the analysis were: sex worker status, age, indigenous status, HIV status, gender of non-paying sexual partners (males vs males/females), Australian-born versus overseas-born, urban versus rural/regional residence, home neighbourhood with a high proportion ($\geq 10\%$) of same-sex partnered households⁸ and, in the previous 12 months, more than 20 non-paying sexual partners and the use of injecting drugs. Although clinics collected information on condom use, this variable was not well completed for our sample and, therefore, excluded.

Table 1 HIV prevalence, HIV/STI diagnoses and associated demographic and behavioural factors among gay, bisexual and other men who have sex with men attending Australian sexual health clinics, 2011–2014

	n (%)				
	Chlamydia	Gonorrhoea	Infectious syphilis	HIV (new)	HIV (existing)
All gay and bisexual male patients					
Sex workers	54 (13%)	62 (15%)	2 (0.5%)	2 (0.6%)	27 (6%)
(95% CI)	(10.1 to 17.0)	(12.0 to 19.2)	(0.1 to 2.0)	(0.1 to 2.5)	(4.1 to 8.7)
Non-sex workers	2973 (12%)	3142 (13%)	197 (0.9%)	51 (0.2%)	1441 (5%)
(95% CI)	(11.9 to 12.8)	(12.7 to 13.6)	(0.7 to 1.0)	(0.2 to 0.4)	(5.1 to 5.6)
Asymptomatic gay and bisexual male patients					
Sex workers	28 (9%)	33 (11%)	0 (0%)	–	–
(95% CI)	(6.1 to 12.9)	(7.6 to 14.9)	(0.0 to 1.2)	–	–
Non-sex workers	1843 (10%)	1828 (10%)	67 (0.4%)	–	–
(95% CI)	(9.8 to 10.7)	(9.8 to 10.8)	(0.3 to 0.5)	–	–
	Any STI/HIV*	Univariate OR	Multivariate Adjusted OR	95% CI	p Values
Gay and bisexual male patients	4456 (17%)				
Sex work (previous 12 months)					
No	4377 (17%)	–			
Yes	79 (18%)	1.1	1.1	0.9 to 1.4	0.4
Age					
≥ 29 years	1876 (15%)	–			
16–29 years	2580 (18%)	1.3	1.3	1.2 to 1.4	<0.001
Indigenous status					
Indigenous	71 (16%)	–			
Non-indigenous	4385 (17%)	1.1	0.9	0.7 to 1.2	0.6
Country of birth					
Overseas	2535 (17%)	–			
Australia	1845 (17%)	1.0	1.0	0.9 to 1.1	0.7
HIV status					
HIV negative	4204 (16%)	–			
HIV positive	252 (22%)	1.4	1.4	1.2 to 1.7	<0.001
Home neighbourhood					
Rural/regional	318 (14%)	–			
Urban	3855 (17%)	1.3	1.5	1.3 to 1.7	<0.001
Home neighbourhood†					
<10% same-sex households	3579 (17%)	–			
$\geq 10\%$ same-sex households	877 (17%)	1.0	1.5	1.3 to 1.7	<0.001
Sexual partner gender(s) (previous 12 months)					
Males only	535 (12%)	–			
Males and females	3921 (17%)	1.5	1.4	1.2 to 1.5	<0.001
Injecting drug use (previous 12 months)					
No	4389 (17%)	–			
Yes	67 (18%)	1.1	1.1	0.8 to 1.4	0.6
Non-paying sexual partners (previous 12 months)					
<20 partner(s)	2287 (15%)	–			
≥ 20 partners	2169 (19%)	1.3	1.4	1.3 to 1.5	<0.001

*Diagnosis at first consultation for chlamydia, gonorrhoea, infectious syphilis and/or, among HIV-negative patients, HIV.†By patient postcode per 2011 Australian Census estimates.⁸

Ethical review of ACCESS was provided by 10 Human Research Ethics Committees, including the lead committee at St Vincent's Hospital in Sydney (SVH 08/051).

RESULTS

Participants

From 2011 to 2014, 23 169 men reporting male partners only and 4301 reporting both male and female partners attended a clinic for an initial consultation; 327 (1.4%) and 116 (2.7%), respectively, reported recent sex work ($p < 0.001$). The median age of sex workers was 29 years (IQR: 24–38) and 28 years for non-sex workers (IQR: 24–34, $p = 1.0$). Among sex workers, 4% were identified as Aboriginal or Torres Strait Islander (compared with 2% of non-sex workers, $p < 0.001$), 55% were Australian-born (compared with 59%, $p = 0.09$), 93% lived in urban areas (compared with 90%, $p = 0.02$) and 28% lived in neighbourhoods with a high proportion of same-sex partnered households (compared with 21%, $p < 0.001$). Sex workers were more likely than non-sex workers to report recent injecting drug use (13% vs 3%, $p < 0.001$), and more than 20 non-paying sexual partners (54% vs 43%, $p < 0.001$).

HIV and STIs

At first consultation, 6% of sex workers and 5% of non-sex workers were known to be HIV positive ($p = 0.6$). Among other men, 88% of sex workers and 85% of non-sex workers were tested for HIV, with two infections detected among sex workers (0.6% positivity) and 51 infections (0.2%) among non-sex workers ($p = 0.2$).

Regarding chlamydia, 92% of sex workers and 89% of non-sex workers received a test at their first consultation, of which 12% and 13%, respectively, returned positive results ($p = 0.6$) and 11% and 10% respective positivity among asymptomatic men ($p = 0.2$). For gonorrhoea, 91% of sex workers and 89% of non-sex workers were tested at their first consultation, with respective positivity of 15% and 13% ($p = 0.8$), and 11% and 10% among asymptomatic men ($p = 0.8$). Most sex workers (86%) and non-sex workers (83%) were tested for syphilis at their first clinical consultation, with 0.5% and 0.9%, respectively, diagnosed with infectious syphilis ($p = 0.2$) and 0% and 0.4% among asymptomatic men ($p = 0.2$). No temporal trends were identified for these infections.

Factors associated with infection

Among all gay and bisexual men, 26 837 received an HIV/STI test at their first consultation: 4456 (17%) were diagnosed with an infection. Factors independently associated with an HIV/STI diagnosis were: being younger than 29 years, HIV positive, living in an urban neighbourhood, living in a neighbourhood with a high proportion of same-sex partnered households and having 20 or more recent non-paying sexual partners. Given the sizeable difference in reported injecting drug use between sex workers and non-sex workers, we also assessed the interaction of these variables in the regression model, but the effects were non-significant. [Table 1](#) provides outcome details of the prevalence and logistic regression analyses.

DISCUSSION

Regardless of sex worker status, the prevalence of HIV and STIs at first consultation was similar among gay, bisexual and other men who had sex with men testing at Australian sexual health clinics. This finding challenges broad assumptions of sex work as inherently risky to individual sexual health and highlights the

need for a more nuanced understanding of risk and infection among this population.

Our finding that sex work did not present an increased risk for an HIV or STI infection suggests a similar level of risk-taking among men regardless of sex work. As sex workers comprise only a fraction of all gay and bisexual men, prevalence among these men is likely dictated not by the circumstances of sex work but by community prevalence generally. This contention is supported by previous research, which found that condomless sex with clients was best-predicted by condomless sex with non-paying casual partners, with factors other than sex work driving risk practices.⁹ Condomless sex among male sex workers may be more about sexual adventurism or pleasure-seeking than about sex work itself.¹⁰ Nevertheless, while sex work may not relate directly to sexual risk that does not mean it is unrelated to factors that attract some men to risky practices, supported by our finding that male sex workers in our sample were three times as likely as non-sex workers to report injecting drug use. More research is required to explore these complex relationships.

While the prevalence of HIV and infectious syphilis among our sample was comparable to earlier Australian research,^{5 6} diagnoses of chlamydia and gonorrhoea were more common, likely reflecting the resurgence of these infections among gay men in Australia generally.¹¹ Interestingly, over a quarter of male sex workers in our sample reported male and female non-paying sexual partners, with those who did at higher risk of an HIV/STI diagnosis. Research exploring the behavioural characteristics of this subpopulation is warranted.

A key limitation of this analysis relates to self-reporting sex work at participating services. It is possible that some men who received compensation for sex did not view their behaviour as a form of sex work.³ It is also worth noting that our analysis was limited to what behavioural information was available in patient records, with condom use a notable exclusion. Ultimately, although sex work may not be a significant risk factor in the context of HIV and other STIs that does not mean that men who sell sex do not have unique health needs and risks. Further attention to the behavioural risks among male sex workers is warranted, including among those who may not identify as such and those who have sex with both men and women.

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STI

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