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Self-reported testing and treatment histories among older Australian men and women who may be at risk of a sexually transmissible infection

Wendy Heywood[A,G], Anthony Lyons[A], Bianca Fileborn[A], Victor Minichiello[A,B,C], Catherine Barrett[A], Graham Brown[A], Sharron Hinchliff[D], Sue Malta[E,F] and Pauline Crameri[A]

[A]Australian Research Centre in Sex, Health and Society; School of Psychology and Public Health; La Trobe University, 215 Franklin Street, Melbourne, Vic. 3000, Australia.

[B]School of Medicine and Public Health, University of Newcastle.

[C]School of Justice, Faculty of Law, Queensland University of Technology.

[D]School of Nursing and Midwifery, University of Sheffield, Barber House Annexe 3a Clarkehouse Road, Sheffield, S10 2LA, United Kingdom.

[E]National Ageing Research Institute, University of Melbourne, PO Box 2127, Royal Melbourne Hospital. Vic, 3050, Australia.

[F]Swinburne Institute of Social Research, Swinburne University of Technology, Hawthorn, Vic 3122, Australia.

[G]Corresponding author. Email: w.heywood@latrobe.edu.au

Background: Rates of sexually transmissible infections (STIs) are increasing among older adults in many countries. Little is known about the testing and treatment histories of these populations. Correlates of testing in the past 5 years among older adults who may be at risk of a STI were examined. **Methods:** A cross-sectional survey of 2137 Australians aged 60 years plus that involved questions on STIs and STI testing was conducted in 2015. To help inform potential education campaigns, analyses focused on those who may have been at risk of a STI (n = 805, 38%). **Results:** Less than one in three reported a STI test in the past 5 years (n = 241, 30%) while 6% (n = 51) reported a STI diagnosis. Those diagnosed typically received treatment from a family doctor or general practitioner. Among men, lower testing rates were associated with older age, heterosexual orientation, lower educational attainment, not using online dating and reporting one partner in the past 5 years. For women, lower rates of testing were found among those who did not use a condom at their most recent sexual encounter and those with one partner in the past 5 years. **Conclusions**: STI testing rates were low. This study indicates that consideration should be given to the way targeted education campaigns are formulated, such as emphasising the importance of STI testing to older people who are at risk, as well as encouraging healthcare professionals to discuss sexual health with their older patients.

Additional keywords: older men, older women, sexually transmissible infections, STI testing, ageing, aging, sexuality

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W. Heywood et al.

STI testing among older Australians

Introduction

Older adults have historically been seen as asexual and unlikely to be exposed to sexually transmissible infections (STIs). Yet STIs such as chlamydia, gonorrhoea and syphilis are being increasingly diagnosed among older adults.[1–3] In the US, data from the Centers for Disease Control and Prevention found increases in the rates of all three STIs among those aged 55 years and older between 2009 and 2013. These increases were found for both men and women, except for syphilis, where rates only increased among men.[4] During the same period in Australia, the National Notifiable Diseases Surveillance System reported the number of chlamydia, gonorrhoea and syphilis diagnoses among those aged 60 years and older had increased by ~46%.[5] Despite these increases, data on the testing and treatment histories of older adults are limited, as these populations represent a small proportion of all infections and therefore limited research has been done.

A review of 20 studies conducted in high-income countries between 1993 and 2011 found few older adults had received HIV or STI tests.[6] For example, in the US, the National Survey of Sexual Health and Behaviour (NSSHB) found that only one in three adults aged 50 years or older who may be at risk of infection received a STI test in the past year,[7] while the National Social Life, Health and Aging Project found less than 20% of heterosexual participants aged 57–85 year had ever been tested for HIV.[8] In Australia, STI testing rates among older adults are also low. A population-based study conducted in 2012–13 found only 3.2% of men and 1.9% of women aged 60–69 years had been tested for a STI in the past year. In comparison, 19.2% of men and 34.1% of women aged 16–19 years and 27.4% of men and 38.5% of women aged 20–29 years had been tested in the same time period. Persons older than 69 years were not included in that study.[9]

Timely screening (and treatment) is important, as older people are more likely to experience late-stage clinical diagnosis.[10–12] Delayed diagnosis may increase the likelihood of forward transmission, as well as the severity of symptoms and treatment difficulties. Asymptomatic screening of all older people, however, would not be appropriate given the relatively low prevalence of STIs. Instead, tailored prevention and screening campaigns are needed to raise awareness of STIs and STI testing among those most likely to be at risk. Currently, the majority of the limited STI testing promotion that occurs specifically targets youth.[13,14] In order to understand which older people would benefit most from these programs, data are needed on their testing and treatment histories.

In the study reported in this article, we investigated STI testing and treatment histories using data from Sex, Age and Me, a large survey of older Australians (60+ years). We had two main objectives: (1) to provide detailed data on self-reported STI testing, diagnoses and sources of treatment among those who may be at risk of a STI; and (2) to identify correlates of self-reported STI testing in this sample during the past 5 years.

Methods

Study population and design

The Sex, Age and Me project recruited Australians aged 60 years and older and was conducted between July and December 2015. Participants completed either online or paper-based surveys that examined their experiences of sex and relationships. The study was promoted widely in order to obtain the broadest sample possible. This involved interviews conducted on mainstream national and state radio stations that encouraged older Australians to fill out the survey. Age-targeted advertising was also conducted on Facebook. According to Facebook's online advertising system, it is used by ~1.1 million older Australians. An advertisement was also placed on an online dating website that is popular among the over-60s. To gain further reach, ~900 major community-based ageing organisations, local governments, senior citizens and services clubs, and sexual health clinics were contacted, many of whom advertised the study to older Australians via their websites, newsletters and/or contacts lists. The study also featured in popular mainstream newspapers (e.g. The Age in Melbourne and the Sydney Morning Herald in Sydney) and in publications targeted to older Australians (e.g. Starts at Sixty and OverSixty). Advertisements directed participants to an online survey and, for those who were not online or who preferred to fill out the survey on paper, a telephone number was also provided to request a paper version be mailed to them. Additional paper versions of the survey were distributed to interested organisations to hand out to older Australians. These were also handed out at a senior's festival in Melbourne. Those who completed the survey on paper returned it using a postage-paid envelope. Informed consent was obtained before the survey. Those who completed the survey online could not commence the survey until they had ticked a box to say they had read and understood the information provided to them. Those completing the paper-based survey were given two participant information forms and asked to tick a box on one to indicate they had read and understood the information and return it with the completed survey. Upon starting the online or paper survey, participants were informed that their responses were anonymous. They were not given any incentives for participating. The study was approved by the La Trobe University Human Ethics Committee (approval number S15/25). In total, 2137 older adults from all states and territories participated in the study. Details of the study sample, including jurisdictional information, are presented in another paper detailing the methodology of the study, which we hope will be published soon.

To help target possible education campaigns, we focused on those who reported sexual and relationship patterns, which indicated they may be at risk of a current or future STI. Although other studies determine potential STI risk in different ways, we adapted criteria from the NSSHB to identify this group.[7] Specifically, we defined this group as those who reported having sex (defined by the participant) in the past year or hoped/planned to have sex in the future and at least one of the following: (1) more than one partner in the past year; (2) not in a relationship; (3) sex with a non-primary partner at the most recent sexual encounter; or (4) in a relationship with a duration of less than 5 years.

Survey measures

STI testing and treatment questions

Participants were asked whether they had ever been tested for a STI, when they last had a STI test and whether they had been diagnosed with a STI in the past 5 years. Participants who reported a STI were asked which STI they had been diagnosed with and where they received treatment. All STI questions were adapted from previous Australian research.[9,15]

Sexual behaviour

We collected data on a range of sexual and relationship variables. Specifically, participants were asked the number of sexual partners they had in the past 5 years, whether they had used online dating and their current relationship status. Participants were also asked if they had used a condom for vaginal and/or anal intercourse at their most recent sexual encounter. Response options included 'yes', 'no' and 'I did not engage in this sexual practice'. To be classified as having used a condom, participants needed to report using a condom for all instances of intercourse (vaginal and/or anal) at their most recent sexual encounter.

Demographics

Data were also collected on a range of demographic variables including age, sexual orientation, highest educational attainment, employment status, income, residential location and country of birth.

Statistical analysis

Descriptive statistics were computed for reported STI testing, diagnoses and sources of treatment. Differences in testing rates between men and women were assessed using Chi-squared analyses. Correlates of STI testing were assessed by examining associations between STI testing and demographic and sexual and relationship variables using separate bivariate logistic regressions. Variables associated with STI testing at $P < 0.25$[16] were then entered into multivariable regression models, conducted separately for men and women, to examine the effect of each variable after adjusting for differences in the other variables. The overall effect of each variable was assessed

using Wald tests. Effect estimates are reported as odds ratios (OR) with 95% confidence intervals (CI). All associations were treated as significant at P < 0.05 and analyses were conducted using Stata Version 14 (StataCorp, College Station, TX, USA).

Results

Of the 2137 participants who completed the survey, 18 either identified as transgender, stated that their gender identity was not listed in the questionnaire, or did not report their gender and were therefore excluded from analyses due to small numbers. Analyses specifically focussed on those who may be at risk of a STI either currently or in the future (n = 812). A further seven participants were excluded as they did not answer when they last had a STI test. In total, 805 participants met the above criteria and were the focus of the analyses reported in this article.

Sample profile

The profile of our sample is shown in Table 1. Three-quarters of participants were aged in their 60s (77%, n = 620), 85% (n = 681) identified as heterosexual and 60% (n = 339) of men and 43% (n = 98) of women had a partner. Most participants were born in Australia (70%, n = 549), were living in a suburban or regional area (82%, n = 656) and over 40% (n = 360) reported an undergraduate or postgraduate university degree.

Sixty-one per cent of men (n = 347) and 55% of women (n = 128) reported ever being tested for STIs, including 30% of participants (n = 241) who reported testing in the past 5 years (51% of those who had ever been tested). Overall, a higher proportion of older men than older women reported testing in the past 5 years (33% vs 24%; $\chi^2 = 6.27$, P = 0.01).

STI history and treatment

Table 2 shows the proportion of participants who had been diagnosed with a STI in the past 5 years and the place of treatment among those reporting a STI. Of the 805 participants, 6.5% (n = 37) of men and 6.0% of women (n = 14) reported a STI diagnosis. Of the 37 men diagnosed with a STI, 21 identified as non-heterosexual, while 4.3% (n = 8) of all participants aged 70 years and older had been diagnosed with a STI in the past 5 years. The most common STI among men in this sample was chlamydia (n = 13), followed by genital herpes (n = 11). Nearly all women who had been diagnosed with a STI reported genital herpes (n = 13). The majority of those who had a STI reported being treated by a general practitioner (GP) (n = 35), and in most cases it was their usual GP (n = 29). Approximately one-third of men reported treatment at a sexual health clinic (n = 12). A closer examination found nearly all identified as gay or bisexual (n = 10).

Correlates of STI testing

Correlates of STI testing in the past 5 years for older men are shown in Table 3. In unadjusted analyses, STI testing was associated with age, sexual orientation, highest educational attainment,

residential location, number of sexual partners in the past 5 years, online dating and condom use at most recent sexual encounter. Men aged 70 years or older were less likely to report STI testing in the past 5 years compared with men in their 60s [OR 0.51, 95% CI (0.33, 0.81)]. Lower odds of testing were also reported by men in suburban [OR 0.54, 95% CI (0.33, 0.88)] or rural/regional areas [OR 0.55, 95% CI (0.33, 0.91)] compared with men living in inner city locations and among men who did not use a condom for intercourse at their most recent sexual encounter [OR 0.50, 95% CI (0.33, 0.77)]. Compared with heterosexual men, those who identified as non-heterosexual had higher odds of testing [OR 5.93, 95% CI (3.75, 9.37)], as did university educated men compared with those with a secondary education or less [OR 1.55, 95% CI (1.09, 2.21)]. Higher odds of testing were also reported by men with two or more partners in the past 5 years [OR 11.69, 95% CI (5.33, 25.65)] and men who had used online dating compared with those who had not [OR 2.27, 95% CI (1.57, 3.30)]. After adjusting for other variables associated with STI testing at P < 0.25 in a multivariable regression, residential location and use of a condom at most recent sexual encounter were no longer independently associated with STI testing.

Table 4 shows the correlates of STI testing in the past 5 years for women. Before adjustments, STI testing was associated with number of sexual partners in the past 5 years, online dating and use of a condom for intercourse at most recent sexual encounter. Specifically, women who reported two or more sexual partners in the past 5 years had higher odds of testing than those with fewer partners [OR 4.71, 95% CI (2.36, 9.40)], as did women who had ever used online dating [OR 2.50, 95% CI (1.21, 5.16)]. Not using a condom for intercourse at the most recent sexual encounter [OR 0.11, 95% CI (0.04, 0.32)] or not having intercourse [OR 0.17, 95% CI (0.04, 0.75)], however, was associated with lower odds of STI testing when compared with women who reported using a condom. After adjusting for other variables, testing was only associated with number of sexual partners in the past 5 years and use of condoms for intercourse at the most recent sexual encounter.

Discussion

This study examined self-reported STI testing, diagnoses and sources of treatment among a sample of Australians aged 60 years and older who may be at risk of a current or future STI based on their sexual and relationship patterns. Consistent with previous studies conducted in other high-income countries,[6,7] rates of testing were low. Specifically, less than one in three participants reported having a STI test in the past 5 years. A slightly higher proportion of older men than older women had been tested (33% vs 24%). Non-heterosexual men were also more likely to have been tested in the past 5 years, as were men in their 60s. Approximately 6% of our sample reported a STI diagnosis in that timeframe.

Several factors may have contributed to the low rates of testing. For example, some older people may see themselves as unlikely to catch a STI and thus think testing is unnecessary. This lack of

knowledge regarding potential exposure to STIs was demonstrated in a US study of adults aged 50–92 years, which examined differences in actual and perceived sexual risk. Overall, close to half the participants were found to underestimate their level of risk, including over 90% of participants in the highest risk group.[17] Opportunities for testing are also being missed, as some healthcare providers report being reluctant to discuss sexuality and STI-related topics with their older patients.[18,19] This underestimation of potential exposure, as well as a lack of communication between healthcare providers and patients, may mean, in some cases, testing is only undertaken when a patient presents with genital symptoms.

Widespread asymptomatic testing of all older people, however, is not appropriate nor cost-effective.[3] Instead, targeted strategies are needed to increase testing rates among those who may be at risk. For example, age-specific education campaigns could emphasise the importance of STI testing when entering new relationships regardless of the presence or absence of symptoms. To understand the characteristics of those who would benefit most from such programs, we examined correlates of STI testing in our sample who may have been at risk of a current or future STI. Overall, we found lower rates of STI testing among men aged 70 years and older, who identified as heterosexual, had lower educational attainments, less than two partners in the past 5 years, and among those who did not use online dating sites. For women, lower levels of testing were found among those who reported less than two partners in the past 5 years and those who did not use a condom at their most recent sexual encounter.

It is particularly concerning that women who did not use a condom were less likely to have a STI test in the past 5 years. Although not significant, there was a similar trend among men. It may be that those who are not using condoms do not see themselves as being 'at risk' and therefore also see no need to have a STI test, as highlighted by the US study referred to above.[17] Our definition of 'at risk', however, may have included those who had been in a monogamous relationship for up to 5 years. These participants may currently be at lower risk of STIs and have agreed to stop using condoms. This 5-year relationship period, however, was chosen to mirror the period over which we examined STI testing, suggesting that these women may have started a new relationship and agreed to stop using condoms without being tested. Education campaigns may therefore need to emphasise the importance of STI testing in new relationships before stopping condom use. In addition to education about STI testing, information may also need to be provided about risk factors and the effective use of safer sex practices more generally. One-on-one interviews with a selection of survey participants were conducted as part of a broader project. It is expected that forthcoming findings will provide insights into the ways older people assess risk and identify barriers and facilitators to engaging in safer sex practices to ensure that education strategies are well-targeted and effective.

Approximately 6% of our sample reported a STI diagnosis in the past 5 years. It is important to remember that our sample does not represent all older people, only those who we defined as at potential risk of a current or future STI. Although the numbers were too small to analyse in detail, genital herpes and chlamydia were the most common STIs in this sample. Genital herpes was also found to be a common diagnosis in an Australian study of people aged 50 years and older attending a sexual health clinic.[20] As both chlamydia and genital herpes can present without symptoms, these findings may represent lower bound estimates of the prevalence in our sample.

Of those who had been diagnosed with a STI, the majority received treatment by a GP. A proportion of older gay and bisexual men (10 out of 21) also reported receiving treatment at a sexual health clinic. These findings suggest that GPs are the first point of contact for older people who have been exposed to a STI, particularly heterosexual men and women. Given this, healthcare providers and GPs would need to play a role in increasing testing rates among older people This includes not making assumptions about which patients would benefit from testing[18,19] and instead having a conversation with their patients in order to determine their testing needs.

This study had several strengths and limitations. A particular strength was its large sample, which spanned all states and territories in Australia and included participants from all major sociodemographic backgrounds. This is one of the first studies of its kind in Australia to focus on older people and STIs and to recruit participants from the community rather than STI clinics. Older people, particularly those over the age of 70 years, have previously been excluded from studies of sex and relationships in Australia.[21,22] By restricting our analyses to those who were most likely to be at risk of a current or future STI, we were also able to better target our findings to those who would benefit most from any strategies aimed at preventing STIs in older populations. Defining potential for current or future risk among older people, however, is challenging, as STI epidemiology in this population is currently not well understood. The definition used in this study was adapted from previous research,[7] but draws on traditional notions of risk in younger people. It is not known whether this definition also signifies higher risk behaviours (and the need for STI testing) among older populations. Our definition also included those who may not have had sex in the past 12 months but hoped/planned to have sex in the future. These participants were included as they may warrant testing in the future even though they might currently be at lower risk. Further work is needed to determine what characteristics and behaviours may represent current or future STI risk in older populations.

Our sample, although large, was not population-based, so it is unknown whether our findings can be generalised to other populations of older people in Australia or in other countries and cultural contexts. Our initial sample recruited fewer women than men, while our analysis sample was primarily aged 60 – 79 years, with only three women and 22 men aged 80 years or older. Further studies would be needed to corroborate our findings. In the meantime, our study should be

viewed as an initial indication of current STI testing rates and characteristics associated with testing in a group of older people who may be at risk of a STI. Moreover, our study required participants to self-report STI testing and diagnoses. While previous Australian studies have found participants to report low levels of embarrassment and high levels of honesty when completing surveys examining sexual health and relationships,[21] STIs such as chlamydia and genital herpes can be asymptomatic and may go undiagnosed. Finally, further research is needed to explore the reasons why older people do not get tested, as well as situations that would make this population more or less likely to be tested.

In conclusion, low levels of STI testing were found among this sample of older Australians, with only one in three participants who may have been at risk of a current or future STI reporting a STI test in the past 5 years. Further research is needed to gain fully representative data. In the meantime, findings from our sample suggest testing rates may need to be increased among older Australians who face a higher risk of becoming infected with a STI. This is especially important given the recent increases in STI diagnoses in Australia, as well as the increased likelihood of late-stage diagnoses among older populations.

Conflicts of interest

None declared.

Acknowledgements

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Table 1. Sample profile of Australians aged 60+ years who may be at risk of a sexually transmissible infection (STI; n = 805)

	Men n (%)	Women n (%)
Age (years)		
60–69	437 (76.4)	183 (78.5)
70+	135 (23.6)	50 (21.5)
Sexual orientation		
Heterosexual	465 (81.7)	216 (92.7)
Non-heterosexual	104 (18.3)	17 (7.3)
Educational attainment		
Secondary/college or below	329 (58.0)	109 (47.2)
University educated	238 (42.0)	122 (52.8)
Employed		
Yes	228 (40.0)	88 (37.9)
Other	342 (60.0)	144 (62.1)
Income (Australian dollars)		
0–49 999	194 (33.9)	96 (41.2)
50 000+	182 (31.8)	53 (22.7)
Undisclosed	196 (34.3)	84 (36.1)
Residential location		
Inner city	90 (15.9)	52 (22.5)
Suburban	263 (46.4)	97 (42.0)
Regional/rural	214 (37.7)	82 (35.5)
Country of birth		
Australia	390 (70.1)	159 (69.4)
Overseas	166 (29.9)	70 (30.6)
Relationship status		
Partner	339 (59.6)	98 (42.6)
No partner	230 (40.4)	132 (57.4)
Sexual partners past 5 years		
0–1	127 (22.4)	118 (50.9)
2+	439 (77.6)	114 (49.1)
Ever used online dating		
Yes	324 (56.8)	153 (65.9)
No	246 (43.2)	79 (34.1)
Condom use for intercourse at most recent sexual encounter		
Yes	115 (20.4)	19 (8.4)
No	403 (71.5)	193 (85.0)
Did not have intercourse	46 (8.2)	15 (6.6)

Ever been tested for STIs

Yes	347 (60.7)	128 (54.9)
No	201 (35.1)	98 (42.1)
Not sure or can't remember	24 (4.2)	7 (3.0)

Last tested for STIs[A]

Less than 12 months ago	86 (24.8)	20 (15.6)
1–2 years ago	50 (14.4)	13 (10.2)
2–5 years ago	50 (14.4)	22 (17.2)
5–10 years ago	45 (13.0)	26 (20.3)
10–20 years ago	37 (10.7)	20 (15.6)
More than 20 years ago	79 (22.8)	27 (21.1)

[A]Of those who had ever been tested.

Table 2.   Proportion of participants reporting a diagnosis for a sexually transmissible infection (STI) in the past 5 years and the treatment location

Note: Participants could report more than one STI diagnosis in the past 5 years and more than one treatment location. Data are presented as XXX

Diagnosis	Men (n=570)	Women (n=232)
Diagnosis	% (n)	% (n)
Any STI	6.5 (37)	6.0 (14)
Crabs/pubic lice	0.7 (4)	0 (0)
Genital warts	1.1 (6)	0.4 (1)
Chlamydia	2.3 (13)	0.4 (1)
Genital herpes	1.9 (11)	5.6 (13)
Syphilis	0.7 (4)	0 (0)
Gonorrhoea	0.4 (2)	0 (0)
Non-specific urethritis	0.7 (4)	–
Penile candida or thrush	0.2 (1)	0 (0)
HIV	0.4 (2)	0 (0)
Treatment location	n = 37	n = 14
Usual GP	51.4 (19)	71.4 (10)
New GP	8.3 (3)	21.4 (3)
24-h clinic	2.7 (1)	0 (0)
Sexual health clinic	32.4 (12)	0 (0)
Public hospital/outpatients	0 (0)	0 (0)
Private hospital	2.7 (1)	0 (0)
Family planning clinic	0 (0)	0 (0)
Alternative health professional	0 (0)	7.1 (1)
Chemist	5.4 (2)	0 (0)
Friend	0 (0)	0 (0)
Treated self	5.4 (2)	14.3 (2)
Did not treat	2.7 (1)	7.1 (1)

Table 3.   Correlates of testing for a sexually transmissible infection in the past 5 years among Australian men aged 60+ years who may be at risk of a sexually transmissible infection (STI; n = 572)

OR, odds ratio; CI, confidence interval

	Tested for STI	Unadjusted		Adjusted[A]	
	% (n)	OR (95% CI)	P-value	OR (96% CI)	P-value
Age (years)			0.004		0.05
60–69	35.7 (156)	1.00		1.00	
70+	22.2 (30)	0.51 (0.33–0.81)		0.58 (0.34–0.99)	

	% (n)	OR (95% CI)	P-value	Adjusted OR (CI)	P-value
Sexual orientation			<0.001		<0.001
Heterosexual	25.0 (116)	1.00		1.00	
Non-heterosexual	66.4 (69)	5.93 (3.75–9.37)		4.38 (2.62–7.34)	
Educational attainment			0.02		0.04
Secondary/college or below	28.6 (94)	1.00		1.00	
University educated	38.2 (91)	1.55 (1.09–2.21)		1.53 (1.01–2.31)	
Employed			0.10		0.83
Yes	36.4 (83)	1.00		1.00	
Other	29.8 (102)	0.74 (0.52–1.06)		1.05 (0.67–1.63)	
Income (Australian dollars)			0.11		0.67
0–49 999	30.4 (59)	1.00		1.00	
50 000 +	38.5 (70)	1.43 (0.93–2.19)		1.20 (0.71–2.04)	
Undisclosed	29.1 (57)	0.94 (0.61–1.45)		0.97 (0.58–1.62)	
Residential location			0.03		0.64
Inner city	44.4 (40)	1.00		1.00	
Suburban	30.0 (79)	0.54 (0.33–0.88)		0.81 (0.45–1.46)	
Regional/rural	30.4 (65)	0.55 (0.33–0.91)		0.75 (0.41–1.37)	
Country of birth			0.55		
Australia	33.3 (130)	1.00			
Overseas	30.7 (51)	0.89 (0.60–1.31)			
Relationship status			0.38		
Partner	31.3 (106)	1.00			
No partner	34.8 (80)	1.17 (0.82–1.67)			
Sexual partners past 5 years			<0.001		<0.001
0–1	5.5 (7)	1.00		1.00	
2+	40.5 (178)	11.69 (5.33–25.65)		8.28 (3.49–19.67)	
Ever used online dating			<0.001		<0.001
Yes	40.1 (130)	2.27 (1.57–3.30)		2.24 (1.45–3.45)	
No	22.8 (56)	1.00		1.00	
Condom use for intercourse at most recent sexual encounter			0.004		0.25
Yes	44.3 (51)	1.00		1.00	
No	28.5 (115)	0.50 (0.33–0.77)		0.67 (0.41–1.10)	
Did not have intercourse	39.1 (18)	0.81 (0.40–1.62)		0.63 (0.28–1.42)	

[A]Adjusted ORs for STI test past 5 years vs no STI test in the past 5 years. Adjusted for age, sexual orientation, educational attainment, employed, income, residential location, sexual partners in the past 5 years, ever used online dating and condom use for intercourse at most recent sexual encounter.

Table 4. Correlates of testing for a sexually transmissible infection in the past 5 years among Australian women aged 60+ years who may be at risk of a sexually transmissible infection (STI; n = 233)

OR, odds ratio; CI, confidence interval.

	Tested for STI	Unadjusted		Adjusted[A]	
	% (n)	OR (95% CI)	P-value	OR (96% CI)	P-value
Age (years)			0.76		
60–69	24.0 (44)	1.00			
70+	22.0 (11)	0.89 (0.42–1.89)			
Sexual orientation			0.56		
Heterosexual	23.2 (50)	1.00			
Non-heterosexual	29.4 (5)	1.38 (0.47–4.11)			
Educational attainment			0.07		0.09
Secondary/college or below	18.4 (20)	1.00		1.00	
University educated	28.7 (35)	1.79 (0.96–3.34)		1.91 (0.91–4.00)	
Employed			0.22		0.05

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Yes	19.3 (17)	1.00		1.00	
Other	26.4 (38)	1.50 (0.78–2.86)		2.16 (0.99–4.75)	
Income (Australian dollars)			0.43		
0–49 999	26.0 (25)	1.00			
50 000+	17.0 (9)	0.58 (0.25–1.36)			
Undisclosed	25.0 (21)	0.95 (0.48–1.85)			
Residential location			0.23		0.10
Inner city	32.7 (17)	1.00		1.00	
Suburban	20.6 (20)	0.53 (0.25–1.14)		0.36 (0.14–0.91)	
Regional/rural	22.0 (18)	0.58 (0.27–1.26)		0.54 (0.22–1.35)	
Country of birth			0.61		
Australia	24.5 (39)	1.00			
Overseas	21.4 (15)	0.84 (0.43–1.65)			
Relationship status			0.65		
Partner	22.5 (22)	1.00			
No partner	25.0 (33)	1.15 (0.62–2.13)			
Sexual partners past 5 years			<0.001		0.001
0–1	11.0 (13)	1.00		1.00	
2+	36.8 (42)	4.71 (2.36–9.40)		3.81 (1.75–8.31)	
Ever used online dating			0.01		0.08
Yes	28.8 (44)	2.50 (1.21–5.16)		2.19 (0.92–5.18)	
No	13.9 (11)	1.00		1.00	
Condom use for intercourse at most recent sexual encounter			<0.001		<0.001
Yes	68.4 (13)	1.00		1.00	
No	19.7 (38)	0.11 (0.04–0.32)		0.06 (0.02–0.21)	
Did not have intercourse	26.7 (4)	0.17 (0.04–0.75)		0.07 (0.01–0.37)	

[A]Adjusted ORs for STI test past 5 years vs no STI test past 5 years. Adjusted for educational attainment, employed, residential location, sexual partners in the past 5 years, ever used online dating and condom use for intercourse at the most recent sexual encounter.

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