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1 Background and aims of the study

1.1 Background

Social research into HIV health promotion has demonstrated that engagement in gay community, and the social capital associated with such engagement, is related to a reduced risk of HIV transmission. This study explored the potential benefits and risks to gay and other homosexually active men who use the internet to access health information, meet sexual partners and build friendships that affirm gay identity and community. It proposed that the internet provides a form of 'virtual' community that can potentially increase social capital among gay men and thus support normative patterns of harm-reducing behaviour and reduce the risk of HIV transmission.

Recent reviews and meta-analyses of social research investigating health promotion and HIV-prevention education have pointed to the comparative successes of group and community interventions over individually focused interventions (Des Jarlais & Semaan, 2002; Elford & Hart, 2003; Ellis et al., 2003; Johnson et al., 2002). These reviews have highlighted the central place of social processes in HIV prevention and suggest that the mobilisation of safe sex practice is not a simple process of information access. Rather, safe sex is socially produced and negotiated in particular contexts – spatial, interpersonal and social (Kippax & Race, 2003; Rosenbrock et al., 2000). Studies have indicated that for many gay men, 'safe sex' is a community practice (Kippax et al., 1993). They have also shown that men who are either socially or geographically isolated from gay community are more likely to engage in risk practice. For example, studies conducted as early as 1986 indicated that men attached to the gay community in Sydney were better informed about HIV prevention and more likely to adopt safe sexual practices than those who were not attached to gay community (in the social, sexual and political realms) (Van de Ven et al., 2002). More recent studies have similarly shown that men who are geographically isolated from gay community and/or live away from the epicentres of HIV are less likely to have a detailed understanding of safe and unsafe sexual practices and are more likely to engage in risk practices that increase the risk of HIV transmission (e.g. Tikkanen & Ross, 2003).

The development of the internet as a site for social engagement has changed how we think of community interaction. The finding that frequent users of gay chat sites are less likely to be members of gay community organisations (Bowen et al., 2004) underlines the shift from face-to-face to virtual engagement among gay men. The internet's reach and accessibility may also provide a unique opportunity to reach more geographically isolated men (Hillier et al., 2001), same-sex-attracted young people (Ross et al., 2000) and men who have sex with men (MSM) who also have female partners (Keeble & Loader, 2001) . As well as providing benefits, the internet may place its users in the way of potential harm. For example, two recent publications addressing the internet's information-providing function and its role in enabling on-line support groups or networks for people with health problems, also found that it was used for other purposes, including finding sexual partners, socialising and making friends (Hull et al., 2003; Rice & Katz, 2001). Studies of gay-community-attached men in Australia have shown that around half use the internet to find sex partners (Murphy et al., 2004). A recent study of 450 gay men in Sydney and Melbourne who use internet chat sites found that over 60% had met casual partners via online contact and nearly 60% had also found friends. So as well as providing HIV prevention and health promotion material (Benotsch et al, 2002; Elford et al., 2001; Reitmeijer et al., 2001), internet use may also be involved, albeit indirectly, in increasing sexually transmissible infections (Halkitis et al, 2003; Hospers et al., 2002; McFarlane et al., 2000; Watney, 1990).

The growing literature on social capital in Australia (Brown & Onyx, 1999; Cox, 1995; Onyx & Bullen, 2000; Wilkinson & Bittman, 2002; Wilkinson & Bittman, 2003) attests to the importance of public forms of sociability in renovating

communities and building responsibility and civility into the conduct of citizens. Putnam (1993, 2000) is among those who have documented the importance of social connectedness and social inclusion in the context of health crises: 'An increasing body of evidence suggests that support groups—and especially the interpersonal ties that they offer—provide immeasurable health and emotional benefits to many participants' (p.151, 2000). Putnam also argues that the internet is more likely to produce desirable public health outcomes if it improves social inclusion by providing a bridge, for example, between gay communities already engaged in promoting safe sex and the virtual communities that have grown out of them: 'when you overlay an electronic community directly on top of a physical community, that creates a very powerful social pressure to be civil' (p. 177). Membership of such support groups creates social capital by fostering new identities and extending social networks (Onyx & Bullen, 2000).

This potential of 'bridging' social capital to extend the community outwards towards the public has clear implications for gay communities, underlining the importance of strong relations between 'real' or face-to-face communities of safe sex advocates and online gay communities. While bridging social capital has the capacity to extend our democratic vision of responsibility in inclusive ways, bonding social capital—which refers to the links we form with like-minded others—may be privatised, inward-turning and potentially exclusionary (Wilkinson & Bittman, 2003). The difference between these two types of social capital and the extent to which they will be promoted online is crucial for gay communities. With bridging social capital, the chances for embedding safe sex in real world practices will increase. Without it, or indeed, if the internet facilitates virtual communities that bond individual members together (separated or distinct from existing gay communities), then there could be undesirable public health implications, particularly if such virtual communities bond around a privileging of risky sex.

This project acknowledges the important and complex role that the internet now plays in the everyday lives of gay and other homosexually active men, as well the significant role that social networks play in shaping these new technologies (MacKenzie & Wajcman, 1999; Weinrich, 1997; Wysocki, 1998). However, we know little about whether the internet facilitates social inclusion by constituting virtual or more 'real-world' communities among such men. Furthermore, there is a dearth of research on whether facilitating online communities supports or undermines health promotion objectives, for example, whether different sexual spaces (e.g. beats, saunas) are invested with different meanings, understandings, and assumptions that inform strategies about risk reduction (Rosengarten et al., 2000). It is important to understand the ways in which gay and other homosexually active men negotiate internet technologies – for different purposes, and in different contexts (Altman, 2001).

1.2 Aims

The project had three main aims. These were to:

- investigate whether the internet increases social capital amongst gay and other homosexually active men by building social connections and a sense of belonging
- determine whether such 'virtual' communities facilitate uptake of HIV prevention material and its translation into safe sexual practice
- explore whether bridging social capital has the potential to transform virtual communities into those embedded in real world practices.

2 Methodology

2.1 Rationale

The aims of the project necessitated a different approach to recruiting men than currently occurs with the Gay Community Periodic Surveys conducted in the major cities in Australia. Those studies recruit men at gay venues and events, resulting in samples of men who generally socialise with and are connected with other gay men.

While the e-male study was concerned about reaching the types of men who would be recruited into the Gay Community Periodic Surveys, it was also interested in reaching the types of men who are rarely seen in those studies—men living in rural or remote areas who may not identify as gay; younger men in their late teens and early twenties who are exploring their sexuality; bisexual and heterosexual men who are having sex with men. Essentially the study wanted to recruit a broad cross-section of gay, other homosexually active men and same-sex attracted men—men to whom we shall refer as men who have sex with men (MSM)—from different walks of life, from urban and rural areas, from each of the states and territories, and from across the age spectrum starting at 16.

Previous nationwide studies of MSM in Australia showed that to some extent these men can be reached and are often willing to take part in research studies that focus on male-to-male sexual practices. For example, Project Male Call in 1992 (Kippax et al., 1994), Male Call in 1996 (Crawford et al., 1998) and Male Out in 2000 (Van de Ven et al., 2001) successfully recruited a broad cross section of men from a wide spectrum of society.

With a focus on the internet and social capital, e-male was distinct from these earlier studies: e-male utilised the internet as both a recruitment and data collection tool.

2.2 Data collection method

Data in this project were collected solely online. There was good support for doing so. Several studies conducted elsewhere have demonstrated that a broad cross-section of men can be reached through online methods. At least two studies of gay and other same-sex-attracted men—one in the UK (Elford et al., 2004) and the other in the Netherlands (Hospers et al., 2005)—compared online and offline samples. The results from both studies showed that online samples were significantly younger, contained a higher proportion of bisexual men, and were geographically diverse. These distinctions made online recruitment particularly conducive for achieving the project's aims. Another advantage of collecting data online is that data entry occurs automatically when people complete an online survey. This saves time and money. 'Cleaning data' of data entry errors and other inconsistencies is also minimised as a well-prepared online questionnaire, with the appropriate software to support it, will provide 'clean' data.

2.3 Online survey site

Attracting men to the online survey as well as keeping their attention in the face of other online 'distractions' were key considerations when designing the site. Since the site was going to be the only contact most of the men had with the survey as well as with the organisations involved, the site needed to serve several functions.

As well as appealing to men both visually and intellectually, the site needed to convey all the information that participants needed to know before deciding to take part: the purpose of the study; the organisations involved; the ways in which data were going to be used; issues of anonymity and confidentiality; and the freedom to withdraw from the study at any point without penalty, amongst other things.

The survey team contracted the task of developing the survey site to a software development organisation (Netdesign) in the Netherlands with prior experience conducting online surveys of MSM. The front page of the e-male site is shown on the next page (Figure 1).

Key features of the site were:

- clear and easy navigation
- the capacity to click back to earlier pages and change prior responses
- the option to save responses and return to a partially completed survey at a later date
- a bar to indicate the participant's progress through the survey
- a feedback option for participants' comments
- a 'send to a friend' option to notify others about the survey by email.

2.4 Research design

The study utilised a cross-sectional design in which research participants provided data at one time point only. A cross-sectional design was chosen because it was relatively quick, enabled participant anonymity and was sufficient for answering the research questions.

All participants who commenced the online survey were initially presented with questions that assessed their eligibility. All eligible participants were then presented with demographic questions, and then assigned to one of two arms in the study: a quantitative survey and a small set of qualitative questions. Men were automatically assigned to one arm or the other but not to both. Nine out of 10 participants were randomly assigned to the quantitative arm and one out of 10 men was automatically assigned to the qualitative arm. The qualitative arm contained three open-ended items asking men to i) describe their last sexual encounter with a man arranged online, ii) consider whether the internet provided an alternative form of community for MSM and iii) describe the details of the last social occasion where they had felt happy or fulfilled. Men who were routed to the qualitative arm were presented with two of these three items. The data from these open-ended items are not presented in this report.

2.5 Questionnaire

Quantitative data were collected via a structured online questionnaire accessed through the survey site. The questionnaire used in the study contained a range of items on the following topics:

- demographics
- how participants heard about the study
- social engagement with gay men
- participation in gay events/scene
- internet use
- size and strength of networks of gay and bisexual men met online, gay and bisexual men met offline, straight male friends, female friends, and family members and relatives
- measures of emotional and financial support
- measures of trust in others; physical and online security; reciprocity; participation in community groups and/or activities
- sexual practices with online and offline casual partners, regular partners, and partners on the last occasion
- disclosure of HIV status to sexual partners
- sex and drug use
- HIV testing and status
- sexual health
- recognition of national online health promotion websites
- self-reported health, well-being and quality of life.

2.5.1 Advertising and recruitment

The e-male survey was advertised through a range of online and offline media between February and April 2008. Partner organisations assisted with recruitment by providing advice on local media to target, paying for local advertising and distributing flyers in venues.

Online banner advertisements were placed on a range of websites used by gay, bisexual and other men who have sex with men, including gay chat sites and AIDS Council websites (an example of a banner advertisement is shown in Figure 2). If viewers clicked on a banner advertisement, they were directed to the survey website, www.e-male.com.au.

High rotation banner advertising was paid for and placed on the most popular commercial website used by MSM in Australia: gaydar.com.au. Small paid advertisements were also placed on the popular social networking site, Facebook. The Facebook advertisement is shown in Figure 3. Many other popular commercial websites, such as manhunt.net, hosted banner advertisements for free. Dudesnude.com posted a link to the survey site on its login page, the owners of squirt.org sent a message advertising the survey to all of its Australian users, and gaymatchmaker.com.au posted a notice about the survey on its community information page.

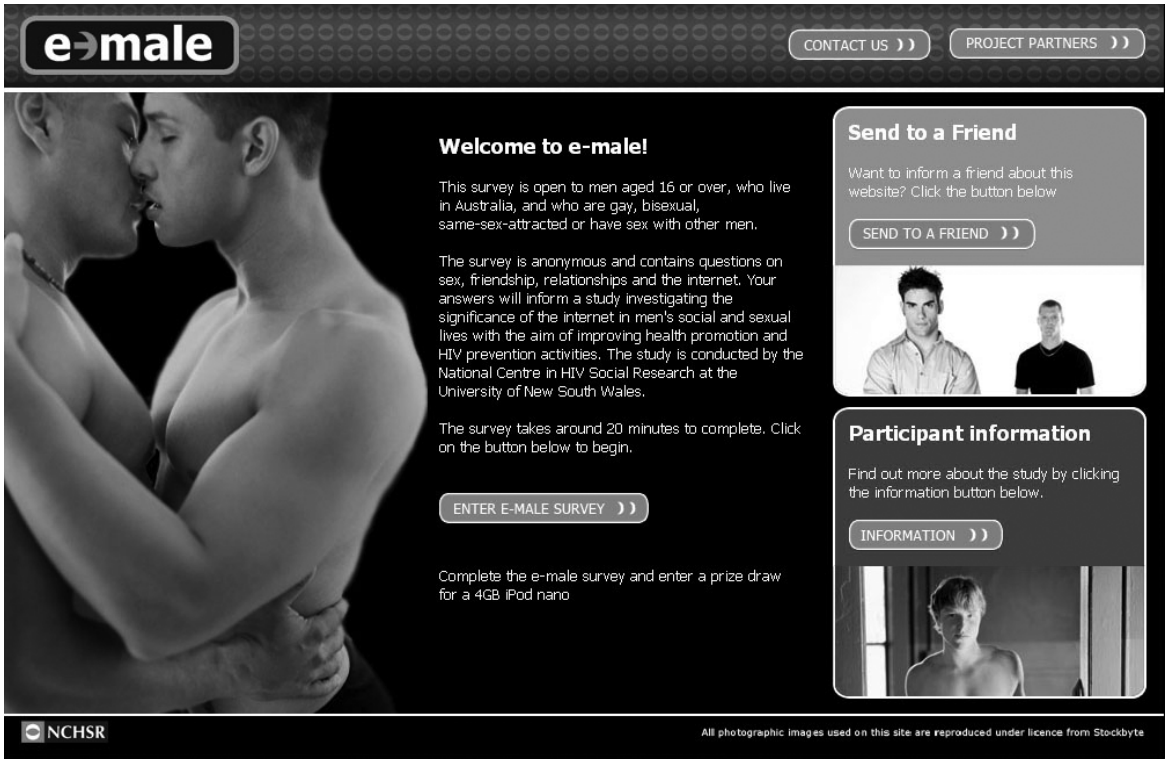

Figure 1: E-male survey website welcome page

Figure 2: Banner advertisement for the survey used on an AIDS Council website

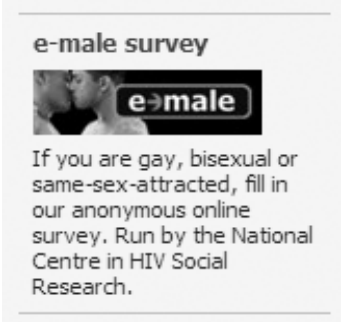

Figure 3: Online advertisement used on Facebook.com

Emails advertising the project website were circulated to the distribution lists of gay community organisations, HIV organisations, and groups of interest to MSM. Visitors to the e-male homepage could also use the 'Send to a friend' feature built into the website to notify other men about the survey by email.

Colour print advertisements were placed in gay community newspapers such as the Sydney Star Observer and AXN. An example of a colour print advertisement is shown in Figure 4. Short notices including the survey web address were placed in the personal, adult or classified sections of regional newspapers across Australia, including The Tamworth Times, the Mildura Weekly, the Gladstone Observer, the Port Lincoln Times, the Mandurah Mail, the Northern Territory News, The Canberra Times, and The Mercury in Tasmania. In all, print advertising was placed in 83 rural newspapers across Australia.

Small flyers, similar in size and shape to business cards, were printed featuring the project logo and website address. Business cards were distributed by AIDS Councils at venues, community events or other locations attended by MSM in every Australian state and territory.

When the survey was launched in February 2008, a media release describing the study was circulated to gay community media and related organisations. This prompted enquiries from journalists and resulted in a handful of articles discussing the project in community print media and on MSM-directed websites.

2.5.2 Sources of recruitment

All participants were asked to indicate where they had heard about the survey, giving an indication of the relative success of different recruitment methods. Recruitment sources are shown in Table 1. Participants could select more than one recruitment source. Online and electronic media appeared to be the most successful ways used to advertise the survey, with website advertising and emails listed as the most common recruitment sources. Offline advertising, such as print advertising, and word-of-mouth referrals appeared to be less effective in attracting participants to the survey. This probably reflects a within-medium recruitment advantage: it was easy for people to get to the survey website by clicking on a banner advertisement or link to the survey site within an email. For those who heard about the survey through an offline source, more effort would have been required to note down or remember the survey web address and visit the site when they were using the internet.

Table 1: Recruitment sources

	n
A friend told me about it	263
I read about it	206
I received an email about it	838
I saw an advert in a gay newspaper or magazine	173
I saw an advert in a local newspaper	147
I saw an online advert on Gaydar	1307
I saw an online advert on Manhunt	947
I saw an online advert on another website	888
Through a search engine e.g. Google	46
Other source	153

2.7 Structure of the report

In this report, the survey results have been split into three sections:

1. description of the sample
2. main results
3. comparison of selected e-male survey samples from New South Wales, Queensland, Victoria and Western Australia with corresponding samples from the Gay Community Periodic Surveys.

Figure 4: Print advertisement used on the cover of Sydney Star Observer

3 Description of participants

Section 3 describes the sample. It does this from several perspectives, initially by looking at demographic variables, then by examining how some key data vary by sexual identity or sexual practice, and finally through participants' use of the internet.

3.1 Participant eligibility, dropouts and survey completions

Some 5056 people navigated to the front page of the e-male survey website, www.e-male.com.au. A few did not start the survey, some were ruled ineligible by their answers, and others started but did not complete the survey. Details of ineligible participants, dropouts and survey completions are shown in Table 2. The first six questions of the survey assessed participants' eligibility. To be considered eligible, participants had to be aged 16 or over, male, currently living in Australia, and report at least one of the following: identification as gay, bisexual or queer, any same-sex-attraction, or sex with a man in the last five years.

Looking at Table 2, we see that nearly all of the 5056 people who accessed the survey home page started the survey. Some 134 people dropped out after the first question and just over 3% were ruled ineligible after the first six questions (ineligible participants were routed to the end of the survey and thanked for their time). One in 10 participants who completed the demographics section of the survey (the first 16 questions) was routed to the qualitative section of the survey. All other participants were directed to the remainder of the quantitative survey. The total dropout rate is 23.3% if we take 5056 as the denominator and 1176 as the total number of dropouts (the total who dropped out at the first question or in the first or second half of the quantitative survey). If we only consider eligible participants, the dropout rate is 22.0% (out of 4731 eligible participants, 1042 dropped out).

Table 2: Ineligible participants, dropouts and survey completions

	n	%
Viewed home page but did not start questionnaire	19	0.4
Dropped out after first question	134	2.7
Ruled ineligible after first six questions	172	3.4
Routed to qualitative component after demographics section	491	9.7
Dropped out during 1st half of quantitative survey	761	15.1
Dropped out during 2nd half of quantitative survey	281	5.6
Completed all relevant questions in questionnaire	3198	63.3
Total	**5056**	**100**

For the remainder of this report, we focus on a reduced base of participants, comprised of those men who were eligible to participate, who were directed to the quantitative arm of the survey, and who completed the survey or dropped out during the second half of the survey. Of the 3479 men who met these criteria, 22 requested that their answers not be used in data analysis (those who stopped midway through the survey had the option of saving or deleting their answers). This leaves 3457 men who completed most or all of the quantitative survey. The remainder of the results in the report are based on the data provided by these 3457 men, unless stated otherwise.

3.2 Demographics

3.2.1 Age

The minimum age of e-male participants was 16 years and the maximum age was 80. The mean age of the sample was 35.5 years, the median age was 34 and the mode was 21. Table 3 shows the age distribution of participants. Because over a third of the sample was under the age of 30 we have divided the younger men into three groups for the remainder of the report: men aged 16–19, 20–24 and 25–29.

Table 3: Age of participants

	n	%
16–19	232	6.7
20–24	622	18.0
25–29	470	13.6
30–39	864	25.0
40–49	768	22.2
50–59	349	10.1
60 or over	152	4.4
Total	**3457**	**100**

3.2.2 Country of birth

The majority of participants were born in Australia (see Table 4). Around one in five participants was born overseas. Reflecting this pattern, nearly all participants (97.3%) reported that they spoke English at home.

Table 4: Country of birth

	n	%
Australia	2833	81.9
United Kingdom	170	4.9
New Zealand	102	3.0
Malaysia	37	1.1
South Africa	30	0.9
USA	23	0.7
Philippines	16	0.5
Other countries	246	7.0
Total	**3457**	**100**

3.2.3 Australian state or territory

Participants were recruited from every state and territory in Australia (see Table 5). We have included the relative population size of each of these (based on 2006 statistics) in Table 5. The proportion of the sample recruited from each state and territory is in line with the overall population size of each of these, although the e-male survey appears to have slightly over sampled men from the Australian Capital Territory, New South Wales, the Northern Territory and Tasmania. The survey appears to have slightly under sampled men from Queensland, Victoria and Western Australia.

Table 5: Australian state or territory where participants reside

	n	%	State/Territory population as percentage of Australian population*
Australian Capital Territory	164	4.7	1.6
New South Wales	1215	35.1	32.9
Northern Territory	64	1.9	1.0
Queensland	608	17.6	19.8
South Australia	260	7.5	7.6
Tasmania	122	3.5	2.4
Victoria	773	22.4	24.8
Western Australia	251	7.3	9.9
Total	**3457**	**100**	**100**

* Source: Australian Bureau of Statistics (2008)

3.2.4 Metropolitan or regional area

Participants were asked to describe the type of area in which they lived (see Table 6). The majority of men lived in metropolitan areas of their state or territory, with progressively fewer men living in major regional areas, smaller cities or towns and rural or remote areas.

Table 6: Regional area where participants reside

	n	%
Capital city of their state or territory	2118	61.3
Major regional centre/city	726	21.0
Smaller city/town	468	13.5
Rural or remote area	145	4.2
Total	**3457**	**100**

3.2.5 Aboriginal or Torres Strait Islander status

Fifty two men (1.5% of the sample) identified as Aboriginal, five men (0.1%) identified as Torres Strait Islanders and four men (0.1%) said they had both Aboriginal and Torres Strait Islander heritage.

3.2.6 Education

Table 7 provides data on the educational level of participants. Over half the sample had completed some form of tertiary education (TAFE or university).

Table 7: Highest completed level of education

	n	%
Still at high school	43	1.2
Left school before Year 10	112	3.2
Year 10/Up to 3 years of high school	331	9.6
Year 12/VCE/HSC	700	20.2
TAFE/Tertiary diploma/Trade certificate	850	24.6
University undergraduate degree	842	24.4
University postgraduate degree	553	16.0
Other	26	0.8
Total	**3457**	**100**

3.2.7 Employment

Over 60% of the sample was employed full-time (see Table 8). Notable minorities of participants were either working part-time, studying or self-employed.

Table 8: Employment status

	n	%
Employed full-time	2095	60.6
Employed part-time	344	10.0
Self-employed	302	8.7
Unemployed	109	3.2
Student	332	9.6
Pensioner/On benefits	168	4.9
Self-funded retiree	89	2.6
Other	18	0.5
Total	**3457**	**100**

3.2.8 Income

Reflecting the notable minorities of participants working part-time, studying and receiving government pensions or benefits, just over one in six participants reported an annual income of less than $20000 (see Table 9). Over 40% of men reported an income of between $40000 and $79000. Over one in five men reported an annual income of more than $80000.

Table 9: Gross annual income in Australian dollars

	n	%
Less than $20 000	587	17.0
$20 000–39 000	639	18.5
$40 000–59 000	909	26.3
$60 000–79 000	568	16.4
$80 000–99 000	322	9.3
$100 000–119 000	171	4.9
$120 000–139 000	76	2.2
$140 000–159 000	51	1.5
$160 000 or more	134	3.9
Total	3457	100

3.2.9 Household composition

Participants were asked to report if they lived with anyone. As can be seen in Table 10, over a quarter of participants said they lived alone. This is similar to the proportion of single person households found in the general population in Australia (Australian Bureau of Statistics, 2008). Just over one in five men lived with their male partner or boyfriend. Around one in six men lived with flatmates and a similar proportion said they lived with their parents. Eight per cent of men said they lived with a female partner (a wife or girlfriend), a similar proportion lived with friends and 3% said they lived in a household with a child or children.

Table 10: Those with whom participants reported living

	n	%
Lives alone	987	28.6
Male partner/Boyfriend	750	21.7
Wife/Female partner/Girlfriend	275	8.0
Parents	583	16.9
Brother(s)/Sister(s)	270	7.8
Child(ren)	103	3.0
Other relative(s)	73	2.1
Friend(s)	289	8.4
Flatmate(s)/Housemate(s)	591	17.1
Other	26	0.8

Note: These categories are not mutually exclusive.

3.3 Sexual identity and related factors

Participants were asked to describe their sexual identity. As expected, the majority of men identified as gay, homosexual or queer (see Table 11). A small proportion of men identified as heterosexual or straight or indicated they had a different sexual identity from those listed in Table 11. Almost 20% of the sample identified as bisexual. This is a higher proportion of bisexual men than would be typically found in the Gay Community Periodic Surveys conducted around Australia, but is a similar proportion to that recruited in the nationwide Male Out survey in 2000 (Van de Ven et al., 2001).

Table 11: Sexual identity

	n	%
Gay/Homosexual/Queer	2710	78.4
Bisexual	665	19.2
Heterosexual/Straight	41	1.2
Other	41	1.2
Total	3457	100

Since only small numbers of men identified as heterosexual or provided an alternative ('other') identity, it is not appropriate for us to conduct comparative statistical analyses including these smaller categories. However, it is important to retain these men in the analyses. Therefore, heterosexual and other-identified men have been incorporated into one of two categories—gay/homosexual/queer or bisexual/heterosexual/straight—based on whether they had sex with men, women, or both in the previous six months. For example, men who identified as 'other' who had had any sex with women in the previous six months were incorporated into the bisexual/heterosexual/straight category. The revised categories appear in the following table (Table 12).

Table 12: Sexual identity based on sexual practice

	n	%
Gay/Homosexual/Queer	2723	78.8
Bisexual/Heterosexual/Straight	734	21.2
Total	3457	100

3.3.1 Sex with men or women

While only five men had had no sex with another man in the previous five years, just over 8% of the sample had had no sex with either a man or a woman in the previous six months (see Table 13). Over 80% of the sample reported sex with male partners and nearly 12% reported sex with female partners in the six months prior to the survey.

Table 13: Sex with men or women in previous six months

	n	%
No sex	278	8.4
Sex with men only	2623	79.7
Sex with men and women	44	1.3
Sex with women only	350	10.6
Total	3295*	100

* Missing data = 162.

3.3.2 HIV testing

Participants were asked if they had ever had a HIV test. Of the 3233 men who answered the question, 768 (23.8%) said they had not been tested for HIV and 2465 (76.2%) said they had been tested.

Of those who had had a HIV test, the majority said they had been tested in the last six months (see Table 14). However, nearly 10% said they had not been tested for at least four years.

Table 14: Time since last HIV test

	n	%
< 1 week	86	3.5
1–4 weeks	307	12.5
1–6 months	895	36.3
6–12 months	413	16.8
1–2 years	318	12.9
2–4 years	211	8.6
> 4 years	234	9.5
Total	2464	100

3.3.3 HIV testing, HIV status and sexual identity/practice

Gay/homosexual men were more likely than bisexual/heterosexual men to have ever had an HIV test (81.0% vs 58.7%). Amongst those who had ever had a test, gay men were more likely than bisexual men to have had a recent test, with over 50% having had a test in the previous six months.

Gay/homosexual men were therefore more likely to know their HIV status than bisexual/heterosexual men and were more likely to report being HIV-positive (Table 15). This latter result is not simply a function of gay men being more likely to be tested for HIV, as there remains a higher proportion of HIV-positive gay men when the analysis is restricted to only those men who have ever had an HIV test. The proportion of bisexual men who say they are HIV-positive is higher than the prevalence of HIV in the Australian population, while the proportion of gay men who are HIV-positive is higher than that found in any of the Gay Community Periodic Surveys except for the Sydney survey.

Table 15: HIV status, by sexual identity/practice

	Gay/ Homosexual/ Queer *n* (%)	Bisexual/ Heterosexual/ Straight *n* (%)	Total *n* (%)
No test/Don't know	529 (20.7)	293 (43.5)	822 (25.4)
HIV-negative	1761 (68.8)	370 (55.0)	2131 (66.0)
HIV-positive	268 (10.5)	10 (1.5)	278 (8.6)
Total	2558 (100)	673 (100)	3231 (100)

χ^2 (2) = 175.00, p = 0.000

3.3.4 HIV-positive men: antiretroviral treatment and viral load

The HIV-positive men in the e-male survey were asked whether they were receiving antiretroviral treatment and whether they knew their viral load. One hundred and ninety-six (70.5%) of the HIV-positive men said they were receiving combination antiretroviral therapy. The other 82 men said they were not currently on treatments.

Some 188 (67.6%) of the HIV-positive men reported that their viral load was undetectable, 76 (27.3%) said their viral load was detectable and 14 (5.0%) said they didn't know or were unsure about their viral load.

3.3.5 Sexual identity by related variables

Compared with the gay/homosexual men in the sample, there were significantly larger proportions of teenagers and men aged over 50 among bisexual and heterosexual men (see Table 16). It seems that the internet is an effective way of reaching younger and older bisexual men.

Table 16: Age of participants, by sexual identity/practice

	Gay/ Homosexual/ Queer *n* (%)	Bisexual/ Heterosexual/ Straight *n* (%)	Total *n* (%)
16–19	160 (5.9)	72 (9.8)	232 (6.7)
20–25	575 (21.1)	157 (21.4)	732 (21.1)
26–29	289 (10.6)	71 (9.7)	360 (10.4)
30–39	706 (25.9)	158 (21.5)	864 (25.0)
40–49	631 (23.2)	137 (18.7)	768 (22.2)
50+	362 (13.3)	139 (18.9)	501 (14.5)
Total	2723 (100)	734 (100)	3457 (100)

χ^2 (5) = 36.32, p = 0.000

Compared with bisexual/heterosexual men, there was a larger proportion of gay men living in a capital city—almost two-thirds of gay men compared with just under a half of bisexual/heterosexual men. There were proportionally more bisexual/heterosexual men living in smaller cities/towns and in rural and remote areas (Table 17).

Table 17: Regional location, by sexual identity/practice

	Gay/ Homosexual/ Queer	Bisexual/ Heterosexual/ Straight	Total
	n (%)	*n* (%)	*n* (%)
Capital city	1752 (64.3)	366 (49.9)	2118 (61.3)
Major regional centre/city	546 (20.1)	180 (24.5)	726 (21.0)
Smaller city/town	319 (11.7)	149 (20.3)	468 (13.5)
Rural or remote area	106 (3.9)	39 (5.3)	145 (4.2)
Total	2723 (100)	734 (100)	3457 (100)

χ^2 (3) = 59.54, p = 0.000

There was no difference in the distribution of gay/homosexual/queer men and bisexual/heterosexual men across the states and territories: each state and territory had similar proportions of men who identified as gay/homosexual/queer or bisexual/heterosexual.

In the e-male survey we asked participants how many gay or homosexual friends they had and how much time they spent with gay or homosexual men. These items have been used as a shorthand measure of 'gay community attachment' in a variety of surveys conducted by NCHSR and its partner organisations and are derived from a set of scales of social, sexual and political engagement between gay men (see Kippax et al., 1993). As expected, gay men scored higher than bisexual or heterosexual men on this shorthand measure of gay community attachment. Almost three-quarters of gay men and just under a third of bisexual/heterosexual men in the e-male survey would be regarded as gay-community-attached using these two items. However, we should bear in mind that this measure does not tell us how participants feel about gay community or their connection to it— other research suggests that men routinely labelled as gay-community-attached are often highly ambivalent about their involvement in gay communities (Bernard et al, 2008; Fraser, 2008; Holt, 2008; Rowe & Dowsett, 2008). Our measure of gay community attachment is perhaps better understood as an indicator of whether men know other gay men and can be reached through gay male networks. We might therefore regard these data as indicators of the degree to which our participants are accessible through gay male networks rather than attached to gay communities (see Holt, 2008; Rowe & Dowsett, 2008). We therefore decided to the use the term 'gay social engagement' (Dowsett, 1996) rather than gay community attachment to describe this more restricted form of involvement between gay men (see Table 18).

Table 18: Gay social engagement, by sexual identity/ practice

	Gay/ Homosexual/ Queer	Bisexual/ Heterosexual/ Straight	Total
	n (%)	*n* (%)	*n* (%)
Not socially engaged with gay men	699 (25.7)	500 (68.1)	1199 (33.8)
Socially engaged with gay men	2024 (74.3)	234 (31.9)	2258 (66.2)
Total	2723 (100)	734 (100)	3457 (100)

χ^2 (1) = 459.88, p = 0.000

3.5 Social capital

Participants in the e-male survey were asked a series of questions about their relationships with five groups of friends and family members:

- offline gay and bisexual male friends
- online gay and bisexual male friends
- straight (heterosexual) male friends
- female friends
- family members.

For each group of friends and family members, the same six-item scale was found to be a robust and reliable measure of the strength of relationships between participants and each of these groups (refer to Cronbach's alpha coefficient in Tables 19 to 23) . This scale, which we call the Strength of Social Connectedness scale, included the following items:

- I make a great effort to maintain my relationships with them.
- I trust them to look out for me and act in my best interests.
- I usually tell them exactly how I feel.
- I feel I could confide in them about almost anything.
- I believe we are willing to help each other out.
- My friendship with them is very important to me (for family members, this item was 'My relationships with them are very important to me').

Each item within the scale is scored on a five-point scale from Strongly Disagree to Strongly Agree. Higher mean scores on the scale indicate greater agreement with the items, and therefore greater degrees of trust, reliance and effort within those relationships. As trust, mutual support and being able to rely on others are regarded as essential features of social capital (Field, 2003; Putnam, 2000; Szreter & Woolcock, 2004), we regard the Strength of Social Connectedness scale as a key indicator of social capital for the men in the e-male survey.

As well as assessing participants' relationships with friends and family members (what might be regarded as 'informal' or 'intimate' ties within social capital theory; see Field, 2003) we measured levels of general trust in others, commitment to reciprocity or helping others and frequency of participation or volunteering in a range of community groups. These measures are indicators of 'formal' ties, community participation and civic engagement, which are also regarded as key components of social capital. Because we wanted to generate measures which were specific to men who have sex with men who use the internet, we also created a reliable scale called 'Sense of sexual and online security' that assessed men's confidence and sense of security in using the internet, posting personal information online and meeting men for sex. The items for each of these scales are shown in Tables 19 to 23.

Participants had the strongest social connections with family members and female friends, followed by offline gay and bisexual male friends and straight/heterosexual male friends. Social connections were the least strong with online gay and bisexual male friends (Table 19). These results should not be taken as an indication that online friendships with gay and bisexual male friends are not enduring and important. Indeed, many of the men's offline gay and bisexual male friends had originally been online friends. What these results do suggest, though, is that a similar depth of friendship as that achieved offline may not eventuate if friendships remain strictly online.

A relatively low mean score on the scale 'trust in others' suggests that there is a level of wariness about being too trusting of men in local neighbourhoods as well as gay or bisexual men met online (Table 20).

Table 19: Scales measuring social connectedness with friends and family

Social connectedness scales	Items in the scale	Mean	Standard deviation	Cronbach's alpha coefficient[1]
Offline gay and bisexual male friends	6	2.87	0.73	0.89
Online gay and bisexual male friends	6	2.10	0.79	0.89
Straight (heterosexual) male friends	6	2.81	0.71	0.88
Female friends	6	3.02	0.71	0.92
Family members	6	3.02	0.76	0.88

Items in each of the social connectedness scales[2]:

- I make a great effort to maintain my relationships with them.
- I trust them to look out for me and act in my best interests.
- I usually tell them exactly how I feel.
- I feel I could confide in them about almost anything.
- I believe we are willing to help each other out.
- My friendship with them is very important to me (for family members, this item was 'My relationships with them are very important to me').

1 Cronbach's alpha coefficient measures the internal consistency reliability of a scale.

2 Each item within the scale was scored on a 5-point scale ranging from 1 (strongly disagree) to 5 (strongly agree).

Table 20: Scale measuring trust in others

Scale	Items in the scale	Mean	Standard deviation	Cronbach's alpha coefficient[1]
Trust in others	3	1.81	0.71	0.73

Items in the scale[2]:

- Most people in my neighbourhood can be trusted.
- Most gay or bisexual men can be trusted.
- Most men I meet online can be trusted.

1 Cronbach's alpha coefficient measures the internal consistency reliability of a scale.

2 Each item within the scale was scored on a 5-point scale ranging from 1 (strongly disagree) to 5 (strongly agree).

The mean score for reciprocity was just below the mid-point of the scale (Table 21). Men in the sample were as a group relatively neutral about feeling a responsibility towards the gay community or their residential community.

A relatively low mean score on the scale measuring 'sense of sexual and online security' suggests that men in the sample generally had some concerns about their safety in the context of meeting men online and meeting men for sex (Table 22).

Scores on community participation were also relatively low along the continuum of the scale, though it is not clear whether such a score would be any lower than for the general population (Table 23).

Table 21: Scale measuring reciprocity

Scale	Items in the scale	Mean	Standard deviation	Cronbach's alpha coefficient[1]
Reciprocity	3	2.48	0.73	0.63
Items in the scale[2]:				
• By helping others you are more likely to receive help when you need it.				
• I feel a responsibility to make a contribution to the community I live in.				
• I feel a responsibility to make a contribution to the gay community.				

1 Cronbach's alpha coefficient measures the internal consistency reliability of a scale.

2 Each item within the scale was scored on a 5-point scale ranging from 1 (strongly disagree) to 5 (strongly agree).

Table 22: Scale measuring sense of sexual and online security

Scale	Items in the scale	Mean	Standard deviation	Cronbach's alpha coefficient[1]
Sense of sexual and online security	7	2.13	0.74	0.85
Items in the scale[2]:				
• I feel safe using the internet to meet other men.				
• I feel safe meeting other men for sex.				
• I feel safe posting personal information on the internet.				
• I feel safe disclosing personal information to men I meet online.				
• I feel safe in the company of gay men.				
• I feel safe inviting men to my home for sex.				
• I feel safe going to other men's homes for sex.				

1 Cronbach's alpha coefficient measures the internal consistency reliability of a scale.

2 Each item within the scale was scored on a 5-point scale ranging from 1 (strongly disagree) to 5 (strongly agree).

Table 23: Scale measuring community participation

Scale	Items in the scale	Mean	Standard deviation	Cronbach's alpha coefficient[1]
Participation in community groups in the last 12 months	7	2.13	0.74	0.71
Items in the scale[2]:				
• arts or cultural organisations				
• civil rights, human rights or environmental groups				
• community, education or parenting groups				
• gay community, HIV/AIDS or health organisations				
• political parties, trade unions or professional associations				
• religious, spiritual or church groups				
• sporting, recreation or hobby groups.				

1 Cronbach's alpha coefficient measures the internal consistency reliability of a scale.

2 Each item within the scale was scored from 0 (never) to 4 (over 10 times).

3.5.1 Social capital and sexual identity/practice

In this section we explore levels of social connectedness—including the strength and size of social relationships—in relation to sexual identity/practice. By looking at both the size and connectedness of these relationships we can assess levels of bridging and bonding types of social capital. For example, a person with a very close connectedness with only one of the social groups mentioned below may be described as having bonded social capital. Another person with large networks spread across a diverse range of relationships might be described as having bridging social capital.

The strongest social connections overall were with female friends and family. Between gay/homosexual/queer men and bisexual/heterosexual men there were no differences in strength of connectedness with family and online gay and bisexual male friends (Table 24). Compared with bisexual/heterosexual/straight men, gay/homosexual/queer men had significantly stronger connections with offline gay and bisexual male friends, straight male friends and female friends.

As well as assessing the strength of connection between participants and their friends and family members, we also asked them to describe the size of these social networks (see Table 25). Between the two groups, there was no difference in the network sizes of online gay and bisexual male friends. With the exception of offline gay and bisexual male networks, for which gay/homosexual/queer men had larger networks, bisexual/heterosexual/straight men had larger networks of straight male friends, female friends and family.

Taken together, the findings for both strength of social connectedness and size of networks indicate that the bisexual/heterosexual/straight men in the sample generally had weaker social connections but larger social networks. This indicates that these two groups of men have different forms of social capital: the strength of social connectedness and smaller network size amongst gay/homosexual men indicate strong 'bonding', while the inverse pattern for bisexual/heterosexual men suggests stronger 'bridging' social capital.

Table 24: Strength of social connectedness with friends and family, by sexual identity/practice

	Gay/ Homosexual/ Queer M (SD)	Bisexual/ Heterosexual/ Straight M (SD)	*t*	*p*
Offline gay and bisexual male friends	2.91 (0.71)	2.64 (0.77)	6.47	0.000
Online gay and bisexual male friends	2.09 (0.79)	2.14 (0.81)	0.82	0.411
Straight male friends	2.83 (0.70)	2.72 (0.75)	3.54	0.000
Female friends	3.07 (0.69)	2.82 (0.74)	6.50	0.000
Family	3.03 (0.77)	2.99 (0.74)	1.12	0.261

t = test for independent samples, *p* = significance level, M = mean, SD = standard deviation.

Table 25: Size of friend and family networks, by sexual identity/practice

	Gay/ Homosexual/ Queer M (SD)	Bisexual/ Heterosexual/ Straight M (SD)	*t*	*p*
Offline gay and bisexual male friends	2.56 (0.98)	2.20 (0.82)	6.85	0.000
Online gay and bisexual male friends	2.61 (1.11)	2.56 (1.01)	0.83	0.409
Straight male friends	2.55 (0.99)	2.95 (0.74)	8.51	0.000
Female friends	2.57 (0.98)	2.72 (1.09)	2.97	0.003
Family	2.49 (0.86)	2.65 (0.95)	3.68	0.000

t = test for independent samples, *p* = significance level, M = mean, SD = standard deviation.
Scores are based on the following categories: 1 = one; 2 = two to five; 3 = six to ten; 4 = eleven to twenty; 5 = greater than 20.

3.6 Internet use and related factors

Participants were asked to report how much time they spent using the internet for leisure and work (see Table 26). Men in the e-male survey used the internet more for leisure than for work, with over half the participants reporting using the internet for at least 10 hours a week for leisure and nearly one in five men never using the internet for work.

Participants were asked how much of their free (leisure) time was spent each week on various internet-related activities. Over 90% of participants reported using email each week, over three-quarters reported using instant messaging or online chat services and over 70% spent at least some time looking for male sex partners. Over a quarter of men said they spent at least some time searching for sexual health information online each week.

3.6.1 Looking for social and sexual contacts online

Participants were asked to indicate whom, if anyone, they were seeking to meet through the internet and whom, if anyone, they had met online. Data are shown in Table 27. While over a quarter of the sample said they were not currently looking to meet anyone online, fewer than one in ten men said they had made no social or sexual contacts through the internet. Men commonly reported looking online for friends, chat buddies and male sex partners (for casual or regular relationships) and a majority of men reported making friends online, finding chat buddies or casual male sex partners. Few men in the survey reported looking for or finding female sex partners through the internet. These data underline that Australian MSM in particular use the internet to look for and initiate a range of social and sexual relationships, as identified in previous research (Murphy et al., 2004).

3.6.2 Most frequently used website or online service

Men were asked to nominate the website or online service they used more than any other (see Table 28). The most popular website was gaydar.com.au, used by over 40% of the sample. Manhunt.net was the next most popular website. These reported frequencies are, of course, likely to have been affected by the primary online advertising for the survey being carried by gaydar.com.au and manhunt.net.

Table 26: Time spent using the internet each week

	None *n* (%)	< 5 hours *n* (%)	5–9 hours *n* (%)	10–20 hours *n* (%)	>20 hours *n* (%)	Total (%)
For leisure	21 (0.6)	446 (12.9)	959 (27.7)	1215 (35.1)	816 (23.6)	3457 (100)
For work	618 (17.9)	856 (24.8)	627 (18.1)	663 (19.2)	693 (20.0)	3457 (100)

Table 27: Social and sexual contacts sought and found online

	Contacts currently sought online *n* (%)	Contacts previously found online *n* (%)
No one	997 (28.8)	320 (9.3)
Friends	1925 (55.7)	2106 (60.9)
Chat buddies	1427 (41.3)	1762 (51.0)
People with similar interests/hobbies	1272 (36.8)	1174 (34.0)
Casual male sex partners	1891 (54.7)	2382 (68.9)
Male fuck buddies	1667 (48.2)	1452 (42.0)
Boyfriend/Partner	1365 (39.5)	1062 (30.7)
Online sex partners (cybersex)	412 (11.9)	606 (17.5)
Women for sex or relationships	211 (6.1)	145 (4.2)
Other	45 (1.3)	41 (1.2)

Note: These categories are not mutually exclusive.

Table 28: Most frequently used website or online service

	n	%
Bear411/bearwww/Silverdaddies	58	2.3
Dudesnude.com	62	2.5
Gay.com	99	3.9
Gaydar.com.au	1057	42.1
Gaymatchmaker/Adultmatchmaker	112	4.5
Manhunt.net	591	23.5
MSN Messenger or similar	81	3.2
Squirt.org	239	9.5
Other	211	8.4
Total	2510*	100

* Missing data = 947

3.6.3 Internet use and related variables

Younger men were slightly more likely than older men to use the internet for more than 20 hours each week (Table 29).

Length of time spent using the internet each week did not vary by regional location. As mentioned earlier, the majority of men in all locations were using the internet for leisure more than 10 hours per week. However, men in Queensland, the Northern Territory and Victoria were more likely than men in other states and territories to spend more than 10 hours per week using the internet for leisure (Table 30).

Men who were socially engaged with gay men spent more time than other men using the internet for leisure each week (Table 31).

There was no difference in the number of hours men of different HIV status spent using the internet each week for leisure.

Table 31: Hours spent using the internet each week for leisure, by gay social engagement

	Not socially engaged with gay men *n* (%)	Socially engaged with gay men *n* (%)	Total *n* (%)
None	8 (0.7)	13 (0.6)	21 (0.6)
< 5 hours	189 (15.8)	257 (11.4)	446 (12.9)
5–9 hours	335 (27.9)	624 (27.6)	959 (27.7)
10–20 hours	425 (35.4)	790 (35.0)	1215 (35.1)
> 20 hours	242 (20.2)	574 (25.4)	816 (23.6)
Total	1199 (100)	2258 (100)	3457 (100)

χ^2 (4) = 20.93, p = 0.000

Table 29: Hours spent using the internet each week for leisure, by age

	Age						
	16–19 *n* (%)	20–25 *n* (%)	26–29 *n* (%)	30–39 *n* (%)	40–49 *n* (%)	50+ *n* (%)	Total *n* (%)
None	1 (0.4)	2 (0.3)	4 (1.1)	4 (0.5)	4 (0.5)	6 (1.2)	21 (0.6)
< 5 hours	29 (12.5)	74 (10.1)	39 (10.8)	111 (12.8)	120 (15.6)	73 (14.6)	446 (12.9)
5–9 hours	62 (26.7)	194 (26.5)	101 (28.1)	253 (29.3)	206 (26.8)	143 (28.5)	959 (27.7)
10–20 hours	84 (36.2)	267 (36.5)	132 (36.7)	305 (35.3)	257 (33.5)	170 (33.9)	1215 (35.1)
> 20 hours	56 (24.1)	195 (26.6)	84 (23.3)	191 (22.1)	181 (23.6)	109 (21.8)	816 (23.6)
Total	232 (100)	732 (100)	360 (100)	864 (100)	768 (100)	501 (100)	3457 (100)

χ^2 (20) = 24.93, p = 0.000

Table 30: Hours spent using the internet each week for leisure, by state or territory

	ACT *n* (%)	NSW *n* (%)	NT *n* (%)	QLD *n* (%)	SA *n* (%)	TAS *n* (%)	VIC *n* (%)	WA *n* (%)	Total *n* (%)
None	1 (0.6)	6 (0.5)	2 (3.1)	0 (0.0)	4 (1.5)	0 (0.0)	4 (0.5)	4 (1.6)	21 (0.6)
< 5 hours	25 (15.2)	182 (15.0)	8 (12.5)	66 (10.9)	37 (14.2)	13 (10.7)	80 (10.3)	35 (13.9)	446 (12.9)
5–9 hours	43 (26.2)	338 (27.8)	14 (21.9)	157 (25.8)	66 (25.4)	40 (32.8)	222 (28.7)	79 (31.5)	959 (27.7)
10–20 hours	69 (42.1)	415 (34.2)	27 (42.2)	222 (36.5)	91 (35.0)	41 (33.6)	267 (34.5)	83 (33.1)	1215 (35.1)
> 20 hours	26 (15.9)	274 (22.6)	13 (20.3)	163 (26.8)	62 (23.8)	28 (23.0)	200 (25.9)	50 (19.9)	816 (23.6)
Total	164 (100)	1215 (100)	64 (100)	608 (100)	260 (100)	122 (100)	773 (100)	251 (100)	3457 (100)

χ^2 (28) = 50.92, p = 0.005

3.7 Description of participants in summary

- The survey attracted a broad cross-section of MSM (gay, homosexually active, and same-sex-attracted men) from rural and urban areas across Australia.
- The proportions of the sample recruited from each Australian state and territory roughly mirrored the proportions found in the general population.
- Compared with samples from Gay Community Periodic Surveys across Australia, the e-male study recruited a higher proportion of men who were:
  - *young*
    About one quarter of the sample was under 25.
  - *bisexually identified or bisexually active*
    Almost 20% identified as bisexual and 8% were living with a female partner.
  - *living in rural or regional areas*
    40% of the sample was resident in rural or regional areas.
  - *untested for HIV*
    Nearly a quarter of the sample had never had an HIV test.
  - *not socially engaged with other gay men*
    Over one-third of the men in the sample did not have gay friends or spend time with other gay men.
- Men in the sample spent more time using the internet for leisure than for work.
- Younger men spent more time than older men using the internet for leisure.
- The types of male relationships that men had found online were quite diverse and included friends (60%), casual male sex partners (69%) and boyfriends/partners (31%).
- Fewer than 1 in 10 men had made no social or sexual contacts through the internet.
- Men generally had a range of friends, including online and offline gay and bisexual men, but they were most strongly socially connected to family members and female friends.
- While the weakest social connections were with online gay and bisexual friends, many online friendships develop from these online meetings.
- Men in the sample were, in general, trusting of others, but had some concerns about their safety in the context of meeting men online.
- Men in the sample generally did not regularly participate in or volunteer for community organisations
- Bisexual and straight men had weaker social connections but larger social networks, indicating that men identifying as bisexual/heterosexual had stronger 'bridging' social capital, while gay-identified men had stronger 'bonding' social capital.

4 Gay and bisexual male networks—online and offline

This section provides an overview of the core results of the e-male survey. There are many ways of presenting the results that would make both conceptual and practical sense. The results could be presented by sexual identity, age, regional location, HIV status or gay social engagement. In this section we present results based on whether participants had gay or bisexual male friends, and whether participants socialised with these friends online or offline. We classified men into four groups:

- no gay or bisexual male friends
- gay and bisexual male friends only online
- gay and bisexual male friends only offline
- both online and offline gay and bisexual male friends.

As will become apparent, this classification system was useful for identifying differences in the sample according to men's online and offline socialising patterns with other men who have sex with men. The classification system deliberately ignored men's friendships and relationships with other groups, for example women, heterosexual men, and family members. However, this sole focus on friendships with gay and bisexual men builds on previous work on 'gay community attachment' or 'gay social engagement', broadening the analysis to include bisexual men in both online and offline networks of men who have sex with men (Kippax et al., 1993; Dowsett, 1996). We believe these categories may prove useful in targeting education interventions.

Most of the sample had offline gay and bisexual male friends and a sizeable proportion had both offline and online gay and bisexual friends (Table 32). A minority of the sample had no gay or bisexual male friends.

Table 32: Gay and bisexual male friendship networks

	n	%
No gay or bisexual male friends	536	15.5
Gay and bisexual male friends only online	259	7.5
Gay and bisexual male friends only offline	1170	33.8
Both online and offline gay and bisexual male friends	1492	43.2
Total	3457	100

In the remainder of this report we will refer to categories 2 and 3 in Table 32 as 'online gay and bisexual male friends only' and 'offline gay and bisexual male friends only', respectively, as this will alert the reader to the fact that these two groups are differentiated by whether their gay and/or bisexual friends are online or offline. Bear in mind the word 'only' in these labels refers to participants' male gay or bisexual friends and does not mean they have no straight, female or other friends.

The men with only offline gay and bisexual male friends tended to be older than men in the other categories. Men in the two groups with any online gay and bisexual friends tended to be younger than other men (Table 33).

Men who had no gay or bisexual male friends or had only online gay and bisexual male friends were significantly more likely to identify as bisexual/heterosexual in comparison with men who had any offline gay or bisexual male friends. Men with any offline gay or bisexual friends were more likely to identify as gay, homosexual or queer (Table 34).

Men who had no gay or bisexual male friends or only online gay/bisexual friends (i.e. men without offline gay or bisexual male friends) were less likely than other men to have ever had an HIV test. Men with only offline gay and bisexual male friends were more likely to be HIV-positive in comparison with other men (Table 35).

When we looked at online and offline gay and bisexual male networks, we found that men with only offline gay/bisexual male friends or men with both online and offline gay/bisexual friends were more likely to be classified as 'gay socially engaged' compared with other men (Table 36). Men who said they had no gay/bisexual male friends, or only online gay/bisexual friends, were, perhaps unsurprisingly, less likely to be socially engaged with other gay men. However, over one in five of those who said they had no gay or bisexual male friends were still classed as 'gay socially engaged' on our two-item measure. This reflects the fact these men reported spending at least some of their time with gay men (despite having no gay friends), and underscores

Table 33: Age of participants, by gay and bisexual male friendship networks

	No gay or bisexual male friends *n* (%)	Online gay and bisexual friends only *n* (%)	Offline gay and bisexual friends only *n* (%)	Both online and offline gay and bisexual friends *n* (%)	Total *n* (%)
16–19	43 (8.0)	30 (11.6)	41 (3.5)	118 (7.9)	232 (6.7)
20–25	124 (23.1)	70 (27.0)	156 (13.3)	382 (25.6)	732 (21.2)
26–29	47 (8.8)	32 (12.4)	96 (8.2)	185 (12.4)	360 (10.4)
30–39	133 (24.8)	54 (20.8)	318 (27.2)	359 (24.1)	864 (25.0)
40–49	109 (20.3)	40 (15.4)	332 (28.4)	287 (19.2)	768 (22.2)
50+	80 (14.9)	33 (12.7)	227 (19.4)	161 (10.8)	501 (14.5)
Total	536 (100)	259 (100)	1170 (100)	1492 (100)	3457 (100)

χ^2 (15) = 168.94, p = 0.000

Table 34: Sexual identity, by gay and bisexual male friendship networks

	No gay or bisexual male friends *n* (%)	Online gay and bisexual friends only *n* (%)	Offline gay and bisexual friends only *n* (%)	Both online and offline gay and bisexual friends *n* (%)	Total *n* (%)
Gay/Homosexual/Queer	281 (52.4)	156 (60.2)	1002 (85.6)	1284 (86.1)	2723 (78.8)
Bisexual/Heterosexual/ Straight	255 (47.6)	103 (39.8)	168 (14.4)	208 (13.9)	734 (21.2)
Total	536 (100)	259 (100)	1170 (100)	1492 (100)	3457 (100)

χ^2 (3) = 356.08, p = 0.000. (Linear trend: Mantel Haenzel (1) = 296.59, p = 0.000)

Table 35: HIV status, by gay and bisexual male friendship networks

	No gay or bisexual male friends *n* (%)	Online gay and bisexual friends only *n* (%)	Offline gay and bisexual friends only *n* (%)	Both online and offline gay and bisexual friends *n* (%)	Total *n* (%)
No test/Don't know the result	204 (42.1)	97 (40.8)	194 (17.5)	327 (23.3)	822 (25.4)
HIV-negative	256 (52.8)	133 (55.9)	768 (69.4)	974 (69.5)	2131 (66.0)
HIV-positive	25 (5.2)	8 (3.4)	144 (13.0)	101 (7.2)	278 (8.6)
Total	485 (100)	238 (100)	1106 (100)	1402 (100)	3231 (100)

χ^2 (6) = 167.86, p = 0.000

Table 36: Gay social engagement, by gay and bisexual male friendship networks

	No gay or bisexual male friends *n* (%)	Online gay and bisexual friends only *n* (%)	Offline gay and bisexual friends only *n* (%)	Both online and offline gay and bisexual friends *n* (%)	Total *n* (%)
Not socially engaged with gay men	422 (78.7)	181 (69.9)	280 (23.9)	316 (21.2)	1199 (34.7)
Socially engaged with gay men	114 (21.3)	78 (30.1)	890 (76.1)	1176 (78.8)	2258 (65.3)
Total	536 (100)	259 (100)	1170 (100)	1492 (100)	3457 (100)

χ^2 (3) = 780.53, p = 0.000. (Linear trend: Mantel Haenzel (1) = 664.05, p = 0.000)

that we should be careful in thinking of men as 'attached' to gay communities when their contact with gay men may be casual or infrequent or they report no enduring relationships with gay men.

Men with offline gay and bisexual male friends were more likely than other men to live in a capital city (Table 37). Men with no offline gay or bisexual friends were more likely than other men to live in a smaller city or town or a rural or remote area.

4.2 Use of the internet and gay and bisexual male networks

Men with online gay and bisexual male friends understandably spent more time using the internet for leisure in comparison with other men (Table 38), and also spent more time looking for sex partners online (Table 39).

Table 37: Regional location, by gay and bisexual male friendship networks

	No gay or bisexual male friends	Online gay and bisexual friends only	Offline gay and bisexual friends only	Both online and offline gay and bisexual friends	Total
	n (%)	*n* (%)	*n* (%)	*n* (%)	*n* (%)
The capital city of your state or territory	269 (50.2)	119 (45.9)	797 (68.1)	933 (62.5)	2118 (61.3)
A major regional centre/ city	123 (22.9)	67 (25.9)	219 (18.7)	317 (21.2)	726 (21.0)
A smaller city/town	114 (21.3)	51 (19.7)	117 (10.0)	186 (12.5)	468 (13.5)
A rural or remote area	30 (5.6)	22 (8.5)	37 (3.2)	56 (3.8)	145 (4.2)
Total	536 (100)	259 (100)	1170 (100)	1492 (100)	3457 (100)

χ^2 (9) = 97.44, p = 0.000

Table 38: Hours spent using the internet each week for leisure, by gay and bisexual male friendship networks

	No gay or bisexual male friends	Online gay and bisexual friends only	Offline gay and bisexual friends only	Both online and offline gay and bisexual friends	Total
	n (%)	*n* (%)	*n* (%)	*n* (%)	*n* (%)
None	3 (0.6)	3 (1.2)	13 (1.1)	2 (0.1)	21 (0.6)
< 5 hours	100 (18.7)	25 (9.7)	221 (18.9)	100 (6.7)	446 (12.9)
5–9 hours	140 (26.1)	60 (23.2)	398 (34.0)	361 (24.2)	959 (27.7)
10–20 hours	192 (35.8)	94 (36.3)	338 (28.9)	591 (39.6)	1215 (35.1)
> 20 hours	101 (18.8)	77 (29.7)	200 (17.1)	438 (29.4)	816 (23.6)
Total	536 (100)	259 (100)	1170 (100)	1492 (100)	3457 (100)

χ^2 (6) = 203.22, p = 0.000

Table 39: Hours spent using the internet to look for male sex partners, by gay and bisexual male friendship networks

	No gay or bisexual male friends	Online gay and bisexual friends only	Offline gay and bisexual friends only	Both online and offline gay and bisexual friends	Total
	n (%)	*n* (%)	*n* (%)	*n* (%)	*n* (%)
None	123 (25.2)	40 (16.1)	366 (33.6)	295 (20.3)	824 (25.1)
< 5 hours	207 (42.4)	116 (46.6)	456 (41.9)	639 (44.0)	1418 (43.3)
5–9 hours	86 (17.6)	47 (18.9)	151 (13.9)	246 (16.9)	530 (16.2)
10–20 hours	48 (9.8)	30 (12.0)	84 (7.7)	192 (13.2)	354 (10.8)
> 20 hours	24 (4.9)	16 (6.4)	31 (2.8)	81 (5.6)	152 (4.6)
Total	488 (100)	249 (100)	1088 (100)	1453 (100)	3278 (100)

χ^2 (12) = 90.35, p = 0.000

4.3 Online health material and gay and bisexual male networks

Men with online gay and bisexual male friends were more likely than other men to use the internet to seek advice or information on HIV or sexual health, and spent more time looking for sexual health information online (Table 40).

The website www.whytest.org (Table 41) was more likely to be visited and used by men with offline gay and bisexual male friends. These men were also more aware than other men of the sites www.stayingnegative.net.au (Table 42) and www.thedramadownunder.info (Table 44). There was no difference in men's awareness and usage of the site www.men.org.au (Table 43).

Table 40: Hours spent using the internet to look for sexual health information, by gay and bisexual male friendship networks

	No gay or bisexual male friends	Online gay and bisexual friends only	Offline gay and bisexual friends only	Both online and offline gay and bisexual friends	Total
	n (%)	*n* (%)	*n* (%)	*n* (%)	*n* (%)
None	361 (74.0)	176 (70.7)	800 (73.5)	964 (66.3)	2301 (70.2)
< 5 hours	108 (22.1)	59 (23.7)	254 (23.3)	433 (29.8)	854 (26.1)
5–9 hours	14 (2.9)	10 (4.0)	25 (2.3)	35 (2.4)	84 (2.6)
10–20 hours	0 (0.0)	2 (0.8)	9 (0.8)	12 (0.8)	23 (0.7)
> 20 hours	5 (1.0)	2 (0.8)	0 (0.0)	9 (0.6)	16 (0.5)
Total	488 (100)	249 (100)	1088 (100)	1453 (100)	3278 (100)

$\chi 2$ (12) = 35.99, p = 0.000

Table 41: Recognition of www.whytest.org, by gay and bisexual friendship male networks

	No gay or bisexual male friends	Online gay and bisexual friends only	Offline gay and bisexual friends only	Both online and offline gay and bisexual friends	Total
	n (%)	*n* (%)	*n* (%)	*n* (%)	*n* (%)
Not aware of this site	330 (88.0)	167 (88.4)	746 (76.0)	1008 (80.2)	2251 (80.2)
Aware, but did not use	27 (7.2)	9 (4.8)	124 (12.6)	117 (9.3)	277 (9.9)
I used/visited this site	18 (4.8)	13 (6.9)	111 (11.3)	138 (10.9)	280 (10.0)
Total	375 (100)	189 (100)	981 (100)	1263 (100)	2808 (100)

χ^2 (6) = 37.17, p = 0.000

Table 42: Recognition of www.stayingnegative.net.au, by gay and bisexual male friendship networks

	No gay or bisexual male friends	Online gay and bisexual friends only	Offline gay and bisexual friends only	Both online and offline gay and bisexual friends	Total
	n (%)	*n* (%)	*n* (%)	*n* (%)	*n* (%)
Not aware of this site	332 (88.5)	168 (88.9)	819 (83.5)	1038 (82.2)	2357 (83.9)
Aware, but did not use	30 (8.0)	9 (4.8)	102 (10.4)	118 (9.3)	259 (9.2)
I used/visited this site	13 (3.5)	12 (6.3)	60 (6.1)	107 (8.5)	192 (6.8)
Total	375 (100)	189 (100)	981 (100)	1263 (100)	2808 (100)

χ^2 (6) = 20.13, p = 0.003

Table 43: Recognition of www.men.org.au, by gay and bisexual male friendship networks

	No gay or bisexual male friends	Online gay and bisexual friends only	Offline gay and bisexual friends only	Both online and offline gay and bisexual friends	Total
	n (%)	*n* (%)	*n* (%)	*n* (%)	*n* (%)
Not aware of this site	314 (83.7)	162 (85.7)	835 (85.1)	1071 (84.8)	2382 (84.8)
Aware, but did not use	27 (7.2)	16 (8.5)	77 (7.8)	101 (8.0)	221 (7.9)
I used/visited this site	34 (9.1)	11 (5.8)	69 (7.0)	91 (7.2)	205 (7.3)
Total	375 (100)	189 (100)	981 (100)	1263 (100)	2808 (100)

χ^2 (6) = 2.69, p = 0.847

4.4 HIV testing and gay and bisexual male networks

Men with offline gay and bisexual male friends were more likely than others to have ever had an HIV test (Table 45).

Of the men who had ever had an HIV test, those with offline gay and bisexual male friends had been tested more recently than other men (Table 46).

4.5 Sexual practice, risk and gay and bisexual male networks

Men who had no offline gay or bisexual male friends were the most likely to have had sex with both men and women in the previous six months (Table 47). Men who had offline gay and bisexual male friends were the most likely to have had sex with men only.

Men with offline gay and bisexual male friends were more likely than other men to have had both regular and casual male partners in the previous six months (Table 48). Men who had no offline gay or bisexual friends were more likely than other men to have had casual male partners only in that same period.

4.6 Regular partners and gay and bisexual male networks

Men with offline gay and bisexual male friends were more likely than other men to have had sex with a regular male partner in the previous six months (Table 49).

Amongst the men who had had sex with a regular male partner in the previous six months, there was little difference in rates of unprotected anal intercourse (UAI) with those partners (Table 50). Men with no gay or bisexual male

Table 44: Recognition of www.thedramadownunder.info, by gay and bisexual male friendship networks

	No gay or bisexual male friends *n* (%)	Online gay and bisexual friends only *n* (%)	Offline gay and bisexual friends only *n* (%)	Both online and offline gay and bisexual friends *n* (%)	Total *n* (%)
Not aware of this site	320 (85.3)	155 (82.0)	748 (76.2)	962 (76.2)	2185 (77.8)
Aware, but did not use	29 (7.7)	9 (4.8)	143 (14.6)	153 (12.1)	334 (11.9)
I used/visited this site	26 (6.9)	25 (13.2)	90 (9.2)	148 (11.7)	289 (10.3)
Total	**375 (100)**	**189 (100)**	**981 (100)**	**1263 (100)**	**2808 (100)**

χ^2 (6) = 32.81, p = 0.000

Table 45: Ever had an HIV test, by gay and bisexual male friendship networks

	No gay or bisexual male friends *n* (%)	Online gay and bisexual friends only *n* (%)	Offline gay and bisexual friends only *n* (%)	Both online and offline gay and bisexual friends *n* (%)	Total *n* (%)
No	195 (40.1)	92 (38.7)	175 (15.8)	306 (21.8)	768 (23.8)
Yes	291 (59.9)	146 (61.3)	932 (84.2)	1096 (78.2)	2465 (76.2)
Total	**486 (100)**	**238 (100)**	**1107 (100)**	**1402 (100)**	**3233 (100)**

χ^2 (3) = 142.54, p = 0.000

Table 46: Last tested for HIV, by gay and bisexual male friendship networks

	No gay or bisexual male friends *n* (%)	Online gay and bisexual friends only *n* (%)	Offline gay and bisexual friends only *n* (%)	Both online and offline gay and bisexual friends *n* (%)	Total *n* (%)
Within last 6 months	125 (43.0)	62 (42.5)	474 (50.9)	627 (57.2)	1288 (52.3)
7–12 months	45 (15.5)	22 (15.1)	165 (17.7)	181 (16.5)	413 (16.8)
1–2 years	45 (15.5)	33 (22.6)	108 (11.6)	132 (12.0)	318 (12.9)
2–4 years	37 (12.7)	21 (14.4)	70 (7.5)	83 (7.6)	211 (8.6)
> 4 years	39 (13.4)	8 (5.5)	114 (12.2)	73 (6.7)	234 (9.5)
Total	**291 (100)**	**146 (100)**	**931 (100)**	**1096 (100)**	**2464 (100)**

χ^2 (12) = 65.94, p = 0.000

Table 47: Sex of partners, by gay and bisexual male friendship networks

	No gay or bisexual male friends *n* (%)	Online gay and bisexual friends only *n* (%)	Offline gay and bisexual friends only *n* (%)	Both online and offline gay and bisexual friends *n* (%)	Total *n* (%)
No partners	85 (17.2)	38 (15.4)	81 (7.2)	74 (5.2)	278 (8.4)
Men only	271 (54.7)	161 (65.2)	947 (84.3)	1244 (87.0)	2623 (79.6)
Women only	21 (4.2)	9 (3.6)	10 (0.9)	4 (0.3)	44 (1.3)
Men and women	118 (23.8)	39 (15.8)	85 (7.6)	108 (7.6)	350 (10.6)
Total	495 (100)	247 (100)	1123 (100)	1430 (100)	3295 (100)

χ^2 (9) = 301.68, p = 0.000

Table 48: Relationship status of male partners, by gay and bisexual male friendship networks

	No gay or bisexual male friends *n* (%)	Online gay and bisexual friends only *n* (%)	Offline gay and bisexual friends only *n* (%)	Both online and offline gay and bisexual friends *n* (%)	Total *n* (%)
No regular or casual partners	24 (6.2)	11 (5.5)	27 (2.6)	22 (1.6)	84 (2.8)
Casual partners only	169 (43.3)	71 (35.5)	241 (23.4)	279 (20.6)	760 (25.6)
Regular partners only	46 (11.8)	27 (13.5)	180 (17.4)	137 (10.1)	390 (13.1)
Casual and regular partners	150 (38.6)	91 (45.5)	584 (56.6)	914 (67.6)	1739 (58.5)
Total	389 (100)	200 (100)	1032 (100)	1352 (100)	2973 (100)

χ^2 (9) = 175.11, p = 0.008

Table 49: Sex with regular male partners, by gay and bisexual male friendship networks

	No gay or bisexual friends *n* (%)	Online gay and bisexual friends only *n* (%)	Offline gay and bisexual friends only *n* (%)	Both online and offline gay and bisexual friends *n* (%)	Total *n* (%)
No	191 (49.4)	82 (41.0)	267 (25.9)	296 (22.0)	836 (28.2)
Yes	196 (50.6)	118 (59.0)	764 (74.1)	1051 (78.0)	2129 (71.8)
Total	387 (100)	200 (100)	1031 (100)	1347 (100)	2965 (100)

χ2 (3) = 130.21, p = 0.000

Table 50: Anal intercourse and condom use with regular male partners, by gay and bisexual male friendship networks

	No gay or bisexual friends *n* (%)	Online gay and bisexual friends only *n* (%)	Offline gay and bisexual friends only *n* (%)	Both online and offline gay and bisexual friends *n* (%)	Total *n* (%)
No anal intercourse	38 (19.4)	16 (13.6)	101 (13.2)	109 (10.4)	264 (12.4)
No unprotected anal intercourse	44 (22.4)	34 (28.8)	214 (28.0)	282 (26.8)	574 (27.0)
Any unprotected anal intercourse	114 (58.2)	68 (57.6)	449 (58.8)	660 (62.8)	1291 (60.6)
Total	196 (100)	118 (100)	764 (100)	1051 (100)	2129 (100)

χ^2 (6) = 15.32, p= 0.018

friends were the least likely to have had anal intercourse with their regular male partner in the previous six months.

Men with no offline gay or bisexual male friends were the most likely to have met their current regular male partner online (Table 51).

4.7 Casual partners met online and gay and bisexual male networks

Please note that in sections 4.7 and 4.8 the number of participants who provided data is less than the number of participants who had sex with casual male partners in the previous six months. The reason for this anomaly is that to minimise the time participants took to complete the online survey, men who had had sex with casual male partners in the previous six months were randomly assigned either to the questions in sections 4.7 and 4.8 or to questions about their last casual male partner.

There was no difference in the number of casual partners met online in the previous six months as a function of gay and bisexual male networks (Table 52).

Amongst the men who had sex with casual male partners met online, there were no differences in rates of anal intercourse, condom use or unprotected anal intercourse with those partners (Table 53).

Table 51: Where men met their current regular male partner, by gay and bisexual male friendship networks

	No gay or bisexual friends *n* (%)	Online gay and bisexual friends only *n* (%)	Offline gay and bisexual friends only *n* (%)	Both online and offline gay and bisexual friends *n* (%)	Total *n* (%)
Online	41 (57.7)	26 (60.5)	147 (33.8)	251 (50.4)	465 (44.4)
Offline	30 (42.3)	17 (39.5)	288 (66.2)	247 (49.6)	582 (55.6)
Total	**71 (100)**	**43 (100)**	**435 (100)**	**498 (100)**	**1047 (100)**

χ^2 (3) = 36.71, p = 0.000

Table 52: Number of casual male partners met online, by gay and bisexual male friendship networks

	No gay or bisexual friends *n* (%)	Online gay and bisexual friends only *n* (%)	Offline gay and bisexual friends only *n* (%)	Both online and offline gay and bisexual friends *n* (%)	Total *n* (%)
One	27 (19.9)	8 (11.1)	37 (14.0)	68 (13.6)	140 (14.4)
Two to five	66 (48.5)	37 (51.4)	134 (50.8)	240 (48.1)	477 (49.1)
Six to twenty	35 (25.7)	20 (27.8)	83 (31.4)	149 (29.9)	287 (29.6)
More than twenty	8 (5.9)	7 (9.7)	10 (3.8)	42 (8.4)	67 (6.9)
Total	**136 (100)**	**72 (100)**	**264 (100)**	**499 (100)**	**971 (100)**

χ^2 (9) = 11.40, p = 0.249

Table 53: Anal intercourse and condom use with casual male partners met online, by gay and bisexual male friendship networks

	No gay or bisexual friends *n* (%)	Online gay and bisexual friends only *n* (%)	Offline gay and bisexual friends only *n* (%)	Both online and offline gay and bisexual friends *n* (%)	Total *n* (%)
No anal intercourse	29 (24.0)	13 (19.7)	41 (16.3)	82 (16.9)	165 (17.8)
No unprotected anal intercourse	49 (40.5)	30 (45.5)	119 (47.2)	215 (44.2)	413 (44.6)
Some unprotected anal intercourse	43 (35.5)	23 (34.8)	92 (36.5)	189 (38.9)	347 (37.5)
Total	**121 (100)**	**66 (100)**	**252 (100)**	**486 (100)**	**925 (100)**

χ^2 (6) = 4.71, p = 0.581

Men who had both online and offline gay and bisexual male friends were the most likely to say the casual male partners they had met online knew their HIV status (Table 54). Men who had both online and offline gay and bisexual friends were also the most likely to report that they knew the HIV status of the casual partners they had met online (Table 55).

4.8 Casual partners met offline and gay and bisexual male networks

There was no statistical difference in the number of casual partners met offline as a function of gay and bisexual male networks (Table 56).

There were also no differences in rates of anal intercourse, condom use or unprotected anal intercourse with casual

Table 54: Did casual partners met online know the participant's HIV status? (by gay and bisexual male friendship networks)

	No gay or bisexual friends *n* (%)	Online gay and bisexual friends only *n* (%)	Offline gay and bisexual friends only *n* (%)	Both online and offline gay and bisexual friends *n* (%)	Total *n* (%)
No, none of them	46 (38.3)	29 (44.6)	91 (36.4)	122 (25.5)	288 (31.5)
Yes, some of them	12 (10.0)	7 (10.8)	42 (16.8)	127 (26.5)	188 (20.6)
Yes, all of them	47 (39.2)	20 (30.8)	93 (37.2)	181 (37.8)	341 (37.3)
Don't know	15 (12.5)	9 (13.8)	24 (9.6)	49 (10.2)	97 (10.6)
Total	120 (100)	65 (100)	250 (100)	479 (100)	914 (100)

χ^2 (9) = 34.50, p = 0.000

Table 55: Did participant know the HIV status of casual partners met online? (by gay and bisexual male friendship networks)

	No gay or bisexual friends *n* (%)	Online gay and bisexual friends only *n* (%)	Offline gay and bisexual friends only *n* (%)	Both online and offline gay and bisexual friends *n* (%)	Total *n* (%)
No, none of them	43 (36.1)	24 (36.9)	88 (35.2)	123 (25.7)	278 (30.4)
Yes, some of them	31 (26.1)	19 (29.2)	65 (26.0)	185 (38.5)	300 (32.9)
Yes, all of them	30 (25.2)	16 (24.6)	76 (30.4)	139 (29.0)	261 (28.6)
Don't know	15 (12.6)	6 (9.2)	21 (8.4)	32 (6.7)	74 (8.1)
Total	119 (100)	65 (100)	250 (100)	479 (100)	913 (100)

χ^2 (9) = 23.41, p = 0.005

Table 56: Number of casual male partners met offline, by gay and bisexual male friendship networks

	No gay or bisexual male friends *n* (%)	Online gay and bisexual friends only *n* (%)	Offline gay and bisexual friends only *n* (%)	Both online and offline gay and bisexual friends *n* (%)	Total *n* (%)
One	23 (27.1)	9 (25.0)	58 (19.7)	75 (19.4)	165 (20.6)
Two to five	30 (35.3)	18 (50.0)	123 (41.8)	167 (43.3)	338 (42.2)
Six to twenty	23 (27.1)	7 (19.4)	74 (25.2)	95 (24.6)	199 (24.8)
More than twenty	9 (10.6)	2 (5.6)	39 (13.3)	49 (12.7)	99 (12.4)
Total	85 (100)	36 (100)	294 (100)	386 (100)	801 (100)

χ^2 (9) = 6.423, p = 0.697

male partners met offline across men with different gay and bisexual male friends (Table 57).

Men who had offline gay and bisexual male friends were more likely to say that the casual partners they had met offline knew their HIV status. This was particularly the case for men who had both online and offline gay and bisexual male friends (Table 58).

Participants who had offline gay and bisexual male friends were more likely to know the HIV status of the casual partners they met offline, particularly if they also had online gay and bisexual male friends (Table 59).

4.9 Health, well-being and gay and bisexual male networks

Men with offline gay and bisexual male friends rated their quality of life slightly higher than other men while men with only online gay and bisexual male friends rated their quality of life the poorest of the four groups (Table 60).

There was little difference in how men with different gay and bisexual male networks rated their health in general for the previous two weeks. The majority of men rated their health as 'very good' or 'excellent' (Table 61).

Table 57: Anal intercourse and condom use with casual male partners met offline, by gay and bisexual male friendship networks

	No gay or bisexual male friends *n* (%)	Online gay and bisexual friends only *n* (%)	Offline gay and bisexual friends only *n* (%)	Both online and offline gay and bisexual friends *n* (%)	Total *n* (%)
No anal intercourse	27 (31.8)	14 (38.9)	85 (28.9)	104 (26.9)	230 (28.7)
No unprotected anal intercourse	30 (35.3)	12 (33.3)	111 (37.8)	148 (38.2)	301 (37.5)
Some unprotected anal intercourse	28 (32.9)	10 (27.8)	98 (33.3)	135 (34.9)	271 (33.8)
Total	85 (100)	36 (100)	294 (100)	387 (100)	802 (100)

χ^2 (6) = 2.93, p = 0.817

Table 58: Did casual partners met offline know the participant's HIV status? (by gay and bisexual male friendship networks)

	No gay or bisexual male friends *n* (%)	Online gay and bisexual friends only *n* (%)	Offline gay and bisexual friends only *n* (%)	Both online and offline gay and bisexual friends *n* (%)	Total *n* (%)
No, none of them	38 (64.4)	12 (50.0)	80 (38.3)	76 (26.7)	206 (35.7)
Yes, some of them	4 (6.8)	3 (12.5)	57 (27.3)	91 (31.9)	155 (26.9)
Yes, all of them	11 (18.6)	6 (25.0)	54 (25.8)	84 (29.5)	155 (26.9)
Don't know	6 (10.2)	3 (12.5)	18 (8.6)	34 (11.9)	61 (10.6)
Total	59 (100)	24 (100)	209 (100)	285 (100)	577 (100)

χ^2 (9) = 39.00, p = 0.000

Table 59: Did participant know the HIV status of casual partners met offline? (by gay and bisexual male friendship networks)

	No gay or bisexual male friends *n* (%)	Online gay and bisexual friends only *n* (%)	Offline gay and bisexual friends only *n* (%)	Both online and offline gay and bisexual friends *n* (%)	Total *n* (%)
No, none of them	37 (62.7)	14 (58.3)	85 (40.7)	84 (29.6)	220 (38.2)
Yes, some of them	9 (15.3)	4 (16.7)	64 (30.6)	109 (38.4)	186 (32.3)
Yes, all of them	8 (13.6)	5 (20.8)	41 (19.6)	65 (22.9)	119 (20.7)
Don't know	5 (8.5)	1 (4.2)	19 (9.1)	26 (9.2)	51 (8.9)
Total	59 (100)	24 (100)	209 (100)	284 (100)	576 (100)

χ^2 (9) = 31.13, p = 0.000

4.10 Social capital and gay and bisexual male networks

In this section we explore levels of social capital across the four gay and bisexual network groups. This analysis helps us understand the role of the internet in building social capital and whether the social capital that is built can be characterised as bridging or bonding, as described earlier in section 1.2.

Strength of social connectedness with all groups of friends and family was weakest amongst men with no gay or bisexual male friends (Table 62). Having no gay or bisexual male friends appears to be an indicator of being less connected with other friends and family members, being less trusting

Table 60: Self-rated quality of life, by gay and bisexual male friendship networks

	No gay or bisexual male friends *n* (%)	Online gay and bisexual friends only *n* (%)	Offline gay and bisexual friends only *n* (%)	Both online and offline gay and bisexual friends *n* (%)	Total *n* (%)
Very good, my life could hardly be better	76 (15.9)	27 (11.6)	210 (19.2)	236 (17.2)	549 (17.2)
Pretty good, most things are going well	236 (49.4)	123 (52.8)	581 (53.2)	753 (54.0)	1693 (53.0)
The good and the bad parts are almost equal	113 (23.6)	48 (20.6)	216 (19.8)	300 (21.5)	677 (21.2)
Pretty bad, most things are going badly	40 (8.4)	24 (10.3)	73 (6.7)	88 (6.3)	225 (7.0)
Very bad, my life could hardly be worse	13 (2.7)	11 (4.7)	12 (1.1)	17 (1.2)	53 (1.7)
Total	478 (100)	233 (100)	1092 (100)	1394 (100)	3197 (100)

χ^2 (12) = 37.46, p = 0.000

Table 61: Self-rated health, by gay and bisexual male friendship networks

	No gay or bisexual male friends *n* (%)	Online gay and bisexual friends only *n* (%)	Offline gay and bisexual friends only *n* (%)	Both online and offline gay and bisexual friends *n* (%)	Total *n* (%)
Excellent	116 (24.3)	58 (24.9)	314 (28.8)	363 (26.0)	851 (26.6)
Very good	170 (35.6)	93 (39.9)	399 (36.5)	516 (37.0)	1178 (36.8)
Good	124 (25.9)	43 (18.5)	258 (23.6)	369 (26.5)	794 (24.8)
Fair	55 (11.5)	28 (12.0)	100 (9.2)	111 (8.0)	294 (9.2)
Poor	13 (2.7)	11 (4.7)	21 (1.9)	35 (2.5)	80 (2.5)
Total	478 (100)	233 (100)	1092 (100)	1394 (100)	3197 (100)

χ^2 (12) = 23.58, p = 0.023

Table 62: Strength of social connectedness with friends and family, by gay and bisexual male friendship networks

	No gay or bisexual male friends M (SD)	Online gay and bisexual friends only M (SD)	Offline gay and bisexual friends only M (SD)	Both online and offline gay and bisexual friends M (SD)	*F*	*p*
Offline gay and bisexual male friends	NA	NA	2.85 (0.74)	2.88 (0.72)	1.14	0.285
Online gay and bisexual male friends	NA	2.16 (0.84)	NA	2.10 (0.78)	1.56	0.211
Straight male friends	2.65 (0.82)	2.87 (0.77)	2.80 (0.67)	2.85 (0.69)	8.26	0.000
Female friends	2.85 (0.79)	3.09 (0.71)	3.02 (0.66)	3.05 (0.71)	6.13	0.000
Family	2.93 (0.77)	3.00 (0.82)	2.99 (0.72)	3.07 (0.78)	3.77	0.010

M = mean, SD = standard deviation. *F* statistic is reported here for an analysis of variance (ANOVA) which tests for mean differences between groups, p = significance level. NA = not applicable (no score available for this category).

and having weaker ties with others. Strength of social connection was strongest amongst the two groups of men with any online gay and bisexual male friends, suggesting that having internet-mediated friendships is a marker of closer ties with offline friends and family members (i.e. the closer and more connected men are to offline family and friends, the more likely they are to have close online friendships). These relationships are shown graphically in Figures 5 to 7.

As well as assessing participants' relationships with friends and family members by gay and bisexual male networks, we also analysed levels of general trust in others, commitment to reciprocity or helping others and frequency of participation or volunteering in a range of community groups. The mean scores for these four measures of social capital are given in Table 63. Men with both online and offline gay and bisexual male friends scored the highest on three of the four measures, indicating that they have the highest levels of general trust in others, believe more strongly in helping others, and have the greatest sense of security in cruising for sex and using the internet. Men who had offline gay or bisexual male friends reported the highest levels of volunteering or participation in community groups. Men without gay or bisexual male friends registered the lowest levels of trust in others, reciprocity and sense of sexual and online security. A visual representation of these patterns can be seen in Figures 8 to 11.

As well as assessing the strength of connection between participants and their friends and family members, we also asked them to describe the size of these social networks (see Table 64). Men who had only online gay and bisexual male friends had the largest networks of straight male friends and equally largest network of female friends. Men who had only offline gay and bisexual male friends had the smallest networks of straight male friends, female friends and family members compared with other men. A visual representation of these patterns can be seen in Figures 12 to 14.

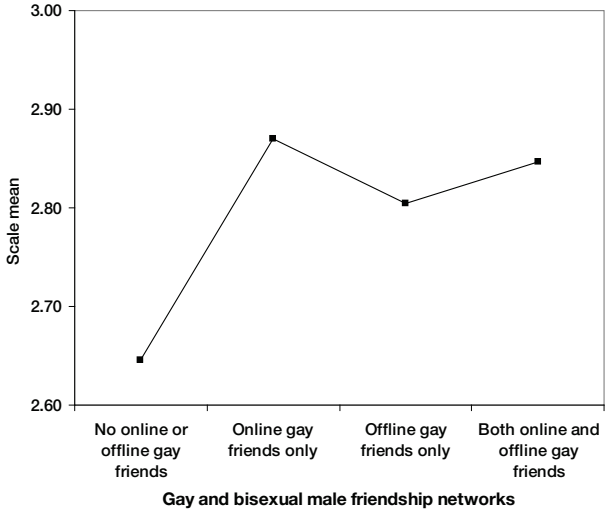

Figure 5: Strength of social connections with straight male friends, by gay and bisexual male friendship networks

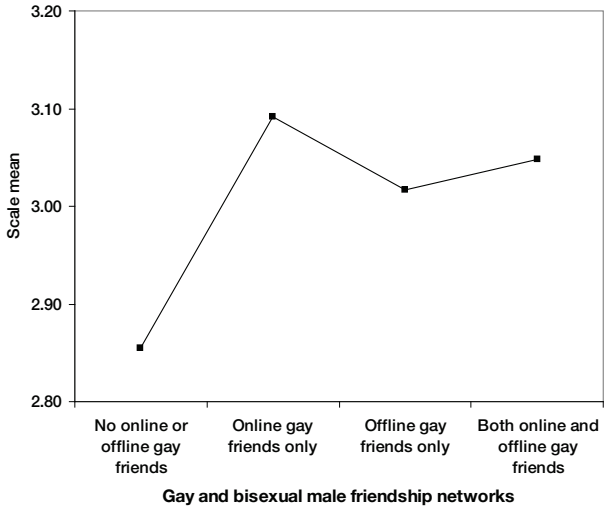

Figure 6: Strength of social connections with female friends, by gay and bisexual male friendship networks

Table 63: General social capital measures, by gay and bisexual male friendship networks

	No gay or bisexual male friends M (SD)	Online gay and bisexual friends only M (SD)	Offline gay and bisexual friends only M (SD)	Both online and offline gay and bisexual friends M (SD)	*F*	*p*
Trust in others	1.66 (0.75)	1.74 (0.78)	1.81 (0.69)	1.88 (0.70)	12.42	0.000
Reciprocity	2.20 (0.74)	2.23 (0.71)	2.56 (0.73)	2.56 (0.71)	47.84	0.000
Participation in community groups	0.68 (0.68)	0.68 (0.69)	0.91 (0.72)	0.86 (0.76)	15.10	0.000
Sense of sexual and online security	1.84 (0.80)	1.99 (0.73)	2.10 (0.74)	2.28 (0.68)	52.15	0.000

M = mean, SD = standard deviation. *F* statistic is reported here for an analysis of variance (ANOVA) which tests for mean differences between groups, *p* = significance level.

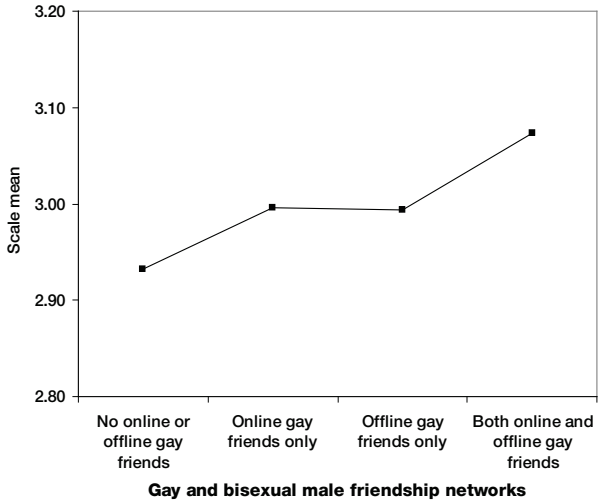

Figure 7: Strength of social connections with family members, by gay and bisexual male friendship networks

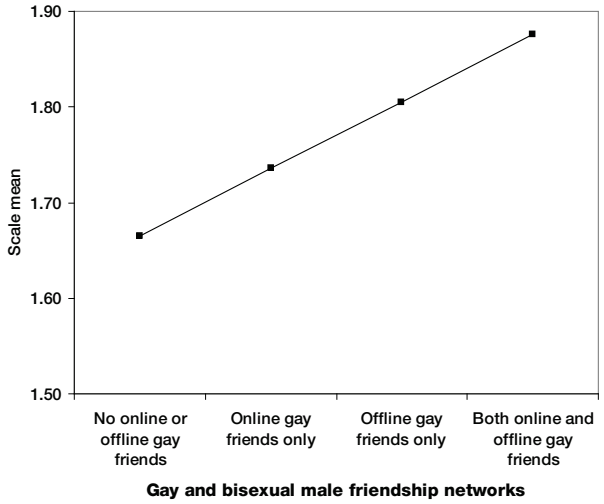

Figure 8: Trust in others, by gay and bisexual male friendship networks

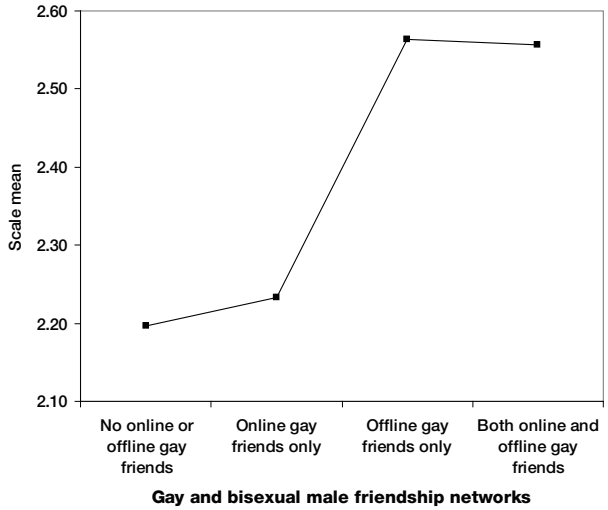

Figure 9: Reciprocity, by gay and bisexual male friendship networks

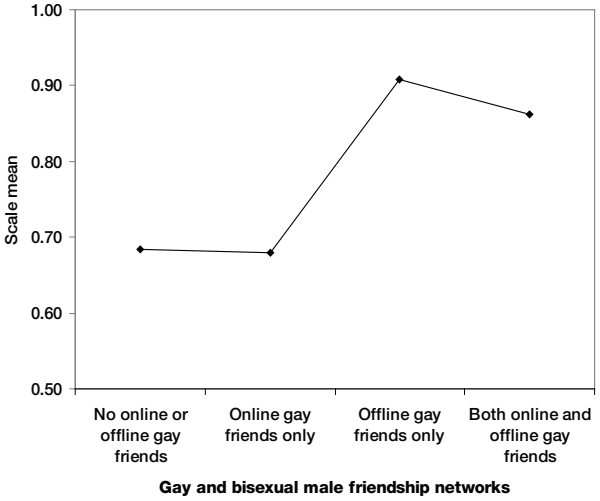

Figure 10: Participation in community groups, by gay and bisexual male friendship networks

Table 64: Size of friend and family networks, by gay and bisexual male friendship networks

	No gay or bisexual male friends	Online gay and bisexual friends only	Offline gay and bisexual friends only	Both online and offline gay and bisexual friends	*F*	*p*
	M (SD)	M (SD)	M (SD)	M (SD)		
Offline gay and bisexual male friends	NA	NA	2.42 (0.90)	2.58 (1.01)	17.77	0.000
Online gay and bisexual male friends	NA	2.60 (0.98)	NA	2.60 (1.12)	0.005	0.942
Straight male friends	2.70 (1.04)	2.82 (1.17)	2.42 (0.90)	2.74 (1.08)	19.75	0.000
Female friends	2.51 (0.93)	2.70 (1.11)	2.46 (0.88)	2.70 (1.06)	11.05	0.000
Family members	2.47 (0.87)	2.65 (0.90)	2.44 (0.80)	2.58 (0.92)	5.48	0.001

M = mean, SD = standard deviation. *F* statistic is reported here for an analysis of variance (ANOVA) which tests for mean differences between groups, *p* = significance level. Scores are based on the following categories: 1 = one; 2 = two to five; 3 = six to ten; 4 = eleven to twenty; 5 = greater than 20. NA = not applicable (no score available for this category).

Men who had only offline gay and bisexual male friends also had significantly smaller networks of offline gay and bisexual friends compared with men with both online and offline gay and bisexual friends. Men with both online and offline gay and bisexual friends had similar numbers of online gay and bisexual friends to men who only socialised with gay and bisexual men through the internet.

These findings suggest that men who have any online gay and bisexual friends are more embedded in heterosexual and family networks. Men who have only offline gay and bisexual friends have the smallest but most evenly distributed friend and family networks.

4.11 Summary of findings from gay and bisexual male networks

- A sizeable proportion of the sample (43.2%) had both online and offline gay and bisexual male friends and are using the internet to maintain social connections with other men.
- Some men (15.5%) have neither online or offline gay or bisexual male friends.

Profiles of each of the four gay and bisexual male network groups are summarised below.

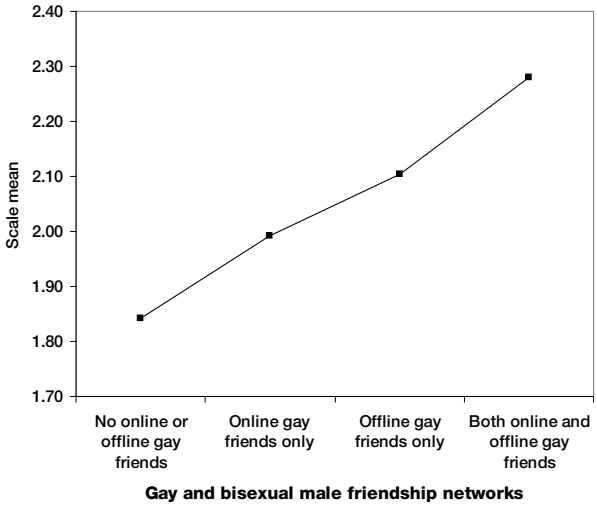

Figure 11: Sense of sexual and online security, by gay and bisexual male friendship networks

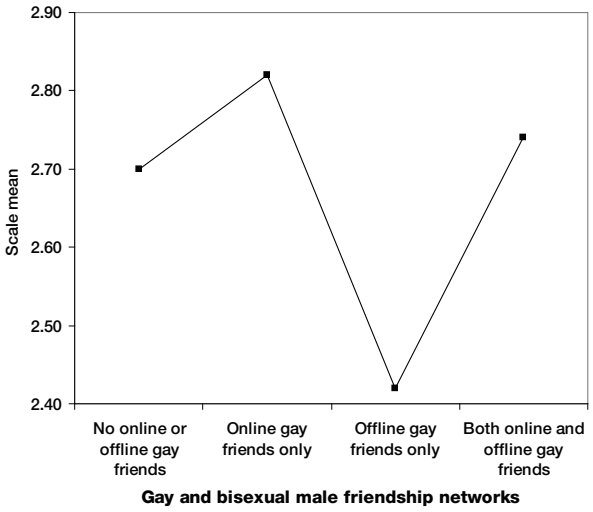

Figure 12: Size of network for straight male friends, by gay and bisexual male friendship networks

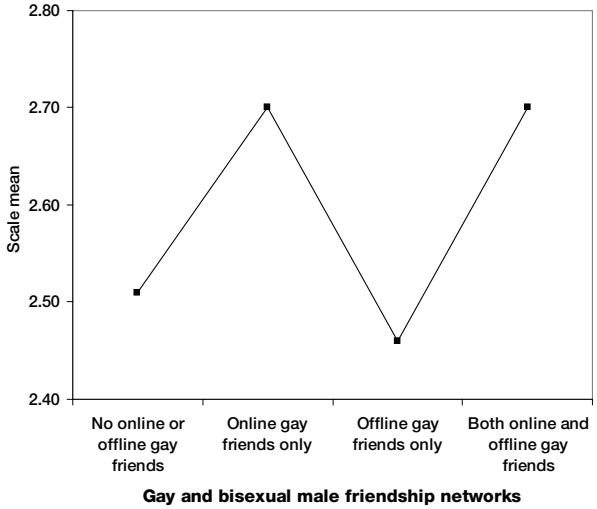

Figure 13: Size of network for female friends, by gay and bisexual male friendship networks

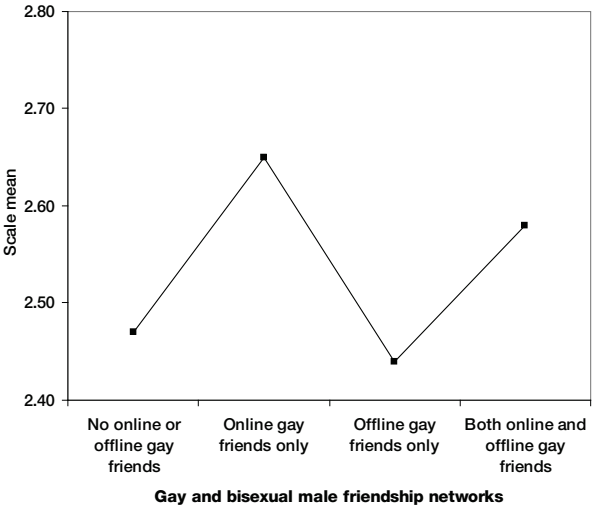

Figure 14: Size of network for family members, by gay and bisexual male friendship networks

4.11.1 Profiles of the four gay and bisexual male network groups

No gay or bisexual male friends (n = 536; 15.5%)

Men in this group:

- scored the lowest, compared with the other groups, on general trust in others, belief in helping others, and sense of sexual and online security
- were more likely than men with any offline gay or bisexual friends to identify as bisexual
- were more likely than others to live in a small city or town
- were more likely than men with any offline gay or bisexual male friends to seek online advice or information on HIV or sexual health
- were least likely to have ever been tested for HIV
- were most likely to have had sex with both men and women
- were more likely than others to have had sex with casual partners only
- were less likely than others to have had sex with both casual and regular male partners
- were less likely than others to have had anal intercourse with their regular male partners
- were less likely than others to have had anal intercourse with their casual male partners
- were more likely than those with offline gay or bisexual male friends to have met their current regular male partner online.

Online gay or bisexual male friends only (n = 259; 7.5%)

Men in this group:

- were slightly younger than men without online gay or bisexual friends
- had stronger social connections, compared with men with no online gay or bisexual male friends
- were more likely than men with some offline gay or bisexual friends to identify as bisexual
- were more embedded than others in heterosexual and family networks
- spent more time than others using the internet for leisure and looking for sex partners online
- were more likely than men with some offline gay or bisexual male friends to seek online advice or information on HIV or sexual health
- were less likely than those with offline gay or bisexual friends to have ever been tested for HIV
- were more likely than those with offline gay or bisexual male friends to have met their current regular male partner online
- rated their quality of life the poorest of the four groups.

Offline gay or bisexual male friends only (n = 1170; 33.8%)

Men in this group:

- were slightly older than men in the other categories
- had higher levels of volunteering or participation in community groups compared with men with no offline gay or bisexual friends
- were more likely than men with no offline gay or bisexual friends to be HIV-positive
- were more likely than men with no offline gay or bisexual friends to be socially engaged with other gay men
- were more likely than those with no offline gay or bisexual male friends to live in a capital city
- were more likely than those with no offline gay or bisexual male friends to visit and use Australian HIV-related health promotion websites
- were more likely than those with no offline gay or bisexual friends to have had sex with a regular male partner during the previous six months
- were more likely than those with no offline gay or bisexual male friends to say that they had disclosed their HIV status to casual male partners they met offline
- rated their quality of life higher than those with no offline gay or bisexual male friends.

Both online and offline gay or bisexual male friends (n = 1492; 43.2%)

Men in this group:

- were slightly younger than men without online gay or bisexual friends
- had stronger social connections, compared with men with no online gay or bisexual male friends

- scored the highest, compared with the other groups, on general trust in others, belief in helping others, and sense of sexual and online security
- had higher levels, compared with men with no offline gay or bisexual friends, in volunteering and participation in community groups
- were more likely than men with no offline gay or bisexual friends to be HIV-positive
- were more likely than men with no offline gay or bisexual friends to be gay socially engaged
- were more likely than those with no offline gay or bisexual male friend to live in a capital city
- were more likely than those with no offline gay or bisexual male friends to visit and use Australian HIV-related health promotion websites
- were tested for HIV more often than others
- were more likely than others to have had sex exclusively with men
- were more likely than others to have had sex with both casual and regular male partners
- were more likely than those without offline gay or bisexual friends to have had sex with a regular male partner during the previous six months
- were more likely than others to say that they had disclosed their HIV status to casual male partners met online and that they knew the HIV status of the same partners
- were more likely than others to know the HIV status of their casual male partners met offline
- were more likely than those with no offline gay or bisexual male friends to say they had disclosed their HIV status to the casual male partners they had met offline
- rated their quality of life higher than those with no offline gay or bisexual male friends
- generally had the largest and most evenly distributed friend and family networks.

4.11.2 Discussion and implications for research and health promotion

The use of four categories based on gay and bisexual male networks is helpful in identifying different health promotion needs amongst the sample of men as well as identifying how and where these men may be reached through health promotion activities.

Results from the study highlight several areas where health promotion is needed and underline how the internet can assist gay and bisexual men in sustaining social relationships:

- HIV testing is lower than ideal, particularly amongst men with no offline gay or bisexual male friends, especially given that some of these men are having unprotected anal intercourse with other men.
- Condom use is lower than ideal, particularly amongst men with no offline gay or bisexual male friends. While in the past it may have made some epidemiological sense for men in smaller and less urban areas where HIV prevalence was lower to be less consistent in their use of condoms than men in higher prevalence areas, this may no longer hold. In the current study there was a relatively high proportion of HIV-positive men living in rural areas, similar to the proportion living in major cities. Men in rural as well as urban areas need to be fully aware of the risks of having unprotected anal intercourse. Norms around negotiating safe sex may need to be promoted, particularly for the men with no offline gay or bisexual friends.
- Men who have online gay or bisexual friends are using the internet to search for sexual health information but are largely unaware of online health promotion campaigns conducted by Australian HIV organisations. These men would probably benefit from and use these sites if they were aware of them. The men with no offline gay or bisexual male friends exhibit the lowest scores on social capital measures and are the least likely to be socially engaged with gay men. More information about these men is needed to better understand and respond to their particular health promotion needs. Focused qualitative research with a small but broad cross-sectional sample of these men would be fruitful.
- The internet appears to enable a greater number of men to meet men and form a range of social relationships—with gay, bisexual, straight, male and female partners. For gay socially engaged men the internet appears to have expanded the ways in which they already meet men. And for these men, particularly those with both offline and online gay or bisexual male friends, connections with others, trust in those others, and trust in people in general are rated highly. For men who are not socially engaged with gay men (that is those men who have few gay friends and spend little time with gay friends), the internet is providing a bridge to other gay and bisexual men, but it would appear that these relationships are brief and sexual only.

- For men who have sex with men in Australia, having any online gay or bisexual male friends is a marker of more robust, trusting and secure social networks, with men, women and family members. Having online gay or bisexual friendships is a marker of stronger overall ties—the internet appears to have an additive or strengthening effect on social relationships for gay and bisexual men who can make friends online.
- It is difficult, from our data, to say whether the internet in itself facilitates better and supportive relationships or whether those who are more adept at forming social relationships are more likely to make use of the internet to form new social bonds. However, the former explanation (internet use increases sociality) appears less likely because a minority of men we recruited online, and who clearly used the internet, had no gay or bisexual male friends. These men had the weakest overall social relationships (we might regard them as more socially isolated than other men), yet used the internet for a reasonable amount of time each week. Internet use in itself does not appear to have facilitated an increase in the number of friendships or social capital for these men, suggesting that socially isolated men can remain isolated even when using the internet, and that socially adept men make use of the internet to broaden their social networks..

5 Comparison of e-male and Gay Community Periodic Surveys

A secondary aim of the e-male project was to assess whether the online methodology used in the study would enable the recruitment of similar men to those recruited in the Gay Community Periodic Surveys (GCPSs). These surveys are conducted at regular intervals in major cities across Australia.

Australian and international research with men who have sex with men (MSM) suggests that as well as recruiting gay-identified men and those from metropolitan areas, internet studies are good at attracting young men, bisexually-active men, and men from geographically isolated areas (e.g. Hillier et al., 1998; Reid et al., 2002; Rhodes et al., 2002; Ross et al., 2000). While it may be advantageous to use the internet to recruit a broader range of MSM in order to compare datasets it is important to know whether internet recruitment attracts similar men to those in existing studies.

The following analyses provide comparisons of men from the e-male survey who live in New South Wales, Victoria, Queensland and Western Australia; subsets of men from the e-male survey who are 'socially engaged' with gay men (see comments in relation to Table 18) and live in Sydney, Melbourne, Brisbane and Perth; and the respective GCPS samples recruited in those four cities. As the sampling and recruitment strategies of the e-male survey were different from those of the four GCPSs included here, we have not undertaken statistical testing of these data. However, we have included a range of indicative demographic variables and markers of sexual practice to show how the e-male and GCPS samples are similar or different.

5.1 Comparison of the e-male sample in New South Wales and Sydney and the Sydney GCPS in 2008

The sexual identities reported by participants were remarkably similar across the two Sydney samples (from e-male and the Sydney GCPS). The overwhelming majority of men in the Sydney samples identified as gay or homosexual (Table 65). The e-male sample of men from New South Wales, on the other hand, had a noticeably higher proportion of bisexual men and a smaller proportion of gay/homosexual men compared with the other two samples.

Table 65: Sexual identity in Sydney and NSW

	Men in NSW (e-male 2008)[1] *n* (%)	Men in Sydney (e-male 2008)[2] *n* (%)	Sydney GCPS (2008)[3] *n* (%)
Gay/Homosexual	947 (77.9)	458 (89.6)	2015 (92.2)
Bisexual	221 (18.2)	40 (7.8)	118 (5.4)
Heterosexual/Straight	12 (1.0)	0 (0.0)	33 (1.5)
Queer	17 (1.4)	9 (1.8)	0 (0.0)
Other	18 (1.5)	4 (0.8)	19 (0.9)
Total	1215 (100)	511 (100)	2185 (100)

1 E-male study participants living in NSW

2 E-male study participants who are socially engaged with gay men and live in Sydney (subset of e-male participants in NSW)

3 Participants from the 2008 Sydney Gay Community Periodic Survey

Men living in NSW from the e-male survey were slightly younger than gay socially engaged e-male participants living in Sydney and men from the Sydney GCPS (Table 66).

Table 66: Age of participants in Sydney and NSW

	Men in NSW (e-male 2008)[1] *n* (%)	Men in Sydney (e-male 2008)[2] *n* (%)	Sydney GCPS (2008)[3] *n* (%)
16–19	92 (7.6)	18 (3.5)	40 (1.8)
20–25	236 (19.4)	73 (14.3)	286 (13.1)
26–29	125 (10.3)	58 (11.4)	244 (11.2)
30–39	323 (26.6)	154 (30.1)	705 (32.3)
40–49	255 (21.0)	129 (25.2)	630 (28.8)
50+	184 (15.1)	79 (15.5)	281 (12.9)
Total	1215 (100)	511 (100)	2186 (100)

1 E-male study participants living in NSW

2 E-male study participants who are socially engaged with gay men and live in Sydney (subset of e-male participants in NSW)

3 Participants from the 2008 Sydney Gay Community Periodic Survey

All three samples had similarly small proportions of men who were of Aboriginal or Torres Strait Islander (ATSI) origin (Table 67). However, the two e-male samples had the smallest proportion of ATSI men, which suggests greater difficulties in reaching Aboriginal and Torres Strait Islander men who have sex with men through the internet.

Table 67: Aboriginal and Torres Strait Islander origin in Sydney and NSW

	Men in NSW (e-male 2008)[1] *n* (%)	Men in Sydney (e-male 2008)[2] *n* (%)	Sydney GCPS (2008)[3] *n* (%)
Aboriginal or Torres Strait Islander origin	17 (1.2)	6 (1.2)	60 (2.8)
Not of ATSI origin	1198 (98.8)	505 (98.8)	2103 (97.2)
Total	1215 (100)	511 (100)	2163 (100)

1 E-male study participants living in NSW

2 E-male study participants who are socially engaged with gay men and live in Sydney (subset of e-male participants in NSW)

3 Participants from the 2008 Sydney Gay Community Periodic Survey

In the e-male survey, gay socially engaged men living in Sydney had similarly high levels of education as men in the Sydney GCPS (the majority in both being university educated). The e-male sample in New South Wales showed a broader range of educational levels, with higher proportions of men with school certificates and trade qualifications (Table 68).

Table 68: Education levels in Sydney and NSW

	Men in NSW (e-male 2008)[1] *n* (%)	Men in Sydney (e-male 2008)[2] *n* (%)	Sydney GCPS (2008)[3] *n* (%)
School certificate or less	145 (12.1)	23 (4.5)	165 (7.6)
Year 12/HSC/VCE, etc	233 (19.4)	81 (15.9)	359 (16.6)
Diploma/Trade certificate/TAFE	292 (24.3)	110 (21.7)	395 (18.2)
University degree	530 (44.2)	294 (57.9)	1246 (57.6)
Total	1200 (100)	508 (100)	2165 (100)

1 E-male study participants living in NSW

2 E-male study participants who are socially engaged with gay men and living in Sydney (subset of e-male participants in NSW)

3 Participants from the 2008 Sydney Gay Community Periodic Survey

E-male participants living in Sydney were more likely to be in full-time employment than men in the two other samples (Table 69).

Table 69: Employment status in Sydney and NSW

	Men in NSW (e-male 2008)[1] *n* (%)	Men in Sydney (e-male 2008)[2] *n* (%)	Sydney GCPS (2008)[3] *n* (%)
Full-time	875 (72.0)	414 (81.0)	1626 (74.1)
Part-time	97 (8.0)	30 (5.9)	175 (8.0)
Unemployed	39 (3.2)	11 (2.2)	94 (4.3)
Student	114 (9.4)	29 (5.7)	145 (6.6)
Social security	81 (6.7)	15 (2.9)	63 (2.9)
Other	9 (0.7)	12 (2.4)	91 (4.1)
Total	**1215 (100)**	**511 (100)**	**2194 (100)**

1 E-male study participants living in NSW

2 E-male study participants who are socially engaged with gay men and living in Sydney (subset of e-male participants in NSW)

3 Participants from the 2008 Sydney Gay Community Periodic Survey

Men from the Sydney GCPS were more likely to have had an HIV test than men from the two e-male samples, although e-male participants from Sydney who were socially engaged with gay men were broadly similar to the Sydney GCPS sample (Table 70). The proportion of untested men was notably high among e-male participants living in New South Wales, suggesting an opportunity to use the internet to reach these men and promote HIV testing.

Table 70: HIV status in Sydney and NSW

	Men in NSW (e-male 2008)[1] *n* (%)	Men in Sydney (e-male 2008)[2] *n* (%)	Sydney GCPS (2008)[3] *n* (%)
No test/Don't know the result	289 (25.5)	68 (14.1)	155 (7.1)
HIV-negative	738 (65.2)	353 (73.4)	1736 (79.2)
HIV-positive	105 (9.3)	60 (12.5)	302 (13.8)
Total	**1132 (100)**	**481 (100)**	**2193 (100)**

1 E-male study participants living in NSW

2 E-male study participants who are socially engaged with gay men and living in Sydney (subset of e-male participants in NSW)

3 Participants from the 2008 Sydney Gay Community Periodic Survey

Amongst those men who had been tested for HIV, testing patterns were similar (Table 71). The majority of men in all three samples had been tested in the previous six months.

Table 71: Most recent HIV test in Sydney and NSW (only those who had been tested for HIV)

	Men in NSW (e-male 2008)[1] *n* (%)	Men in Sydney (e-male 2008)[2] *n* (%)	Sydney GCPS (2008)[3] *n* (%)
Within last 6 months	457 (53.0)	234 (55.5)	1059 (51.6)
7–12 months	159 (18.4)	83 (19.7)	410 (20.0)
1–2 years	100 (11.6)	48 (11.3)	281 (13.7)
> 2 years	147 (17.0)	57 (13.5)	301 (14.7)
Total	**863 (100)**	**422 (100)**	**2051 (100)**

1 E-male study participants living in NSW

2 E-male study participants who are socially engaged with gay men and living in Sydney (subset of e-male participants in NSW)

3 Participants from the 2008 Sydney Gay Community Periodic Survey

Men in the e-male samples from Sydney and New South Wales were more likely than men in the Sydney GCPS sample to look for male sex partners through the internet and at beats (Table 72). The New South Wales e-male sample was the least likely group of men to look for sex partners in gay bars, gay saunas and at dance parties, while the SGCPS men were the most likely to look for male partners at these places.

Table 72: Where men looked for male sex partners in Sydney and NSW

	Men in NSW (e-male 2008)[1] *n* (%)	Men in Sydney (e-male 2008)[2] *n* (%)	Sydney GCPS (2008)[3] *n* (%)
Internet	889 (85.6)	391 (83.7)	1240 (63.2)
Gay bar	496 (47.7)	287 (61.5)	1303 (66.4)
Dance party	309 (29.7)	183 (39.2)	898 (45.8)
Gym	227 (21.8)	118 (25.3)	465 (23.7)
Beat	348 (33.5)	142 (30.4)	499 (25.4)
Gay sauna	402 (38.7)	221 (47.3)	1008 (51.4)
Other sex venue	256 (24.6)	134 (28.7)	613 (31.2)
Private sex parties	167 (16.1)	91 (19.5)	310 (15.8)

Note: These categories are not mutually exclusive.

1 E-male study participants living in NSW

2 E-male study participants who are socially engaged with gay men and living in Sydney (subset of e-male participants in NSW)

3 Participants from the 2008 Sydney Gay Community Periodic Survey

Men in the Sydney e-male sample were more likely than men in the other two samples to have had two or more male sexual partners in the previous six months (Table 73).

Table 73: Number of male sex partners in the last six months in Sydney and NSW

	Men in NSW (e-male 2008)[1] *n* (%)	Men in Sydney (e-male 2008)[2] *n* (%)	Sydney GCPS (2008)[3] *n* (%)
None	173 (14.2)	43 (8.4)	314 (14.5)
One	158 (13.0)	51 (10.0)	379 (17.4)
2 to 10	583 (48.0)	235 (46.0)	633 (29.1)
More than 10	301 (24.8)	182 (35.6)	847 (39.0)
Total	1215 (100)	511 (100)	2173 (100)

1 E-male study participants living in NSW

2 E-male study participants who are socially engaged with gay men and living in Sydney (subset of e-male participants in NSW)

3 Participants from the 2008 Sydney Gay Community Periodic Survey

Men from New South Wales in the e-male survey were the least likely to have had a casual or regular male sexual partner in the previous six months (Table 74). Men in the Sydney GCPS were more likely than men in either of the e-male samples to have had a regular partner only or a casual partner only. Men in both e-male samples were more likely than Sydney GCPS men to have had both casual and regular male partners in the previous six months.

Table 74: Regular and casual partners in the last six months in Sydney and NSW

	Men in NSW (e-male 2008)[1] *n* (%)	Men in Sydney (e-male 2008)[2] *n* (%)	Sydney GCPS (2008)[3] *n* (%)
No regular or casual partners	208 (17.1)	54 (10.6)	203 (10.3)
Casual partners only	264 (21.7)	115 (22.5)	558 (28.3)
Regular partners only	132 (10.9)	52 (10.2)	464 (23.5)
Casual and regular partners	611 (50.3)	290 (56.8)	748 (37.9)
Total	1215 (100)	511 (100)	1973 (100)

1 E-male study participants living in NSW

2 E-male study participants who are socially engaged with gay men and living in Sydney

3 Participants from the 2008 Sydney Gay Community Periodic Survey

Amongst the men who had a casual male partner in the previous six months, e-male participants from Sydney were the most likely to have had anal intercourse (Table 75).

Table 75: Anal intercourse and condom use with casual male partners in the last six months in Sydney and NSW

	Men in NSW (e-male 2008)[1] *n* (%)	Men in Sydney (e-male 2008)[2] *n* (%)	Sydney GCPS (2008)[3] *n* (%)
No anal intercourse	73 (15.9)	24 (10.9)	284 (19.3)
No unprotected anal intercourse	237 (51.5)	125 (56.6)	758 (51.6)
Any unprotected anal intercourse	150 (32.6)	72 (32.6)	428 (29.1)
Total	460 (100)	221 (100)	1470 (100)

1 E-male study participants living in NSW

2 E-male study participants who are socially engaged with gay men and living in Sydney (subset of e-male participants in NSW)

3 Participants from the 2008 Sydney Gay Community Periodic Survey

Men in both e-male samples were more likely than men in the Sydney GCPS to have had unprotected anal intercourse with their regular male partner in the previous six months (Table 76). This result may or may not indicate greater risk of HIV transmission amongst the e-male men. To understand the relative risk it would be important to factor into the analyses the serostatus of the study participant and their regular male partner.

Table 76: Anal intercourse and condom use with regular male partners in the last six months in Sydney and NSW

	Men in NSW (e-male 2008)[1] *n* (%)	Men in Sydney (e-male 2008)[2] *n* (%)	Sydney GCPS (2008)[3] *n* (%)
No anal intercourse	81 (10.9)	29 (8.5)	87 (9.9)
No unprotected anal intercourse	215 (28.9)	99 (28.9)	327 (37.3)
Any unprotected anal intercourse	447 (60.2)	214 (62.6)	463 (52.8)
Total	743 (100)	342 (100)	877 (100)

1 E-male study participants living in NSW

2 E-male study participants who are socially engaged with gay men and living in Sydney

3 Participants from the 2008 Sydney Gay Community Periodic Survey

5.2 Comparisons of the e-male sample in Victoria and Melbourne with the Melbourne GCPS sample in 2008

Compared with the Melbourne GCPS sample, the Victorian e-male sample had a smaller proportion of gay and homosexually identified men and a higher proportion of bisexual men (Table 77). The Melbourne e-male sample of men who were socially engaged with gay men was similar to the Melbourne GCPS sample.

Table 77: Sexual identity in Melbourne and Victoria

	Men in Victoria (e-male 2008)[1] *n* (%)	Men in Melbourne (e-male 2008)[2] *n* (%)	Melbourne GCPS (2008)[3] *n* (%)
Gay/Homosexual	593 (76.7)	327 (86.3)	1788 (89.9)
Bisexual	151 (19.5)	35 (9.2)	133 (6.7)
Heterosexual/Straight	8 (1.0)	1 (0.3)	37 (1.9)
Queer	13 (1.7)	11 (2.9)	–
Other	8 (1.0)	5 (1.3)	31 (1.6)
Total	**773 (100)**	**379 (100)**	**1989 (100)**

1 E-male study participants living in Victoria

2 E-male study participants who are socially engaged with gay men and living in Melbourne (subset of e-male participants in Victoria)

3 Participants from the 2008 Melbourne Gay Community Periodic Survey

Men living in Victoria from the e-male survey were the youngest of the three groups, while gay socially engaged e-male men living in Melbourne were the oldest (Table 78).

Table 78: Age of participants in Melbourne and Victoria

	Men in Victoria (e-male 2008)[1] *n* (%)	Men in Melbourne (e-male 2008)[2] *n* (%)	Melbourne GCPS (2008)[3] *n* (%)
16–19	49 (6.3)	7 (1.8)	82 (4.1)
20–25	176 (22.8)	65 (17.2)	360 (18.0)
26–29	91 (11.8)	45 (11.9)	280 (14.0)
30–39	198 (25.6)	114 (30.1)	613 (30.7)
40–49	178 (23.0)	101 (26.6)	411 (20.6)
50+	81 (10.5)	47 (12.4)	253 (12.7)
Total	**773 (100)**	**379 (100)**	**1999 (100)**

1 E-male study participants living in Victoria

2 E-male study participants who are socially engaged with gay men and living in Melbourne (subset of e-male participants in Victoria)

3 Participants from the 2008 Melbourne Gay Community Periodic Survey

There was a higher proportion of Aboriginal and Torres Strait Islander participants in the Melbourne GCPS sample compared with the e-male samples from Victoria and Melbourne (Table 79).

Table 79: Aboriginal and Torres Strait Islander origin in Melbourne and Victoria

	Men in Victoria (e-male 2008)[1] *n* (%)	Men in Melbourne (e-male 2008)[2] *n* (%)	Melbourne GCPS (2008)[3] *n* (%)
Aboriginal or Torres Strait Islander origin	6 (0.8)	5 (1.3)	95 (4.8)
Not of ATSI origin	766 (99.1)	374 (98.7)	1865 (95.2)
Total	**772 (100)**	**379 (100)**	**1960 (100)**

1 E-male study participants living in Victoria

2 E-male study participants who are socially engaged with gay men and living in Melbourne (subset of e-male participants in Victoria)

3 Participants from the 2008 Melbourne Gay Community Periodic Survey

Men in the e-male samples had lower levels of educational attainment than men in the Melbourne GCPS (Table 80). This result cannot simply reflect an age or generational effect as age was relatively similar across the two samples (see Table 78 above).

Table 80: Education levels in Melbourne and Victoria

	Men in Victoria (e-male 2008)[1] *n* (%)	Men in Melbourne (e-male 2008)[2] *n* (%)	Melbourne GCPS (2008)[3] *n* (%)
School certificate or less	90 (11.8)	102 (23.0)	178 (9.1)
Year 12/HSC/VCE, etc	152 (19.9)	67 (15.1)	384 (19.7)
Diploma/Trade certificate/TAFE	194 (25.4)	81 (18.3)	332 (17.0)
University degree	327 (42.9)	193 (43.6)	1057 (54.2)
Total	**763 (100)**	**443 (100)**	**1951 (100)**

1 E-male study participants living in Victoria

2 E-male study participants who are socially engaged with gay men and living in Melbourne (subset of e-male participants in Victoria)

3 Participants from the 2008 Melbourne Gay Community Periodic Survey

Employment levels were similar in the Melbourne e-male sample and the Melbourne GCPS sample (Table 81). In the Victorian e-male sample, there was a lower level of full-time employment and higher proportions of part-time workers, students and those receiving welfare benefits.

Table 81: Employment status in Melbourne and Victoria

	Men in Victoria (e-male 2008)[1] *n* (%)	Men in Melbourne (e-male 2008)[2] *n* (%)	Melbourne GCPS (2008)[3] *n* (%)
Full-time	515 (66.6)	275 (72.6)	1388 (70.6)
Part-time	76 (9.8)	31 (8.2)	204 (10.4)
Unemployed	21 (2.7)	8 (2.1)	64 (3.3)
Student	103 (13.3)	36 (9.5)	166 (8.4)
Social security	48 (6.2)	12 (3.2)	72 (3.7)
Other	10 (1.3)	17 (4.4)	73 (3.7)
Total	**773 (100)**	**379 (100)**	**1967 (100)**

1 E-male study participants living in Victoria

2 E-male study participants who are socially engaged with gay men and living in Melbourne (subset of e-male participants in Victoria)

3 Participants from the 2008 Melbourne Gay Community Periodic Survey

Men in both the Melbourne and the Victorian e-male samples were less likely than men in the Melbourne GCPS to have been tested for HIV (Table 82). The Melbourne GCPS sample had the largest proportion of HIV-positive men out of the three samples.

Table 82: HIV status in Melbourne and Victoria

	Men in Victoria (e-male 2008)[1] *n* (%)	Men in Melbourne (e-male 2008)[2] *n* (%)	Melbourne GCPS (2008)[3] *n* (%)
No test/Don't know the result	172 (23.7)	56 (15.7)	154 (7.6)
HIV-negative	480 (66.1)	255 (71.4)	1552 (76.9)
HIV-positive	74 (10.2)	46 (12.9)	312 (15.5)
Total	726 (100)	357 (100)	2018 (100)

1 E-male study participants living in Victoria

2 E-male study participants who are socially engaged with gay men and living in Melbourne (subset of e-male participants in Victoria)

3 Participants from the 2008 Melbourne Gay Community Periodic Survey

Amongst the men who had been tested for HIV, those in both e-male samples were slightly more likely than men in the Melbourne GCPS sample to have had their test more recently (Table 83).

Table 83: Most recent HIV test in Melbourne and Victoria (only those who had been tested for HIV)

	Men in Victoria (e-male 2008)[1] *n* (%)	Men in Melbourne (e-male 2008)[2] *n* (%)	Melbourne GCPS (2008)[3] *n* (%)
Within last 6 months	304 (53.6)	172 (55.8)	891 (50.2)
7–12 months	91 (16.0)	47 (15.3)	332 (18.7)
1–2 years	84 (14.8)	41 (13.3)	237 (13.4)
> = 2 years	88 (15.5)	48 (15.6)	314 (17.7)
Total	567 (100)	308 (100)	1774 (100)

1 E-male study participants living in Victoria

2 E-male study participants who are socially engaged with gay men and living in Melbourne (subset of e-male participants in Victoria)

3 Participants from the 2008 Melbourne Gay Community Periodic Survey

The men in both e-male samples were more likely than Melbourne GCPS men to look for male partners through the internet and beats (Table 84). Melbourne GCPS men were more likely than those in either e-male sample to look for male partners at dance parties and in gay bars and gyms.

Table 84: Where men looked for male sex partners in Melbourne and Victoria

	Men in Victoria (e-male 2008)[1] *n* (%)	Men in Melbourne (e-male 2008)[2] *n* (%)	Melbourne GCPS (2008)[3] *n* (%)
Internet	596 (88.3)	302 (86.8)	1084 (61.3)
Gay bar	325 (48.1)	199 (57.2)	1170 (66.2)
Dance party	179 (26.5)	116 (33.3)	711 (42.7)
Gym	103 (15.3)	57 (16.4)	338 (20.9)
Beat	247 (36.6)	121 (34.8)	498 (29.9)
Gay sauna	297 (44.0)	167 (48.0)	898 (50.8)
Other sex venue	189 (28.0)	110 (31.6)	524 (31.8)
Private sex parties	97 (14.4)	61 (17.5)	215 (13.3)

Note: These categories are not mutually exclusive.

1 E-male study participants living in Victoria

2 E-male study participants who are socially engaged with gay men and living in Melbourne (subset of e-male participants in Victoria)

3 Participants from the 2008 Melbourne Gay Community Periodic Survey

Men in both e-male samples were more likely than men in the Melbourne GCPS to have had more than two male sex partners in the previous six months (Table 85). However, the men in the Melbourne GCPS sample were the most likely to have had more than ten partners.

Table 85: Number of male sex partners in the last six months in Melbourne and Victoria

	Men in Victoria (e-male 2008)[1] *n* (%)	Men in Melbourne (e-male 2008)[2] *n* (%)	Melbourne GCPS (2008)[3] *n* (%)
None	98 (12.7)	31 (8.2)	215 (11.4)
One	91 (11.8)	39 (10.3)	438 (23.2)
2 to 10	379 (49.0)	184 (48.5)	513 (27.2)
More than 10	205 (26.5)	125 (33.0)	719 (38.2)
Total	773 (100)	379 (100)	1885 (100)

1 E-male study participants living in Victoria

2 E-male study participants who are socially engaged with gay men and living in Melbourne (subset of e-male participants in Victoria)

3 Participants from the 2008 Melbourne Gay Community Periodic Survey

Men in both e-male samples were more likely than men in the Melbourne GCPS sample to have had both casual and regular male partners in the previous six months, and were less likely to have had only regular partners or casual partners (Table 86).

Table 86: Regular and casual male sexual partners in the last six months in Melbourne and Victoria

	Men in Victoria (e-male 2008)[1] *n* (%)	Men in Melbourne (e-male 2008)[2] *n* (%)	Melbourne GCPS (2008)[3] *n* (%)
No regular or casual partners	112 (14.5)	35 (9.2)	198 (9.9)
Casual partners only	162 (21.0)	75 (19.8)	579 (29.4)
Regular partners only	70 (9.1)	40 (10.6)	523 (26.2)
Casual and regular partners	429 (55.5)	229 (60.4)	684 (34.5)
Total	773 (100)	379 (100)	1984 (100)

1 E-male study participants living in Victoria

2 E-male study participants who are socially engaged with gay men and living in Melbourne (subset of e-male participants in Victoria)

3 Participants from the 2008 Melbourne Gay Community Periodic Survey

Men from both the Melbourne and Victorian e-male samples were more likely to have had anal sex in the previous six months compared with men from the Melbourne GCPS, were less likely to always use condoms and more likely to have had unprotected anal intercourse with their casual partners (Table 87).

Table 87: Anal intercourse and condom use with casual male partners in the last six months in Melbourne and Victoria

	Men in Victoria (e-male 2008)[1] *n* (%)	Men in Melbourne (e-male 2008)[2] *n* (%)	Melbourne GCPS (2008)[3] *n* (%)
No anal intercourse	61 (22.0)	30 (20.8)	340 (23.8)
No unprotected anal intercourse	117 (42.2)	60 (41.7)	671 (46.9)
Any unprotected anal intercourse	99 (35.7)	54 (37.5)	420 (29.4)
Total	277 (100)	144 (100)	1431 (100)

1 E-male study participants living in Victoria

2 E-male study participants who are socially engaged with gay men and living in Melbourne (subset of e-male participants in Victoria)

3 Participants from the 2008 Melbourne Gay Community Periodic Survey

Men in both e-male samples were also more likely than men in the Melbourne GCPS sample to have had unprotected anal intercourse with their regular male partners, although among men living in Victoria from the e-male survey, there was a slightly higher proportion of men who had not had anal sex with their regular partner(s) in the last six months (Table 88).

Table 88: Anal intercourse and condom use with regular male partners in the last six months in Melbourne and Victoria

	Men in Victoria (e-male 2008)[1] *n* (%)	Men in Melbourne (e-male 2008)[2] *n* (%)	Melbourne GCPS (2008)[3] *n* (%)
No anal intercourse	72 (14.4)	33 (12.3)	101 (11.9)
No unprotected anal intercourse	134 (26.9)	76 (28.3)	312 (36.8)
Any unprotected anal intercourse	293 (58.7)	160 (59.5)	435 (51.3)
Total	499 (100)	269 (100)	848 (100)

1 E-male study participants living in Victoria

2 E-male study participants who are socially engaged with gay men and living in Melbourne (subset of e-male participants in Victoria)

3 Participants from the 2008 Melbourne Gay Community Periodic Survey

5.3 Comparisons of the e-male sample in Queensland and Brisbane with the Queensland GCPS sample in 2008

Similar proportions of men identified as gay, homosexual and bisexual in the e-male and Queensland GCPS samples of men living in Brisbane (Table 89). Comparing all three samples, the e-male sample of men living in Queensland had a higher proportion of bisexual men.

Table 89: Sexual identity in Brisbane and Queensland

	Men in Queensland (e-male 2008)[1] *n* (%)	Men in Brisbane (e-male 2008)[2] *n* (%)	Brisbane (Queensland GCPS 2008)[3] *n* (%)
Gay/Homosexual	469 (77.1)	182 (89.7)	857 (87.4)
Bisexual	120 (19.7)	19 (9.4)	82 (8.4)
Heterosexual/Straight	7 (1.2)	–	26 (2.7)
Queer	4 (0.7)	1 (0.5)	–
Other	8 (1.3)	1 (0.5)	15 (1.5)
Total	608 (100)	203 (100)	980 (100)

1 E-male study participants living in Queensland

2 E-male study participants who are socially engaged with gay men and living in Brisbane (subset of e-male participants in Queensland)

3 Participants living in Brisbane from the 2008 Queensland Gay Community Periodic Survey

The two samples from the e-male survey had slightly more men aged over 40 compared with the Brisbane sample from the Queensland GCPS (Table 90).

Table 90: Age of participants in Brisbane and Queensland

	Men in Queensland (e-male 2008)[1] *n* (%)	Men in Brisbane (e-male 2008)[2] *n* (%)	Brisbane (Queensland GCPS 2008)[3] *n* (%)
16–19	46 (7.6)	10 (4.9)	54 (5.6)
20–25	157 (25.8)	52 (25.6)	256 (26.4)
26–29	85 (14.0)	34 (16.7)	128 (13.2)
30–39	123 (20.2)	45 (22.2)	292 (30.1)
40–49	117 (19.2)	43 (21.2)	155 (16.0)
50+	80 (13.2)	19 (9.4)	86 (8.9)
Total	608 (100)	203 (100)	971 (100)

1 E-male study participants living in Queensland

2 E-male study participants who are socially engaged with gay men and living in Brisbane (subset of e-male participants in Queensland)

3 Participants living in Brisbane from the 2008 Queensland Gay Community Periodic Survey

There was a higher proportion of Aboriginal or Torres Strait Islander participants in the Queensland GCPS sample than in either e-male sample (Table 91). As this is a similar finding to those from the analyses conducted with New South Wales and Victorian data, this suggests that it could be more difficult to reach Aboriginal or Torres Strait Islander men who have sex with men using the internet.

Table 91: Aboriginal and Torres Strait Islander origin in Brisbane and Queensland

	Men in Queensland (e-male 2008)[1] *n* (%)	Men in Brisbane (e-male 2008)[2] *n* (%)	Brisbane (Queensland GCPS 2008)[3] *n* (%)
Aboriginal or Torres Strait Islander origin	16 (2.6)	5 (2.5)	39 (4.0)
Not of ATSI origin	592 (97.4)	198 (97.5)	926 (96.0)
Total	608 (100)	203 (100)	965 (100)

1 E-male study participants living in Queensland

2 E-male study participants who are socially engaged with gay men and living in Brisbane (subset of e-male participants in Queensland)

3 Participants living in Brisbane from the 2008 Queensland Gay Community Periodic Survey

Men in the two Brisbane samples (from e-male and the Queensland GCPS) had similar levels of education (Table 92). Participants from Queensland in the e-male survey reported slightly lower levels of education than men in the other samples.

Employment levels were similar in both samples of men living in Brisbane, but there were fewer men in full-time employment in the e-male sample from Queensland (Table 93).

Table 92: Education levels in Brisbane and Queensland

	Men in Queensland (e-male 2008)[1] *n* (%)	Men in Brisbane (e-male 2008)[2] *n* (%)	Brisbane (Queensland GCPS 2008)[3] *n* (%)
School certificate or less	100 (16.9)	22 (11.0)	105 (10.8)
Year 12/HSC/VCE etc	142 (23.9)	43 (21.4)	261 (26.9)
Diploma/trade certificate/TAFE	155 (26.1)	56 (27.9)	201 (20.7)
University degree	196 (33.1)	80 (39.8)	403 (41.5)
Total	593 (100)	201 (100)	970 (100)

1 E-male study participants living in Queensland

2 E-male study participants who are socially engaged with gay men and living in Brisbane (subset of e-male participants in Queensland)

3 Participants living in Brisbane from the 2008 Queensland Gay Community Periodic Survey

Table 93: Employment status in Brisbane and Queensland

	Men in Queensland (e-male 2008)[1] *n* (%)	Men in Brisbane (e-male 2008)[2] *n* (%)	Brisbane (Queensland GCPS 2008)[3] *n* (%)
Full-time	403 (66.3)	150 (73.9)	692 (71.7)
Part-time	76 (12.5)	20 (9.9)	107 (11.1)
Unemployed	20 (3.3)	7 (3.4)	31 (3.2)
Student	53 (8.7)	16 (7.9)	80 (8.3)
Social security	51 (8.4)	5 (2.5)	21 (2.2)
Other	5 (0.8)	5 (2.5)	34 (3.5)
Total	608 (100)	203 (100)	965 (100)

Men from the Queensland GCPS were the most likely to have ever had an HIV test compared with the e-male samples (Table 94). Over a quarter of e-male participants living in Queensland had never had an HIV test.

There appeared to be no difference in recency of HIV testing between the three samples (Table 95).

Table 94: HIV status in Brisbane and Queensland

	Men in Queensland (e-male 2008)[1] *n* (%)	Men in Brisbane (e-male 2008)[2] *n* (%)	Brisbane (Queensland GCPS 2008)[3] *n* (%)
No test/Don't know the result	144 (25.6)	29 (14.9)	97 (10.4)
HIV-negative	382 (67.9)	150 (77.3)	777 (83.4)
HIV-positive	37 (6.6)	15 (7.7)	58 (6.2)
Total	563 (100)	194 (100)	932 (100)

1 E-male study participants living in Queensland

2 E-male study participants who are socially engaged with gay men and living in Brisbane (subset of e-male participants in Queensland)

3 Participants living in Brisbane from the 2008 Queensland Gay Community Periodic Survey

Table 95: Most recent HIV test in Brisbane and Queensland (only those who had been tested for HIV)

	Men in Queensland (e-male 2008)[1] *n* (%)	Men in Brisbane (e-male 2008)[2] *n* (%)	Brisbane (Queensland GCPS 2008)[3] *n* (%)
Within last 6 months	227 (53.1)	93 (55.7)	508 (56.1)
7–12 months	72 (16.8)	27 (16.2)	137 (15.1)
1–2 years	56 (13.1)	18 (10.8)	119 (13.1)
≥ 2 years	73 (17.0)	29 (17.4)	142 (15.7)
Total	428 (100)	167 (100)	906 (100)

1 E-male study participants living in Queensland

2 E-male study participants who are socially engaged with gay men and living in Brisbane (subset of e-male participants in Queensland)

3 Participants living in Brisbane from the 2008 Queensland Gay Community Periodic Survey

Men in both e-male samples were more likely than men in the Queensland GCPS to look for male sex partners through the internet, but were less likely to look for male sex partners in gay bars, at dance parties, gyms, and other sex venues (Table 96). Men in all three samples were similarly likely to look for men at beats.

Table 96: Where men looked for male sex partners in Brisbane and Queensland

	Men in Queensland (e-male 2008)[1] *n* (%)	Men in Brisbane (e-male 2008)[2] *n* (%)	Brisbane (Queensland GCPS 2008)[3] *n* (%)
Internet	474 (89.8)	166 (86.9)	520 (68.2)
Gay bar	237 (44.9)	119 (62.3)	613 (68.2)
Dance party	121 (22.9)	70 (36.6)	354 (42.8)
Gym	74 (14.0)	35 (18.3)	173 (21.5)
Beat	187 (35.4)	58 (30.4)	265 (32.1)
Gay sauna	161 (30.5)	72 (37.7)	342 (40.5)
Other sex venue	132 (25.0)	49 (25.7)	342 (40.5)
Private sex parties	66 (12.5)	31 (16.2)	126 (15.7)

Note: These categories are not mutually exclusive.

1 E-male study participants living in Queensland

2 E-male study participants who are socially engaged with gay men and living in Brisbane (subset of e-male participants in Queensland)

3 Participants living in Brisbane from the 2008 Queensland Gay Community Periodic Survey

Men in the e-male sample living in Brisbane were slightly more likely than men in the other two samples to have higher numbers of male sex partners (Table 97).

Men in the Queensland GCPS sample were more likely than men in either e-male sample to have had regular male partners only in the previous six months (Table 98).

Rates of unprotected anal intercourse with casual male partners were slightly higher in both e-male samples compared with men from the Queensland GCPS (Table 99).

Table 97: Number of male sex partners in the last six months in Brisbane and Queensland

	Men in Queensland (e-male 2008)[1] *n* (%)	Men in Brisbane (e-male 2008)[2] *n* (%)	Brisbane (Queensland GCPS 2008)[3] *n* (%)
None	79 (13.0)	12 (5.9)	129 (13.2)
One	103 (16.9)	29 (14.3)	182 (18.6)
2 –10	304 (50.0)	105 (51.7)	468 (48.0)
> 10	122 (20.1)	57 (28.1)	197 (20.2)
Total	608 (100)	203 (100)	976 (100)

1 E-male study participants living in Queensland

2 E-male study participants who are socially engaged with gay men and living in Brisbane (subset of e-male participants in Queensland)

3 Participants living in Brisbane from the 2008 Queensland Gay Community Periodic Survey

Table 98: Regular and casual male sexual partners in the last six months in Brisbane and Queensland

	Men in Queensland (e-male 2008)[1] *n* (%)	Men in Brisbane (e-male 2008)[2] *n* (%)	Brisbane (Queensland GCPS 2008)[3] *n* (%)
No regular or casual partners	91 (15.0)	17 (8.4)	88 (8.9)
Casual partners only	141 (23.2)	52 (25.6)	198 (20.1)
Regular partners only	69 (11.3)	22 (10.8)	202 (20.5)
Casual and regular partners	307 (50.5)	112 (55.2)	498 (50.5)
Total	608 (100)	203 (100)	986 (100)

1 E-male study participants living in Queensland

2 E-male study participants who are socially engaged with gay men and living in Brisbane (subset of e-male participants in Queensland)

3 Participants living in Brisbane from the 2008 Queensland Gay Community Periodic Survey

Table 99: Anal intercourse and condom use with casual male partners in the last six months in Brisbane and Queensland

	Men in Queensland (e-male 2008)[1] *n* (%)	Men in Brisbane (e-male 2008)[2] *n* (%)	Brisbane (Queensland GCPS 2008)[3] *n* (%)
No anal intercourse	36 (16.0)	12 (15.2)	128 (18.6)
No unprotected anal intercourse	92 (40.9)	35 (44.3)	307 (44.5)
Any unprotected anal intercourse	97 (43.1)	32 (40.5)	255 (37.0)
Total	225 (100)	79 (100)	690 (100)

1 E-male study participants living in Queensland

2 E-male study participants who are socially engaged with gay men and living in Brisbane (subset of e-male participants in Queensland)

3 Participants living in Brisbane from the 2008 Queensland Gay Community Periodic Survey

Men living in Queensland from the e-male survey were slightly more likely to report no anal intercourse with regular male partners compared with men from the other two samples (Table 100). A higher proportion of men in the e-male sample of men living in Brisbane reported unprotected anal intercourse with their regular male partner in the previous six months compared with the other two samples.

Table 100: Anal intercourse and condom use with regular male partners in the last six months in Brisbane and Queensland

	Men in Queensland (e-male 2008)[1] *n* (%)	Men in Brisbane (e-male 2008)[2] *n* (%)	Brisbane (Queensland GCPS 2008)[3] *n* (%)
No anal intercourse	44 (11.7)	13 (9.7)	48 (7.4)
No unprotected anal intercourse	92 (24.5)	29 (21.6)	207 (31.7)
Any unprotected anal intercourse	240 (63.8)	92 (68.7)	397 (60.9)
Total	376 (100)	134 (100)	652 (100)

1 E-male study participants living in Queensland

2 E-male study participants who are socially engaged with gay men and living in Brisbane (subset of e-male participants in Queensland)

3 Participants living in Brisbane from the 2008 Queensland Gay Community Periodic Survey

5.4 Comparisons between the e-male sample in Western Australia and Perth with the Perth GCPS sample in 2006

Gay socially engaged men living in Perth from the e-male survey were younger than the broader e-male sample from Western Australia and the men from the Perth GCPS.

The pattern of sexual identities was similar within the two Perth samples: the gay socially engaged men from the e-male survey and the men from the Perth GCPS (Table 101). Not surprisingly, in the broader e-male sample in Western Australia there was a smaller proportion of gay/homosexual men and a greater proportion of bisexual men.

Men from the e-male sample for Western Australia had the highest proportion of men aged 40 or above, while the gay socially engaged men living in Perth from e-male were slightly younger than the other two samples, with a larger proportion under 30 years of age (Table 102).

Men of Aboriginal and/or Torres Strait Islander origin were more likely to be recruited into the Perth GCPS than into the e-male survey (Table 103).

Table 101: Sexual identity in Perth and WA

	Men in WA (e-male 2008)[1] *n* (%)	Men in Perth (e-male 2008)[2] *n* (%)	Perth GCPS (2006)[3] *n* (%)
Gay/Homosexual	182 (72.5)	102 (88.7)	696 (87.4)
Bisexual	61 (24.3)	8 (7.0)	65 (8.2)
Heterosexual/Straight	3 (1.2)	1 (0.9)	23 (2.9)
Queer	5(2.0)	4 (3.5)	3 (0.4)
Other	–	–	9 (1.1)
Total	251 (100)	115 (100)	796 (100)

1 E-male study participants living in Western Australia

2 E-male study participants who are socially engaged with gay men and living in Perth (subset of e-male participants in Western Australia)

3 Participants from the 2006 Perth Gay Community Periodic Survey

Table 102: Age of participants in Perth and WA

	Men in WA (e-male 2008)[1] *n* (%)	Men in Perth (e-male 2008)[2] *n* (%)	Perth GCPS (2006)[3] *n* (%)
16–19	16 (6.4)	3 (2.6)	52 (6.6)
20–25	54 (21.5)	31 (27.0)	156 (19.9)
26–29	22 (8.8)	15 (13.0)	98 (12.5)
30–39	57 (22.7)	24 (20.9)	215 (27.5)
40–49	57 (22.7)	27 (23.5)	158 (20.2)
50+	45 (17.9)	15 (13.0)	104 (13.3)
Total	251 (100)	115 (100)	783 (100)

1 E-male study participants living in Western Australia

2 E-male study participants who are socially engaged with gay men and living in Perth (subset of e-male participants in Western Australia)

3 Participants from the 2006 Perth Gay Community Periodic Survey

Table 103: Aboriginal and Torres Strait Islander origin in Perth and WA

	Men in WA (e-male 2008)[1] *n* (%)	Men in Perth (e-male 2008)[2] *n* (%)	Perth GCPS (2006)[3] *n* (%)
Not of ATSI origin	248 (98.8)	114 (99.1)	752 (96.8)
Aboriginal or Torres Strait Islander origin	3 (1.2)	1 (0.9)	25 (3.2)
Total	251 (100)	115 (100)	777 (100)

1 E-male study participants living in Western Australia

2 E-male study participants who are socially engaged with gay men and living in Perth (subset of e-male participants in Western Australia)

3 Participants from the 2006 Perth Gay Community Periodic Survey

Men from the Perth GCPS were slightly better educated than men from the e-male survey. Men from the e-male survey living in Perth were better educated than those living elsewhere in Western Australia (Table 104).

Table 104: Education levels in Perth and WA

	Men in WA (e-male 2008)[1] *n* (%)	Men in Perth (e-male 2008)[2] *n* (%)	Perth GCPS (2006)[3] *n* (%)
School certificate or less	54 (22.1)	21 (18.8)	97 (12.3)
Year 12/HSC/VCE, etc	42 (17.2)	18 (16.1)	167 (21.1)
Diploma/trade certificate/TAFE	55 (22.5)	24 (21.4)	172 (21.7)
University degree	93 (38.1)	49 (43.7)	355 (44.9)
Total	244 (100)	112 (100)	791 (100)

1 E-male study participants living in Western Australia

2 E-male study participants who are socially engaged with gay men and living in Perth (subset of e-male participants in Western Australia)

3 Participants from the 2006 Perth Gay Community Periodic Survey

Gay socially engaged men living in Perth from the e-male survey were the most likely to be employed full-time compared with the other two samples (Table 105).

Table 105: Employment status in Perth and WA

	Men in WA (e-male 2008)[1] *n* (%)	Men in Perth (e-male 2008)[2] *N* (%)	Perth GCPS (2006)[3] *n* (%)
Full-time	185 (73.7)	89 (77.3)	546 (70.5)
Part-time	26 (10.4)	14 (12.2)	100 (12.9)
Unemployed	6 (2.4)	3 (2.6)	20 (2.6)
Student	17 (6.8)	3 (2.6)	67 (8.6)
Social security	16 (6.4)	5 (4.3)	18 (2.3)
Other	1 (0.4)	1 (0.9)	24 (3.1)
Total	251 (100)	115 (100)	775 (100)

1 E-male study participants living in Western Australia

2 E-male study participants who are socially engaged with gay men and living in Perth (subset of e-male participants in Western Australia)

3 Participants from the 2006 Perth Gay Community Periodic Survey

HIV-positive men were more likely to be recruited into the e-male survey than the Perth GCPS (Table 106). Within the e-male sample there was a higher proportion of HIV-positive men amongst those living in Perth compared with those living elsewhere in Western Australia. Men in the e-male survey from Western Australia were the least likely of these three groups to have ever had an HIV test.

Amongst those who had ever had an HIV test, men in the e-male survey were more likely than men from the Perth GCPS to have had their most recent test in the previous six months (Table 107).

Table 106: HIV status in Perth and WA

	Men in WA (e-male 2008)[1] *n* (%)	Men in Perth (e-male 2008)[2] *N* (%)	Perth GCPS (2006)[3] *n* (%)
No test/Don't know the result	79 (33.3)	20 (18.0)	115 (15.0)
HIV-negative	140 (59.1)	80 (72.1)	617 (80.4)
HIV-positive	18 (7.6)	11 (9.9)	35 (4.6)
Total	237 (100)	111 (100)	767 (100)

1 E-male study participants living in Western Australia

2 E-male study participants who are socially engaged with gay men and living in Perth (subset of e-male participants in Western Australia)

3 Participants from the 2006 Perth Gay Community Periodic Survey

Table 107: Most recent HIV test in Perth and WA (only those who had been tested for HIV)

	Men in WA (e-male 2008)[1] *n* (%)	Men in Perth (e-male 2008)[2] *N* (%)	Perth GCPS (2006)[3] *n* (%)
Within last 6 months	76 (47.6)	46 (50.6)	192 (27.4)
7–12 months	30 (18.8)	14 (15.4)	199 (28.3)
1–years	29 (18.1)	15 (16.5)	135 (19.2)
≥ 2 years	25 (15.6)	16 (17.6)	176 (25.0)
Total	160 (100)	91 (100)	702 (100)

1 E-male study participants living in Western Australia

2 E-male study participants who are socially engaged with gay men and living in Perth (subset of e-male participants in Western Australia)

3 Participants from the 2006 Perth Gay Community Periodic Survey

Men from the e-male survey were more likely than men from the Perth GCPS to look for male sex partners through the internet and at beats, but less likely to look for male sex partners in gay bars and in gay saunas (Table 108). Men from both surveys were similarly likely to look for male partners at private sex parties.

Table 108: Where men looked for male sex partners in Perth and WA

	Men in WA (e-male 2008)[1] *n* (%)	Men in Perth (e-male 2008)[2] *n* (%)	Perth GCPS (2006)[3] *n* (%)
Internet	181 (83.0)	86 (81.1)	396 (55.6)
Gay bar	87 (39.9)	60 (56.6)	408 (57.3)
Dance party	39 (17.9)	26 (24.6)	–
Gym	31 (14.2)	15 (14.1)	–
Beat	72 (33.0)	36 (34.0)	156 (23.3)
Gay sauna	70 (32.1)	34 (32.1)	258 (37.0)
Other sex venue	39 (17.9)	19 (18.0)	–
Private sex parties	25 (11.5)	12 (11.3)	86 (13.2)

Note: These categories are not mutually exclusive.

1 E-male study participants living in Western Australia

2 E-male study participants who are socially engaged with gay men and living in Perth (subset of e-male participants in Western Australia)

Men from the e-male sample, particularly the gay socially engaged men living in Perth, were more likely than men from the Perth GCPS to have had sex with a larger number of male sex partners in the previous six months (Table 109).

Table 109: Number of male sex partners in the last six months in Perth and WA

	Men in WA (e-male 2008)[1] *n* (%)	Men in Perth (e-male 2008)[2] *n* (%)	Perth GCPS (2006)[3] *n* (%)
None	33 (13.1)	9 (7.8)	137 (17.3)
One	56 (22.3)	25 (21.7)	187 (23.6)
2 to 10	100 (39.9)	43 (37.4)	318 (40.2)
More than 10	62 (24.7)	38 (33.0)	149 (18.9)
Total	251 (100)	115 (100)	791 (100)

1 E-male study participants living in Western Australia

2 E-male study participants who are socially engaged with gay men and living in Perth (subset of e-male participants in Western Australia)

3 Participants from the 2006 Perth Gay Community Periodic Survey

Gay socially engaged men living in Perth from the e-male survey were the most likely to have had sex with both casual and regular male partners in the previous six months (Table 110). Men from the Perth GCPS were more likely than men from the e-male survey to have had regular male partners only.

Table 110: Regular and casual male sexual partners in the last six months in Perth and WA

	Men in WA (e-male 2008)[1] *n* (%)	Men in Perth (e-male 2008)[2] *n* (%)	Perth GCPS (2006)[3] *n* (%)
No regular or casual partners	40 (15.9)	11 (9.6)	67 (8.4)
Casual partners only	60 (23.9)	20 (17.4)	206 (25.9)
Regular partners only	36 (14.3)	18 (15.7)	231 (29.1)
Casual and regular partners	115 (45.8)	66 (57.4)	290 (36.5)
Total	251 (100)	115 (100)	794 (100)

1 E-male study participants living in Western Australia

2 E-male study participants who are socially engaged with gay men and living in Perth (subset of e-male participants in Western Australia)

3 Participants from the 2006 Perth Gay Community Periodic Survey

Men from the e-male survey were more likely than men from the Perth GCPS to have had some unprotected anal intercourse with a casual male partner in the previous six months (Table 111).

Men from the e-male survey were more likely than men from the Perth GCPS to have had some unprotected anal intercourse with a regular male partner in the previous six months (Table 112).

Table 111: Anal intercourse and condom use with casual male partners in the last six months in Perth and WA

	Men in WA (e-male 2008)[1] *n* (%)	Men in Perth (e-male 2008)[2] *n* (%)	Perth GCPS (2006)[3] *n* (%)
No anal intercourse	17 (23.0)	8 (24.2)	113 (23.2)
No unprotected anal intercourse	22 (29.7)	9 (27.3)	216 (44.3)
Any unprotected anal intercourse	35 (47.3)	16 (48.5)	159 (32.6)
Total	74 (100)	33 (100)	488 (100)

1 E-male study participants living in Western Australia

2 E-male study participants who are socially engaged with gay men and living in Perth (subset of e-male participants in Western Australia)

3 Participants from the 2006 Perth Gay Community Periodic Survey

Table 112: Anal intercourse and condom use with regular male partners in the last six months in Perth and WA

	Men in WA (e-male 2008)[1] *n* (%)	Men in Perth (e-male 2008)[2] *n* (%)	Perth GCPS (2006)[3] *n* (%)
No anal intercourse	18 (11.9)	8 (9.5)	50 (9.6)
No unprotected anal intercourse	32 (21.2)	20 (23.8)	148 (28.5)
Any unprotected anal intercourse	101 (66.9)	56 (66.7)	321 (61.8)
Total	151 (100)	84 (100)	519 (100)

1 E-male study participants living in Western Australia

2 E-male study participants who are socially engaged with gay men and living in Perth (subset of e-male participants in Western Australia)

3 Participants from the 2006 Perth Gay Community Periodic Survey

5.5 Summary: Comparison of e-male data with GCPS data

Amongst stakeholders involved in the long-running 'paper and pencil' GCPSs across Australia, there has been some interest in recent years in considering whether there would be advantages in conducting the GCPSs online. Our experiences conducting the e-male study as well as the comparisons of results made in this chapter provide an opportunity to comment on what we see as some of the major advantages and disadvantages of having an online GCPS. In comparing both the e-male and GCPS studies, we are restricting such comparisons to issues related to behavioural surveillance.

Behavioural surveillance, and more particularly second generation behavioural surveillance, has three major aims:

- to monitor trends over time in key indicators such as risk behaviours, condom use, knowledge of HIV transmission, and attitudes towards people with HIV

- to provide information that complements sero-surveillance and helps explain increases or decreases in HIV infection rates over time and across jurisdictions
- to provide a means of assessing the success of aspects of regional and national HIV strategies.

With regard to surveillance, there are four obvious ways in which online and offline surveys can be compared and evaluated. These are: continuity, effectiveness of recruitment and sampling, cost efficiency and ease of implementation.

Continuity

Continuity in recruitment and sampling is a key aspect of behavioural surveillance surveys conducted with gay and bisexual men. The GCPSs in particular try to maintain similar recruitment and sampling strategies for the purpose of sampling from the same population at the same times of the year and same sites to enable analyses of trends in behaviour and practice over time. A transition to online recruitment within any of the GCPSs runs the risk of disrupting the established recruitment method within the survey and may mean that trend analyses would need to restart from the time at which the first online study began. If this were to happen it would pose a significant risk to the quality of available surveillance data and to the capacity to monitor evolving trends in sexual and other practices. However, as the comparison of results in this chapter shows, it is possible with an online survey to obtain a core group of city-dwelling gay men, similar to those who currently take part in the GCPSs. Assuming this can be achieved, the issue to contend with is sample sizes and whether they are sufficient, particularly in the non-eastern states and territories (see below).

A further issue is whether the same type of men can be recruited on an ongoing basis. Continuity is important for the reasons mentioned above. So although an online sample such as e-male showed that a core group of the same men who currently take part in the GCPSs could be reached through the internet, there are some ongoing risks in reaching these men that relate to the changing nature of sites on the internet. However, men and the sites which they visit—either online or offline—change over time and it is also incumbent on those engaged in behavioural surveillance to ensure that those whom they are reaching are the 'same' men that they reached one, two, three or ten years ago. It could be argued that the growth in popularity of the internet as a 'location' in which gay and bisexual men seek out each other for social and sexual contact already generates some sampling error for the more traditional GCPS sampling methods suggesting that the GCPSs should include the internet as a recruitment 'site'.

Only conducting a repeated cross-sectional behavioural surveillance survey online may undermine continuity and generate inconsistencies in sampling, given that online environments are dynamic, with new sites emerging and competing for users, and existing sites changing the ways in which they function. Unlike a city, which has both physical and legislative constraints on the number of commercial venues that can operate, the internet has considerably fewer restrictions. The number of new websites that can emerge is potentially uncapped and it is to a large extent unknown how variable the online environment is or how this variability affects the composition and type of clientele at existing sites. Monitoring changes to the online environments in which gay and bisexual men participate and the popularity of different sites is currently difficult. In comparison, when changes in clientele in the real world occur they are visible. For these reasons there are several threats to the validity of trend data collected online. If these risks can be minimised, through the monitoring of online users and recruitment sources for example, as well as by weighting the sample, online GCPSs could retain continuity of data.

It is of course possible to manage the potential loss in continuity of data caused by a transition from traditional paper and pencil to online recruitment. The most obvious solution is to run online and offline recruitment in parallel for at least three data collection periods, so that trend analyses can be established with the data collected online, and the differences between online and offline samples can be explored. Monitoring whether the differences between online and offline samples were growing or declining over time would also allow an informed decision about whether it is justifiable to phase out offline recruitment and rely solely on online sampling.

Effectiveness of recruitment and sampling

For recruitment and sampling of an online survey to be effective it is important that the sample include:

- a sufficient representation of a core group of city-dwelling gay men, similar to those who currently take part in the GCPSs
- sufficient sample sizes in every jurisdiction.

Compared with a GCPS, an online survey is likely to comprise higher proportions of younger men, bisexual men, and those who live in regional or rural areas. These characteristics underscore international research that suggests online surveys typically recruit more diverse samples of men who have sex with men than traditional recruitment methods (e.g. Reid et al, 2002; Ross et al., 2000). However, as the comparisons in this chapter have demonstrated, the e-male survey sample also attracted

a core group of city-dwelling gay men, similar to those who currently take part in the GCPSs. The one area where we felt that recruitment failed in e-male is in attracting Aboriginal and Torres Strait Islander men to participate in the survey. While it could be argued that existing instruments such as the GCPSs also inadequately sample Aboriginal and Torres Strait Islander men, they do nonetheless reach more of these populations than was achieved with e-male.

Although e-male recruited several thousand men from across Australia, the actual numbers in each state and territory were smaller than is typically achieved through the GCPSs and it seems to be most detrimental for the non-eastern states and territories. However we need to be mindful that the GCPSs are behavioural surveillance surveys while e-male was not designed for that purpose. E-male was longer in length and posed additional questions on topics not typically included in a GCPS. These differences may have had a bearing on the capacity to recruit large samples online and to reduce 'drop-outs', those who leave the study before completion.

Sample size is an issue at two levels: 1) representativeness; and 2) statistical power. As noted, however, representativeness did not appear to be a problem. With the exception of Aboriginal and Torres Strait Islander populations, an online survey is able to generate a more heterogeneous sample—one that appears more representative of MSM, including gay-identified men. Statistical power, however, may be a problem with an online survey, especially with regard to the states with smaller populations.

Statistical power is about being able to conduct trend analyses with sufficient sensitivity to detect a statistical trend. Having insufficient statistical power would affect those states and territories where fewer than 500 men were recruited, which in e-male was every state and territory except New South Wales, Queensland and Victoria.

Increasing the sample size beyond what was achieved in the e-male study is likely to have positive implications for both representativeness and statistical power. However we are not convinced that increasing the sample size would be straightforward or easy to achieve. It cost a considerable amount of time and money to achieve our target sample size (the survey ran for two months and employed a range of paid and unpaid advertising; see 2.6.1). However, if double the time and money had been invested, would the sample size have been twice as large? We suspect that is unlikely. There came a point several weeks after e-male was launched when daily recruitment numbers dropped markedly and new advertising had little additional effect. We believe we reached a saturation point after a few weeks, after which most men who were willing to participate had been reached and our target audience had become habituated to our advertising. This made recruitment much more difficult. The idea that there is a limit to how many Australian MSM can be recruited online within a reasonable period of time is supported by the similar number of men recruited in the online Private Lives study conducted in 2005 (the survey recruited 3400 men and 1900 women in four months; see Pitts et al, 2006). We are therefore of the view that increasing the sample size of MSM beyond what was achieved in e-male (or Private Lives) may be both expensive and time consuming. In other words, the sampling period might need to be increased from a couple of months to several months, the advertising budget would need to be substantial, and the recruitment strategy and advertising materials would need to be varied through the recruitment period to avoid habituation among the target population.

Cost efficiency

The design and technical support costs for an online survey (such as e-male) can be substantial, although many of these costs are concentrated in the development, design and set-up stages of an online survey system, for example setting up an online survey platform, buying or designing survey software, and paying for the branding and design of a website and advertising. The other major cost of running an online survey is salary support for research staff, although a small number of staff can coordinate a survey over a broad geographical area. However, once an online survey is developed, the ongoing costs of maintaining the system and updating or repeating surveys are considerably reduced, and are largely taken up by staff salaries. Paper and pencil surveys, such as the GCPSs, have lower design and development costs than online surveys, and have a similar number of core paid staff to coordinate the design and execution of the survey. The major ongoing cost of the GCPSs is the outlay on salaries to support participant recruitment 'in the field' by paid staff.

There are other cost efficiencies from collecting data online. Data entry becomes obsolete and data cleaning is usually kept to a minimum. Eliminating or minimising these two activities saves time and should result in a database with fewer errors.

It should be noted that the savings in time by not requiring data entry may be offset by an increase in time required to recruit the sample online. Recruitment in e-male occurred over three months. This is rather slow in comparison with a GCPS, which completes recruitment within a two-week period. It usually then takes about one week for the completed questionnaires to be mailed to the National Centre in HIV Social Research (NCHSR); another few days for NCHSR to check the questionnaires and mail

them to data entry staff; about four more weeks for data to entered and mailed back to NCHSR, and another week for final data cleaning. All up, it would appear that a GCPS takes slightly less time than an online survey to reach the point of data analysis.

Ease of implementation

As mentioned above, considerable time needs to be invested in the development, design and set-up stages of an online survey. Once these are established, however, ongoing activities would be less demanding of resources and more routine.

Standardising the survey instruments, possibly the times at which data collection occurs, and the reporting periods may provide some economies of scale. On the other hand, condensing the management of activities of an online GCPS into a shorter time frame may actually be an administrative burden.

In conclusion, there are a range of advantages and disadvantages to online methods for the surveying of gay and bisexual men in Australia. There may be advantages in ongoing running costs, the standardisation of recruitment and sampling and, if large enough samples can be achieved, the representativeness of the men sampled. The primary disadvantages appear to be the potential disruption to established surveillance mechanisms, the temporary loss of valuable trend data, and the potential failure to attract large enough samples from the states with smaller populations and population groups such as Aboriginal and Torres Strait Islander men.

The most obvious way to improve the quality of the GPCSs and to avoid losses to the quality of behavioural surveillance data is to phase in online recruitment to run in parallel with traditional recruitment mechanisms. It would then be possible to monitor and compare the samples achieved through the different recruitment methods. Running online and offline recruitment in parallel would, of course, require an additional outlay in resources initially, but would be the safest way to preserve the quality of behavioural surveillance mechanisms and the data they produce.

6 Conclusion

The study had a number of aims. Its primary aim was to explore whether the internet provides a sense of social connectedness among men who have sex with men (MSM) in Australia, that is, whether the internet acts as a 'virtual' community for MSM and increases their social capital. The study also investigated whether the internet was likely to facilitate the uptake of HIV prevention material and its translation into safe sexual practice.

The secondary aim was to recruit a heterogeneous group of MSM from around Australia—men who came from rural as well as urban areas, who self-identified as bisexual and heterosexual as well as gay, and men with a wide range of age and educational backgrounds.

A third aim was to test whether an online survey could be used as a surveillance tool and whether data provided by an online survey would be consistent with data provided by the GCPSs.

We begin by discussing the results with reference to the second aim of the study, that is, to recruit a heterogeneous group of MSM.

Heterogeneity

The e-male study has demonstrated that a broad cross-section of gay and bisexual men living in Australia can be reached by an online survey. The sample of over 4,000 men, who did either the survey (n = 3547) or took part in the qualitative component (n = 491), attracted a range of participants including:

- men from rural and urban areas
- men from all age groups (the study was particularly successful in recruiting men aged between 16 and 25)
- men from a range of educational backgrounds and occupational groups
- heterosexual and bisexual men as well as gay men (while 80% reported sex with men in the last twelve months, nearly 12% reported sex with women in the same period)
- men who were socially engaged with other gay men and those who were not
- HIV-positive, HIV-negative and untested men
- those who used the internet to search for sexual partners online and those who did not.

A large proportion of men lived alone (29%), with another large group living with a male partner or boyfriend (22%). Another large group (30%) lived with family members. The majority of men in the sample used the internet for leisure for at least ten hours per week and there was a wide range of internet usage—from no time spent in the past week (1%) to over 20 hours (24%). Younger men spent more time on the internet than older men and a large majority of men had made social or sexual contacts with other men online. The aim of achieving a heterogenous sample was clearly met.

The types of male relationships that men had found online included friends (60%), casual male sex partners (69%) and boyfriends/partners (31%). The sexual practices of the men in the e-male survey were very similar to the sexual practices of men surveyed via pen and pencil methods in Australia—either in the GCPSs or cohort studies—although as discussed below, there were some interesting differences in sexual practice when comparing men with either no gay or bisexual male friends with those with online friends only or those who had offline gay and bisexual male friends. The great majority of men (81%) had had sex with men in the previous six months and the majority of these men had had sex with casual male partners, while 13% had had sex with their regular male partners only. Anal intercourse was more common within regular relationships, but over 80% of men had also had anal intercourse with casual partner/s in the previous six months. Condoms were far less likely to be used within regular relationships than with casual partners, although about 45% of those men engaging in anal intercourse with casual partners did not use condoms at least some of the time.

Social Capital

The men in general had a broad range of social connections with family and friends, both gay and straight, and male and female. Overall they had slightly stronger ties with family members and female friends than with male friends. They were generally trusting of others, although some had concerns about their safety in the context of meeting men online. In general, they did not participate to any great extent in community group activities and were neutral in their feelings of responsibility towards gay community or their residential community. While bisexual and straight men had weaker social connections with others, they had larger social networks. On the other hand, gay-identified men had, in general, stronger social connections with others but smaller social networks, indicating that they had stronger 'bonding' social capital i.e. they had closer, tight-knit, friendships with their friends and family.

When we examined social capital in relation to internet use and gay/bisexual networks, that is, whether men had online or offline gay and bisexual friends, some interesting patterns emerged. While just over 15% of men reported that they had no gay and bisexual friends, 43% reported having both online and offline gay male friends. And while 34% reported having only offline gay and bisexual male friends, just over 7% of men had online gay and bisexual male friends only. Social connectedness with gay and bisexual male friends, our major measure of social capital, was strongest for men who had either online or offline gay and bisexual male friends. However not only did men who had no gay or bisexual friends have weaker social connections with either online or offline gay and bisexual male friends, they also had weaker social connections with male heterosexual friends, female friends, and family members. These men also had lower trust in others, were less likely to rely on others or offer support to others, and with the exception of those who had online gay friends only, were less likely to participate in community activities. In general the men with no gay or bisexual friends appear to be relatively socially isolated. The size of their networks was also small when compared with men with any online gay or bisexual male friends. Men with offline gay and bisexual male friends only also had small networks of male heterosexual friends, female friends or family members.

Three general patterns emerge:

1. strong social capital—both bridging and bonding—among men with any online gay or bisexual male friends. These men have strong social connections and large networks with gay or bisexual male friends, male heterosexual friends, female friends and family members
2. strong bonding social capital among men with offline gay and bisexual friends only. These men have strong social connections but smaller networks of friends and family
3. lower levels of social capital—either bridging or bonding—among men with no gay and bisexual friends. These men have both weaker social connections and smaller networks of all kinds.

The men with lower levels of social capital (3) are more likely to identify as bisexual, have sex with both men and women, and live in a small city or town. They are the least likely of all the men to have been tested for HIV, most likely to have sex with casual male partners only and least likely to have engaged in anal intercourse in the six months prior to interview.

The men with only offline gay and bisexual friends (2), i.e. those with strong bonding social capital, are clearly similar to those men to whom we have referred in the past as gay-community-attached or socially engaged with gay men. When compared with other men in the sample, they are slightly older, more likely to be HIV-positive, more likely to live in a capital city, more likely to participate in community groups, and more likely than men with no offline gay and bisexual male friends to have had sex with a regular male partner in the six months prior to interview.

The other two groups of men—those with only online gay and bisexual male friends and those with both online and offline gay and bisexual male friends, (1)—are somewhat similar to each other in terms of social capital. They have strong social connections and large social networks. Those with online gay and bisexual male friends only are more likely to be younger and more likely to identify as bisexual, and they are also less likely to have been tested for HIV than men with both offline and online gay and bisexual male friends. They also rate their quality of life lower than the other three groups of men.

The internet builds on men's social capital by extending the ways in which they can build friendships or sociality more generally. The internet is clearly an important site—especially for younger men—from which to engage with other men who are exploring their sexuality and meeting and chatting with others with a sexual interest in men.

While men with only offline gay and bisexual male friends spent less time than others looking for sexual partners on the internet, the vast majority still looked for male partners online. On the other hand, most men did not use the internet for sexual health information and those who did so most were those with any online gay and bisexual male friends. Awareness of health promotional material created

by Australian community-based HIV organisations appears not to be a good indicator of who might use the internet for sexual health material, although the findings indicate that the men with the least social capital are the least likely to be aware of these sites or to use them. However, the internet clearly provides a medium through which to reach men for education and health promotion—especially younger men and men who live outside capital cities.

Gay Community Periodic Survey comparisons

The e-male study has demonstrated that a broad cross-section of MSM living in Australia can be reached and recruited into an online study, repeating the success of other studies (e.g. Pitts et al., 2006). However, although roughly representative of numbers of adult men in each state, the numbers of MSM from the non-Eastern states were comparatively small when compared with the samples recruited in the GCPSs.

As pointed out in section 5.5, there are a number of advantages and disadvantages in pursuing a sole recruitment strategy, either online or offline. The findings indicate that the internet is an important site for accessing gay and bisexual men and engaging with them, indeed not to do so may mean that researchers involved in behavioural surveillance and social research will miss a growing population of MSM, many of whom are using the internet in ways that earlier generations of men used gay bars, sex clubs, saunas and beats to meet, talk to and engage with like-minded men. In addition, the fact that the internet provides social capital to MSM suggests that it is a useful medium for effective health promotion and HIV-prevention education.

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