Public Health England

Components of chlamydia screening & the impact of screening on behaviour

2014 National Chlamydia Screening Programme web survey report

About Public Health England

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Executive summary

- we present the results of a cross-sectional anonymous online survey of 1,218 young adults carried out in January 2014. To be eligible for the survey, respondents had to be aged 16-24, resident in England and report a history of chlamydia screening

- the aim of the survey was to examine how chlamydia screening affects young adults' subsequent knowledge, and/or healthcare-seeking or sexual behaviour

- chlamydia screening provides an opportunity to deliver safer sex messages to young adults: 90% of respondents reported that they were given sexual health information at their last test

- respondents who reported higher numbers of sexual partners and recent unprotected sex reported testing more frequently, in terms of number of times ever tested and proportion tested in the last year

- many respondents reported that testing had an impact on their knowledge and/or healthcare-seeking or sexual behaviour. After testing, the following proportion of respondents reported being more likely to:
    - test for chlamydia again: 66%
    - use condoms with new partner: 62%
    - know how to avoid chlamydia 59%
    - have fewer sexual partners 30%

- receiving information on four or more sexual health topics was associated with whether testing had an impact on each type of knowledge or behaviour

- few respondents reported any negative behavioural consequences following testing, 14% reported being less likely to have fewer sexual partners after being tested

- respondents found the experience of getting tested was a positive one in terms of reducing potential barriers to future testing: 72% were more likely to think that getting tested was easy, 54% felt less embarrassed about asking for a test, and 63% were less likely to think that testing was painful or uncomfortable

Background & aims

The National Chlamydia Screening Programme (NCSP) offers opportunistic screening to all sexually active under 25-year olds in England, annually or on change of sexual partner. Chlamydia screening provides an opportunity to deliver safer sex advice to young people, potentially accessing those who may be otherwise difficult to engage with by other means[1].

Providing information on how to prevent future chlamydia infection, and changing knowledge and attitudes relating to chlamydia and chlamydia testing, are important steps towards sustaining any reductions in the level of chlamydia infection achieved by the programme. However, potential unintended consequences of screening could include reduced perceptions of personal risk following a negative result or successful treatment[2]. There is little empirical data to determine whether, and the extent to which, this happens in practice[3].

The results of a previous web survey carried out in 2012 indicated that young adults report that being tested for chlamydia has a positive impact on their subsequent willingness to engage with future testing, and a smaller impact on subsequent sexual behaviour[4]. This suggests that chlamydia screening has a wider impact on young adults' sexual health beyond diagnosis and treatment alone.

This report presents the results of the 2014 NCSP web survey. The aim of the survey was to examine how chlamydia screening affects young adults' subsequent knowledge and/or healthcare-seeking or sexual behaviour. An improved understanding of this process will help with evaluating the wider impact and cost effectiveness of chlamydia screening.

The objectives of the web survey were to examine:

1) what services and types of information are young adults provided with in different test settings

2) what factors are associated with whether chlamydia testing has a positive impact on participants' subsequent knowledge and/or healthcare-seeking or sexual behaviour

Methods

Study design

We carried out a cross-sectional web-based anonymous survey of young adults who reported having had a previous chlamydia test in order to investigate how chlamydia testing impacts on subsequent behaviour.

The survey was undertaken via a market research company, which accessed existing panels of young adults who had volunteered to complete online surveys. Panel members were invited to complete an anonymous internet survey, which took less than ten minutes to complete, to receive a small (<£2) remittance. Additional recruitment was carried out via social media when there were difficulties with recruiting from certain groups (for example young men). A screening question was used to ask potential respondents which types of healthcare tests they had previously taken, and they did not know the specific topic of the survey in advance.

In order to be eligible for the survey, respondents had to be:

- aged between 16 and 24
- resident in England
- previously tested for chlamydia by any provider

Eligible respondents were provided with information about the purpose and contents of the survey and asked to provide informed consent before further participation. Demographic quotas were used to ensure that the final sample was representative of 16-24 year olds resident in England. Quota sizes were based on 2012 ONS population figures.

The survey assessed previous history of testing and perceived impact of testing on subsequent sexual behaviour, knowledge and attitudes. We collected self-reported sexual behaviour using questions that have previously been employed in other surveys, such as the National Survey of Sexual Attitudes and Lifestyles (Natsal).

The survey used the Mosaic market research tool to examine the socioeconomic characteristics of respondents. This is an area-based classification system which assigns individuals to one of 15 Mosaic groups and 67 types by linking their postcode to a variety of public and commercial datasets, including census data, house prices, lifestyle surveys and media consumption[5]. Descriptions of each category are available[6].

Sample size

We aimed to recruit a total of 1,200 respondents, based on sample size calculations using the results of the 2012 survey. The survey was in the field for 19 days from 27 January to 14 February and received 1,218 responses. There was a 6% drop-out rate of respondents who

started but did not complete the survey, and 27.5% (336/1,218) of respondents were recruited via social media.

Statistical analyses were carried out in Stata (version 13.1). Bivariate analyses for each outcome were conducted using Pearson’s chi squared tests and logistic regression. Effects were reported using odds ratios (OR) with 95% confidence intervals, and a p-value threshold of <0.05 was used to detect associations between outcome and explanatory variables.

Demographics and sexual behaviour

Demographics

Quotas based on sex, age (16-24 years of age) and geography were used to ensure that the survey sample was representative of young adults in England. The final sample of 1,218 respondents broke down as follows:

- 42% aged 16-19 (508/1,218)
- 51% male (623/1,218)
- 89% white ethnicity (1,068/1,218; over-represented compared to 2011 census data, where 81% of 16-24 year olds were of white ethnicity)
- 15% resident in London (180/1,218)

Socioeconomic characteristics

When asked for their current education or employment status, 60% (727/1,218) of respondents reported that they were in full-time education, 24% (294/1,218) in full-time employment and 21% (256/1,218) in part-time employment (categories not mutually exclusive).

The most common Mosaic groups were Liberal Opinions (22%; 268/1,218) and Suburban Mindsets (12%; 148/1,218). The most common type within Liberal Opinions was University Fringe (32%; 85/268), of whom 85% (72/85) were in full-time education (Appendix 1).

Sexual behaviour

Completion rates for sexual behaviour questions were high, with 94% (1,147/1,218) of respondents responding to all three sexual behaviour questions. Among those who responded, 42% (491/1,175) had more than one partner in the last 12 months, 27% (318/1,186) had a new partner in the last three months, and 61% (718/1,183) had unprotected sex in the last three months.

In the previous 2012 web survey, 39% of those previously tested had more than partner in the last 12 months, 22% had a new partner in the last three months, and 61% had unprotected sexual intercourse in the last three months. The proportion with more than one partner in the last 12 months was higher than that seen in the recent Natsal population-based survey[7] (34% young men, 27% young women); although that survey included young adults who were not yet sexually active.

Testing history

Proportion testing positive

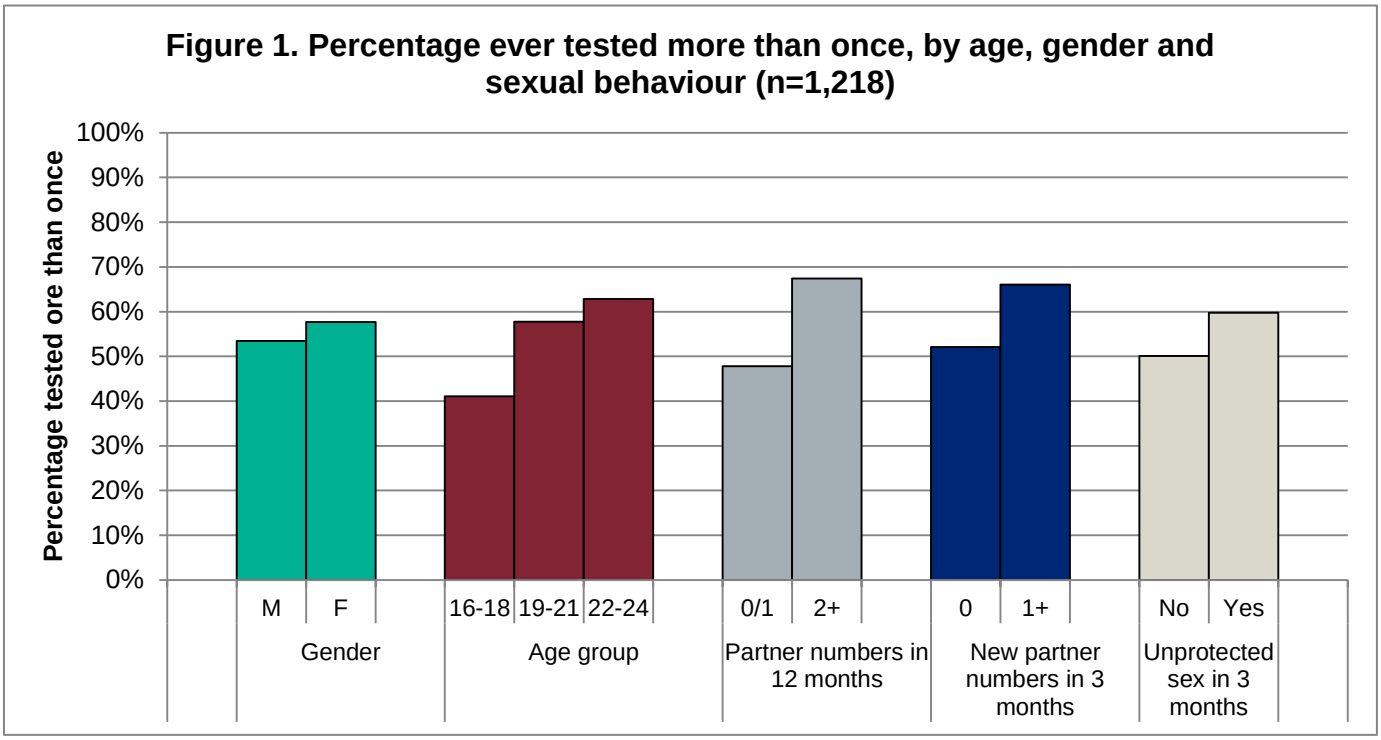
One in ten respondents (11.2%; 137/1,218) had previously received a positive test result for chlamydia, with 5.6% (69/1,218) receiving a positive result from their last test and 5.6% (68/1,218) receiving a positive result prior to this. There was strong evidence of an association between having had a positive test result and having had a new partner or having sex without a condom in the past three months (bivariate Pearson's chi squared test, p=0.04 and p <0.001 respectively).

Number of times tested

Over half of respondents (56%; 676/1,218) had been tested for chlamydia more than once in their lives. Of these, 46% (563/1,218) tested between two and four times, and 9% (113/1,218) tested five or more times.

Older respondents were more likely to have tested more than once (63%, 274/436 of those aged 22-24, bivariate Pearson's chi squared test, p <0.0001). Respondents who reported having two or more sexual partners in the previous year were more likely to have tested more than once (p <0.0001), as were those who reported having a new partner (p <0.0001) or having sex without a condom (p = 0.001) in the past three months (Figure 1).

Figure 1. Percentage ever tested more than once, by age, gender and sexual behaviour (n=1,218)

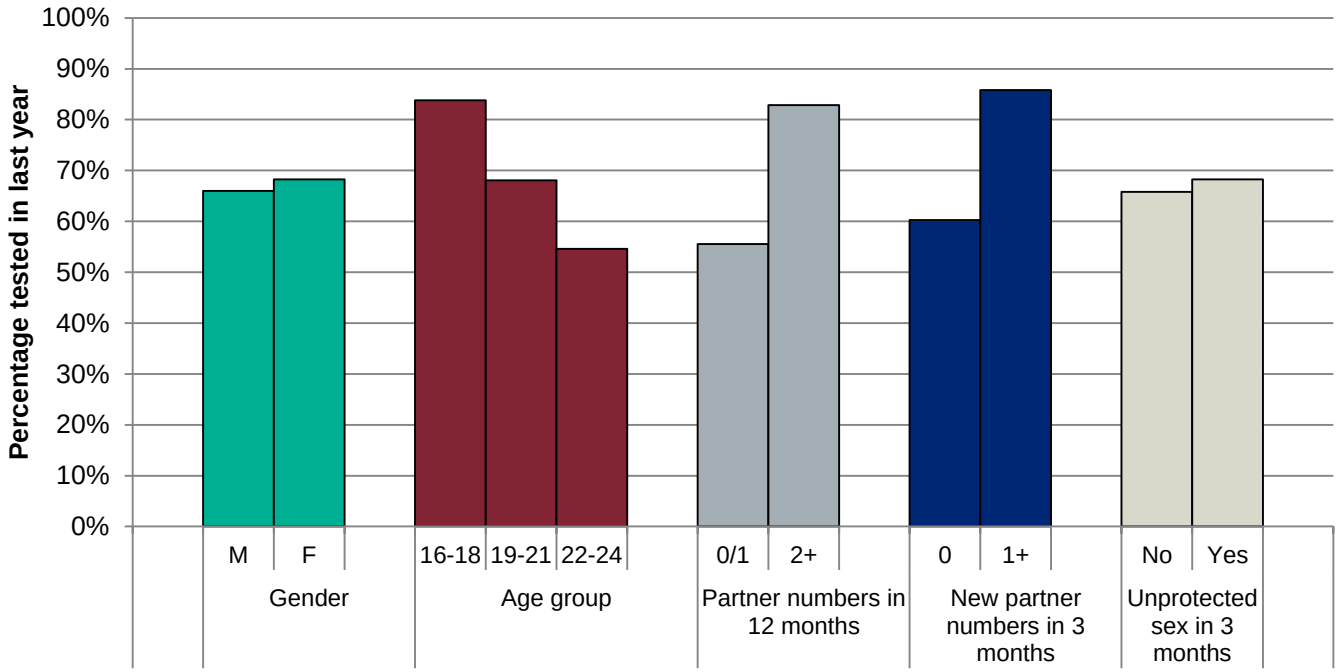


Time since last test

Two thirds of respondents (67%;817/1,218) had been tested for chlamydia in the last year: a fifth of respondents (22%; 262/817) had been tested in the last three months, 23% (275/1,218) had been tested three to six months ago, and 23% (280/1,218) six to 12 months ago. A fifth of respondents (20%; 245/1,218) were tested between one and two years ago, and 13% (156/1,218) were tested more than two years ago.

Respondents who reported having two or more sexual partners in the previous year were more likely to have tested in the last year (p <0.0001), as were those who reported having a new partner in the past three months (p <0.0001). Younger respondents were more likely to have tested in the last year (p <0.0001) (Figure 2).

Figure 2. Percentage tested in last year, by age, gender and sexual behaviour (n=1,218)



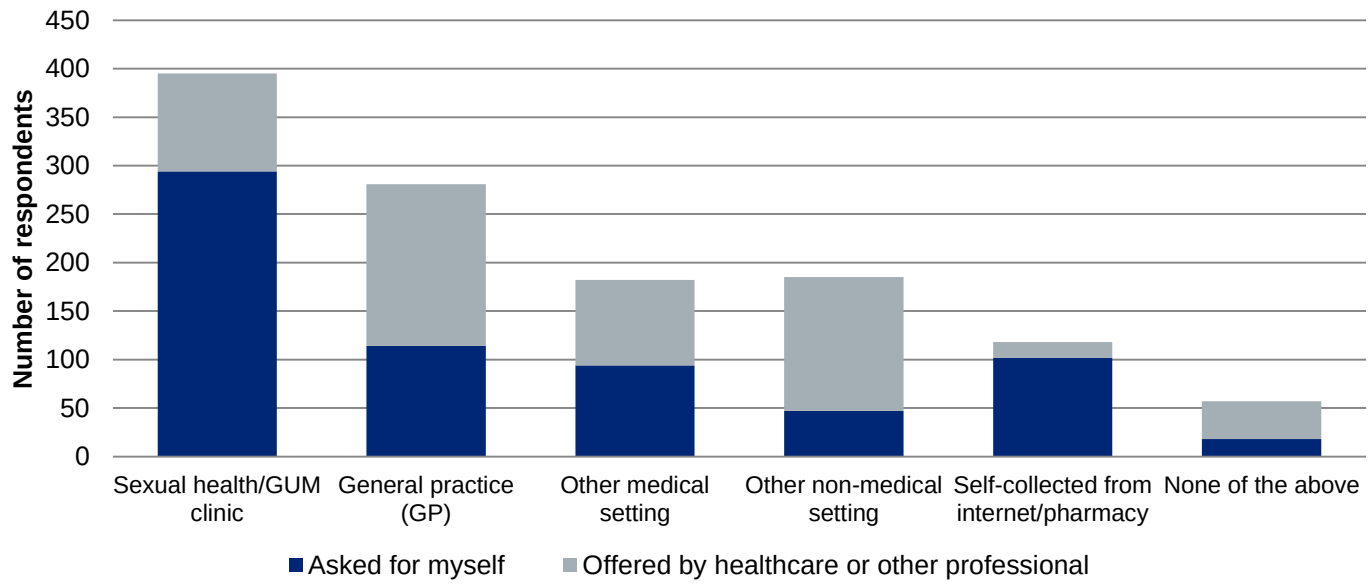
These finding show that respondents with a higher rate of partner change were tested for chlamydia more frequently (that is, more than once) and more regularly (that is, in the previous year).

Test setting

The most commonly reported setting for last test was genitourinary medicine (GUM)/sexual health clinics (32%; 395/1,218), followed by general practice (23%; 281/1,218), other non-medical setting (such as at a youth centre; 15%; 185/1,218) and other medical settings (including hospitals, contraceptive services, young people's services and termination of pregnancy clinics; 15%; 182/1,218) (Figure 3).

When asked whether they had asked for their last test or were offered one (for example, during a routine GP attendance), 45% (549/1,218) of respondents reported that they were offered a test. Three quarters (75%; 413/549) of those offered a test were offered by a healthcare professional and 25% (136/549) by a non-healthcare professional.

Figure 3. Setting of last chlamydia test, by whether respondent asked for or was offered test (n=1,218)



Reasons for testing

Respondents who asked for a test themselves were asked to give their main reason for testing: these were wanting a general sexual health check-up (57%; 381/669); followed by being worried about the risk of chlamydia (27%; 178/669); having symptoms of chlamydia (6%; 40/669); a partner having symptoms of chlamydia (4%; 27/669); or wanting a check-up following previous treatment for chlamydia infection (2%; 13/1,218).

Other reasons for testing were reported in free text by 2% of respondents (30/1,218). These included being offered incentives for testing, having a new sexual partner or engaging in recent unprotected sex.

Components of testing: sexual health information

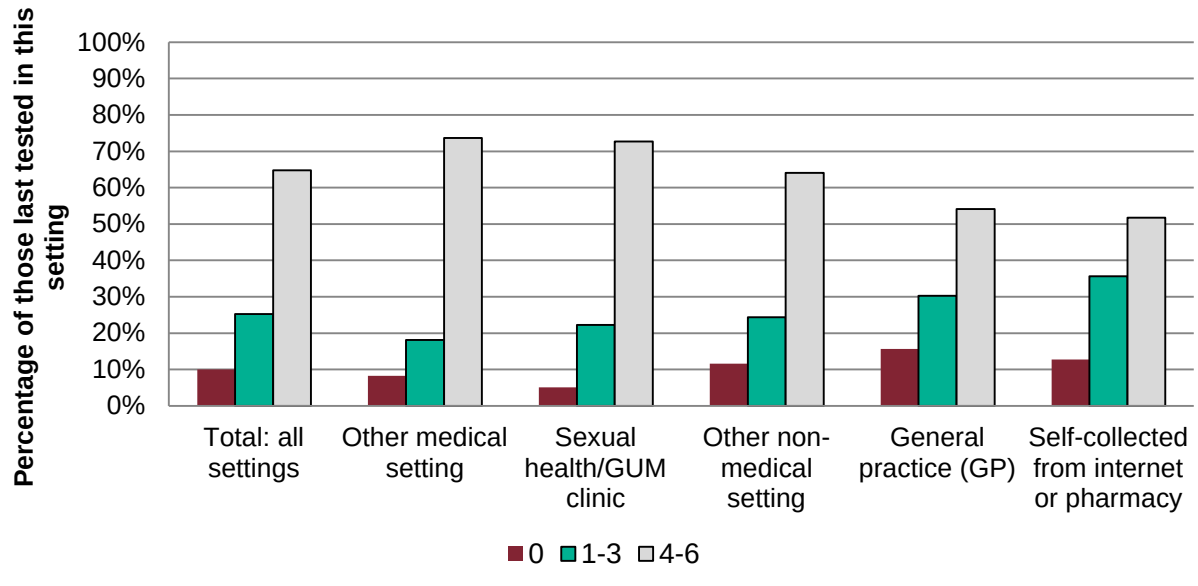
Respondents were asked whether they were given sexual health information to accompany their last test on the following topics:

- use of condoms
- other types of contraception
- safer sex
- chlamydia
- other sexually transmitted infections
- advice on relationships

Most respondents (90%; 1,096/1,218) reported being given information on at least one of these topics: this proportion ranged from 95% (375/395) among those last tested in GUM/sexual health clinics, to 84% (237/281) among those last tested in general practice.

Two thirds of respondents (65%; 789/1,218) were given information on four or more of the topics, increasing to 74% (155/242) among those last tested in “Other medical settings” and decreasing to 52% (61/118) among those whose last test was self-collected from the internet or a pharmacy (Figure 4).

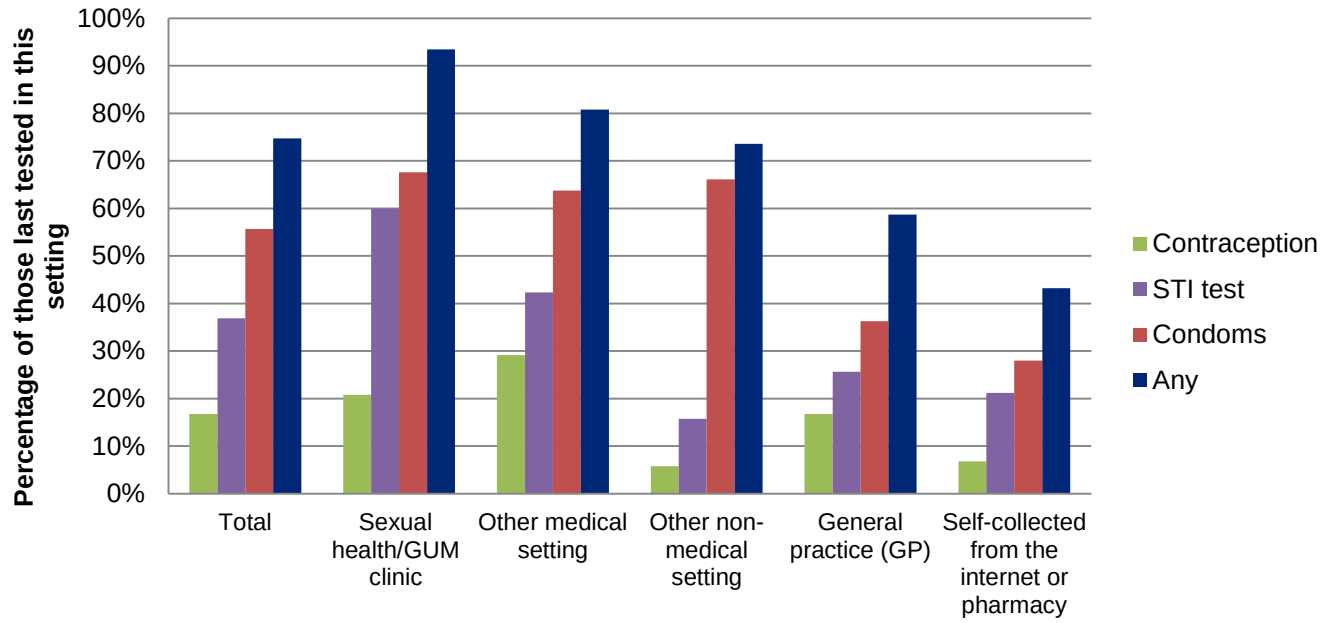
Figure 4. Number of types of sexual health information, by setting (n=1,218)



Components of testing: materials or services

When asked what components of testing they were given other than sexual health information at their last test, 75% (910/1,218) reported being given one or more of the following: condoms, contraception other than condoms, or a test for a sexually transmitted infection other than chlamydia. This proportion ranged from 96% (380/395) among those last tested in GUM/sexual health clinics to 50% (59/118) among those whose last test was self-collected from the internet or a pharmacy (Figure 5). More than half of respondents reported being given condoms with their last test (56%; 678/1,218).

Figure 5. Accompanying materials or services by test setting (n=1,218)

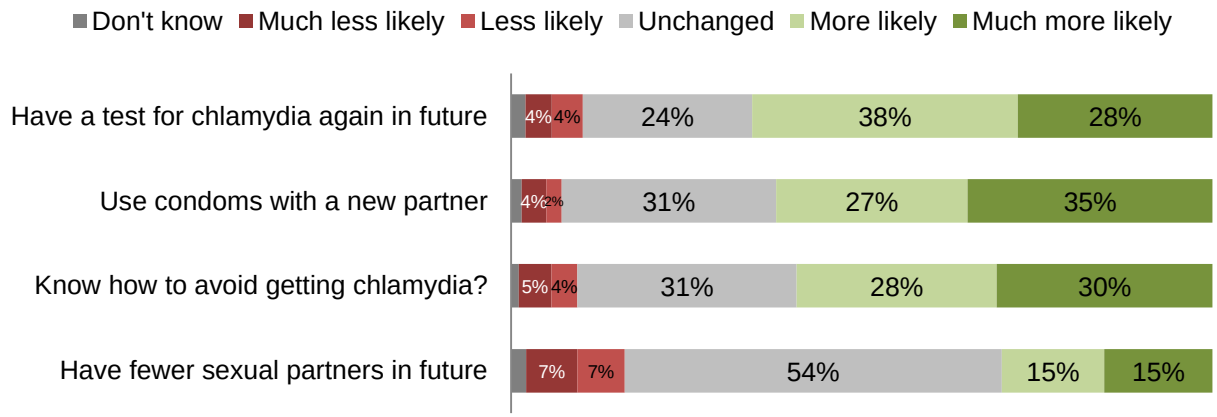


Impact of testing on behaviour

Categories of behaviour and knowledge

Respondents reported if there were any changes to their knowledge and behaviour following testing, using the question format “Has getting tested for chlamydia made you more or less likely to…”, and a five point Likert scale from “Much less likely” to “Much more likely” (Figure 6).

Figure 6. Changes to behaviour after being tested for chlamydia "Has getting tested for chlamydia made you more or less likely to..." (n=1,218)



Most respondents reported that they were more likely to know or engage in at least one of the four types of knowledge and behaviour after testing:

- have a test for chlamydia again in future (66% more or much more likely)
- use condoms with a new partner (62% more or much more likely)
- know how to avoid getting chlamydia (59% more or much more likely)
- have fewer sexual partners in future (30% more or much more likely)

Only a small proportion of respondents reported that they were less likely to know or engage in these behaviours after testing:

- have fewer sexual partners in future (14% less or much less likely)
- know how to avoid getting chlamydia (8% less or much less likely)
- have a test for chlamydia again in future (8% less or much less likely)
- use condoms with a new partner (6% less or much less likely)

Impact on future testing

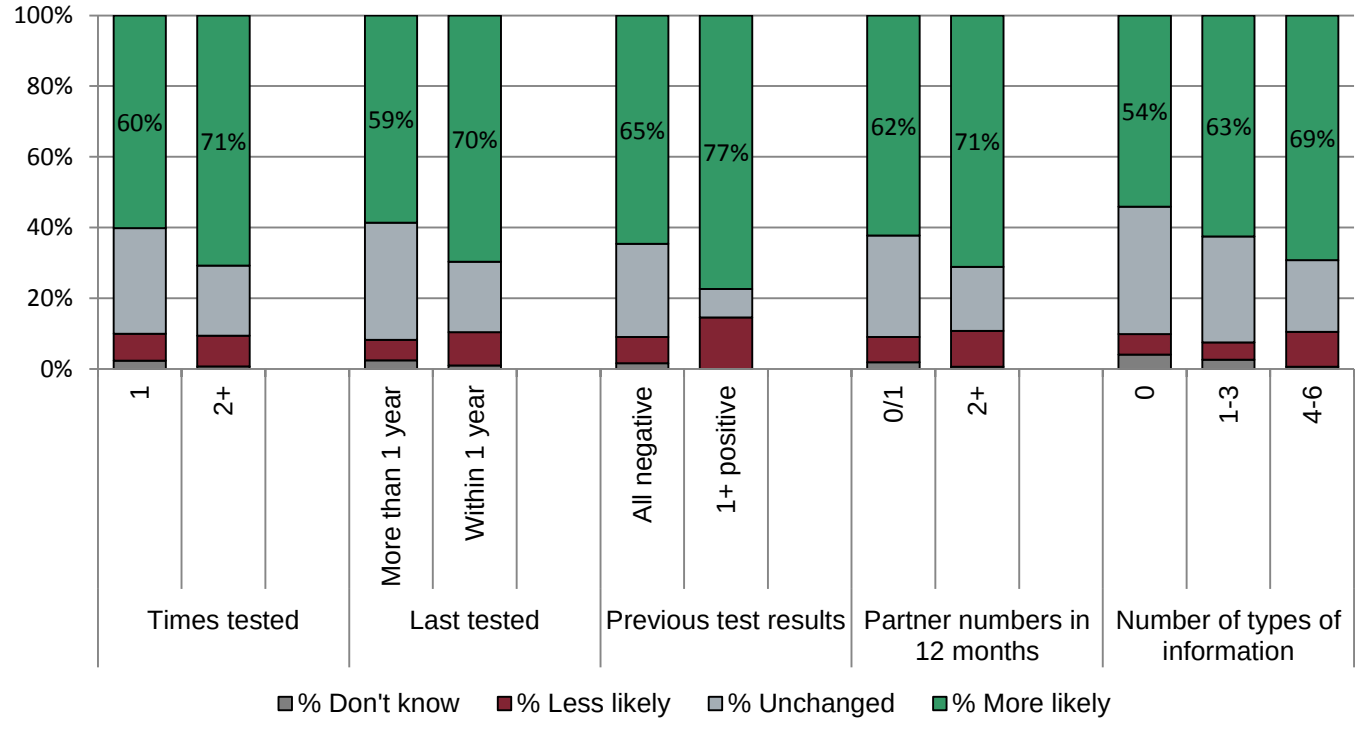
Two thirds of respondents (66%; 804/1,218) reported that getting tested for chlamydia made them more likely to have a test again in future. Bivariate logistic regression was used to find which variables were associated with this behavioural impact (Figure 7).

Being more likely to test again in future after testing was more commonly reported among the following groups:

- those who had previously been tested two or more times (odds ratio [OR] 1.6, 95% confidence interval [CI] 1.3-2.0, p<0.0005)
- those who had been tested within the last year (OR 1.6, 95% CI 1.3-2.1, p<0.0005)
- those who had previously tested positive for chlamydia (OR 1.9, 95% CI 1.2-2.9, p=0.003)
- those who had two or more partners in the last year (OR 1.5, 95% CI 1.2-1.9, p=0.02)
- those who were given four or more types of sexual health information at their last test (OR 1.5, 95% CI 1.2-1.9, p=0.002)

Those who had previously received a positive test result for chlamydia were less likely to report a neutral impact of testing on whether they would get tested again in future, compared to those who had only ever had negative test results, and so more commonly reported both an increased likelihood of testing again in future (77%, 106/137), and a decreased likelihood (15%; 20/137). A similar pattern of responses among this group was seen for the three other types of impact on knowledge or behaviour.

Figure 7. Variables associated with impact on future testing (n=1,218)



Impact on condom use

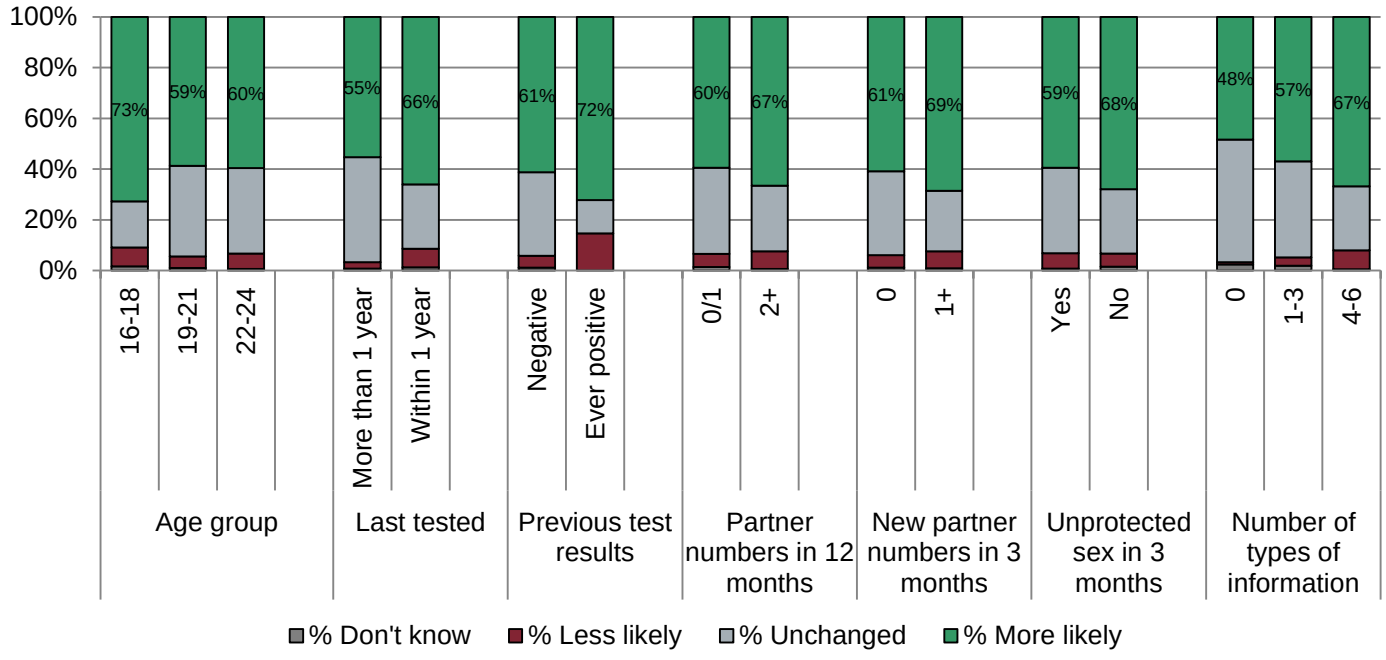
Over half of respondents (62%; 761/1,218) reported that getting tested for chlamydia made them more likely to use condoms with a new partner. Bivariate logistic regression was used to find which variables were associated with this behavioural impact (Figure 8).

Being more likely to use condoms was more commonly reported among the following groups:

- those aged between 16 and 18 (OR 1.8, 95% CI 1.3-2.5, p=0.0003)
- those who had been tested within the last year (OR 1.6, 95% CI 1.2-2.0, p=0.0003)
- those who had previously tested positive for chlamydia (OR 1.6, 95% CI 1.1-2.4, p=0.013)
- those who had two or more partners in the last year (OR 1.4, 95% CI 1.1-1.7, p=0.013)
- those who had a new partner in the last three months (OR 1.4, 95% CI 1.1-1.8, p=0.015)
- those who had **not** had unprotected sex in the last three months (OR 1.4, 95% CI 1.1-1.8, p=0.003)
- those who were given four or more types of sexual health information at their last test (OR 1.7, 95% CI 1.3-2.1, p<0.0005)

The association between reporting an impact of testing on future condom use and not having had recent unprotected sex suggests that respondents' sexual behaviour since testing reflects the reported impact on their subsequent sexual behaviour. Of those who did not report having recent unprotected sex, 68% (316/465) reported that testing had an impact on their condom use, compared with 59% (427/718) of those who did have sex without a condom. It is important to note that the question on recent condom use did not differentiate between new and regular partners.

Figure 8. Variables associated with impact on condom use (n=1,218)



Impact on knowledge

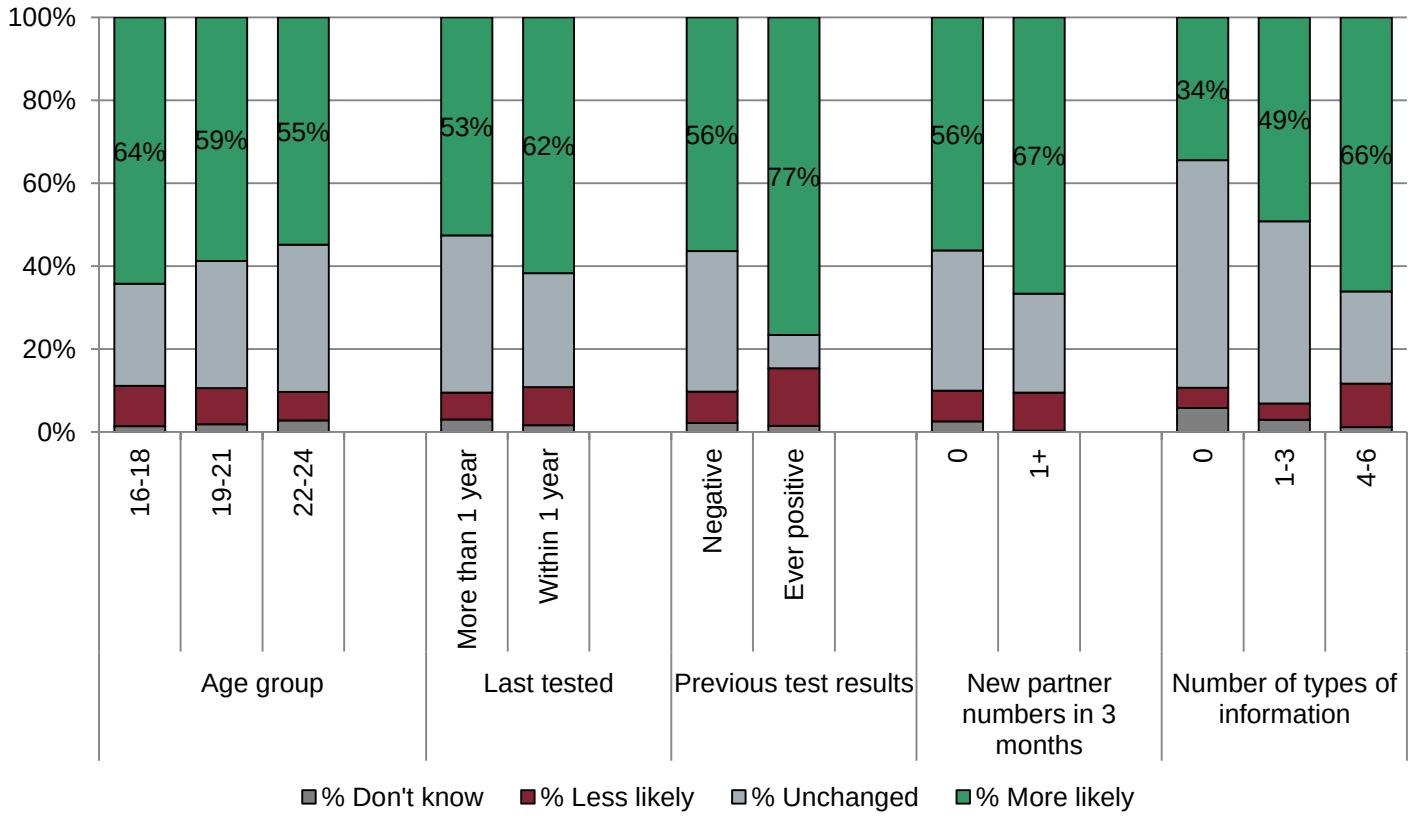
Over half of respondents (59%; 715/1,218) reported that getting tested for chlamydia made them more likely to know how to avoid getting chlamydia. Bivariate logistic regression was used to find which variables were associated with this impact on knowledge (Figure 9).

Being more likely to know how to avoid chlamydia after testing was more commonly reported among the following groups.

- those aged between 16 and 18 (OR 1.5, 95% CI 1.1-2.0, p=0.011)
- those who had been tested within the last year (OR 1.4, 95% CI 1.1-1.8, p=0.0026)
- those who had previously tested positive for chlamydia (OR 2.5, 95% CI 1.7-3.8, p<0.0005)
- those who had a new partner in the last three months (OR 1.6, 95% CI 1.2-2.0, p=0.0012)
- those who were given four or more types of sexual health information at their last test (OR 2.4, 95% CI 1.9-3.0, p<0.0005)

The amount of sexual health information provided was strongly associated with an impact on knowledge: 34% (42/122) of those given no information at their last test reported that testing had made them more likely to know how to avoid getting chlamydia, compared with 66% (522/789) of those who were given information on four or more topics.

Figure 9. Variables associated with impact on knowledge (n=1,218)



Impact on partner numbers

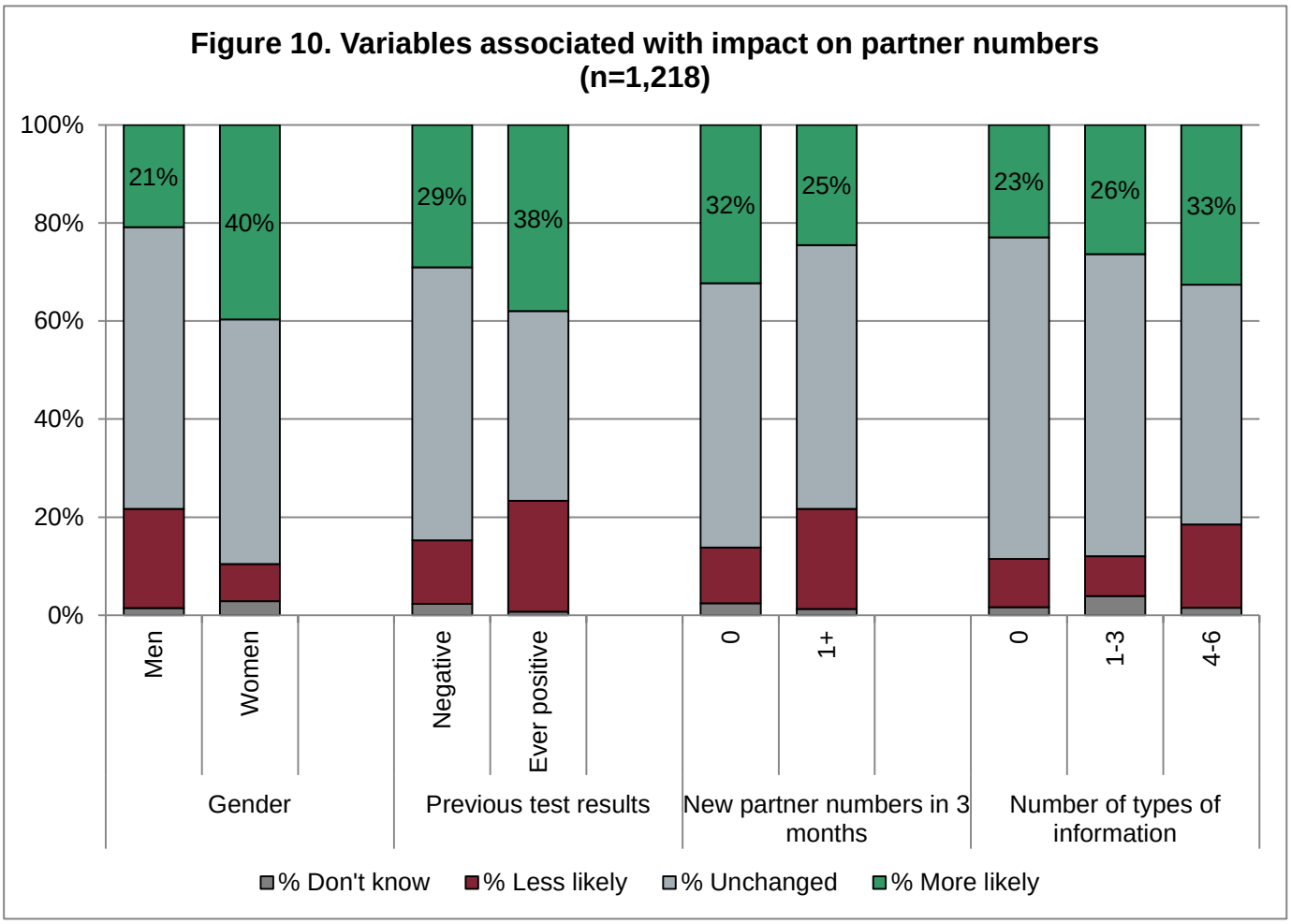
A third of respondents (30%; 366/1,218) reported that getting tested for chlamydia made them more likely to have fewer sexual partners in future. Bivariate logistic regression was used to find which variables were associated with this behavioural impact (Figure 10).

Being more likely to have fewer sexual partners in future after testing was more commonly reported among the following groups:

- young women (OR 2.5, 95% CI 1.9-3.2, p<0.0005)
- those who had previously tested positive for chlamydia (OR 1.5, 95% CI 1.0-2.2, p=0.033)
- those who had **not** had a new partner in the last three months (OR 1.5, 95% CI 1.1-2.0, p=0.011)
- those who were given four or more types on information at their last test (OR 1.4, 95% CI 1.1-1.8, p=0.093)

The association between reporting an impact of testing on future partner numbers and not having had a recent new partner suggests that respondents' sexual behaviour since testing reflects the reported impact on their subsequent sexual behaviour.

Figure 10. Variables associated with impact on partner numbers (n=1,218)



Impact of testing on attitudes

Theoretical model

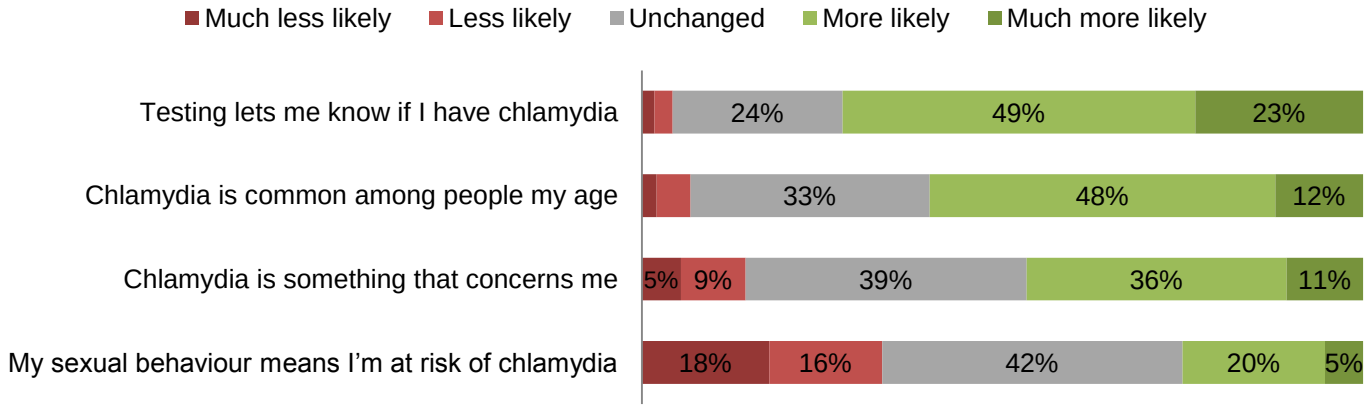
The survey questions that examined the impact of testing on subsequent attitudes and behaviour were based on the psychological model of the theory of planned behaviour[8]. This model has been widely applied in research which aims to understand people's behaviour as it relates to their health, and proposes that a person's intention to engage in a behaviour is due to a combination of three key factors[9]:

- **personal attitudes** are those which relate to whether a person is in favour of doing a particular action. They are influenced by a person's belief in the benefit of the outcome, and also by any reward that they will receive by performing it
- **subjective norms** reflect how much social pressure a person feels to perform a particular action. They are influenced by whether they feel others think they should be acting in a particular way, and their willingness to comply with this
- **perceived behavioural control** reflects whether a person feels in control of the action that is being examined. They are influenced by the person's belief that they can perform the action, and the barriers and facilitators that they feel are beyond their control

Personal attitudes towards chlamydia and chlamydia testing

While over half of respondents (60%; 732/1,218), were more likely to think that chlamydia was common in their age group after getting tested, only a quarter of respondents (25%; 305/1,218) were more likely to think that they were at personal risk of acquiring chlamydia (Figure 11).

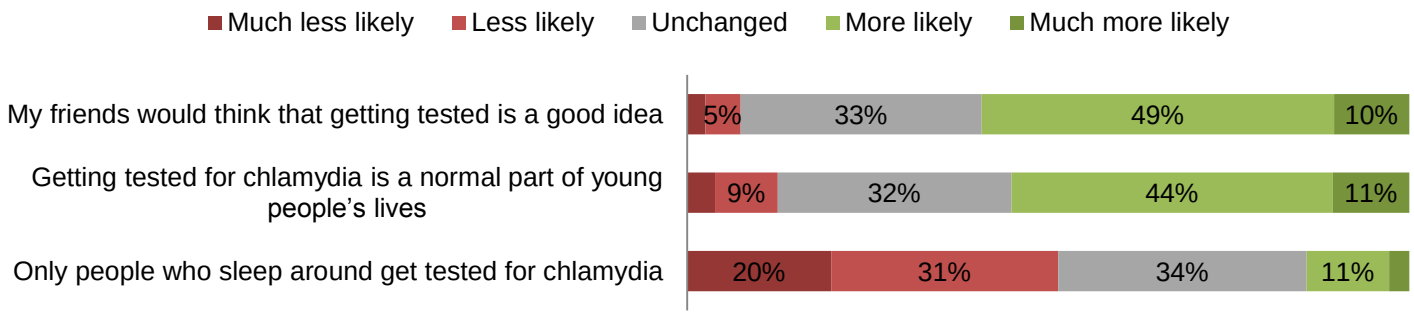
Figure 11. Changes to personal attitudes after testing
"Has getting tested for chlamydia made you more or less likely to think that..." (n=1,218)



Subjective norms around chlamydia testing

Over half of respondents were more likely to think that friends would approve of them getting tested (59%; 721/1,218) and that testing was normal in their age group (55%; 671/1,218); over half (51%; 626/1,218) had reduced feelings of stigma towards those who get tested (Figure 12).

Figure 12. Changes to subjective norms after testing "Has getting tested for chlamydia made you more or less likely to think that..." (n=1,218)

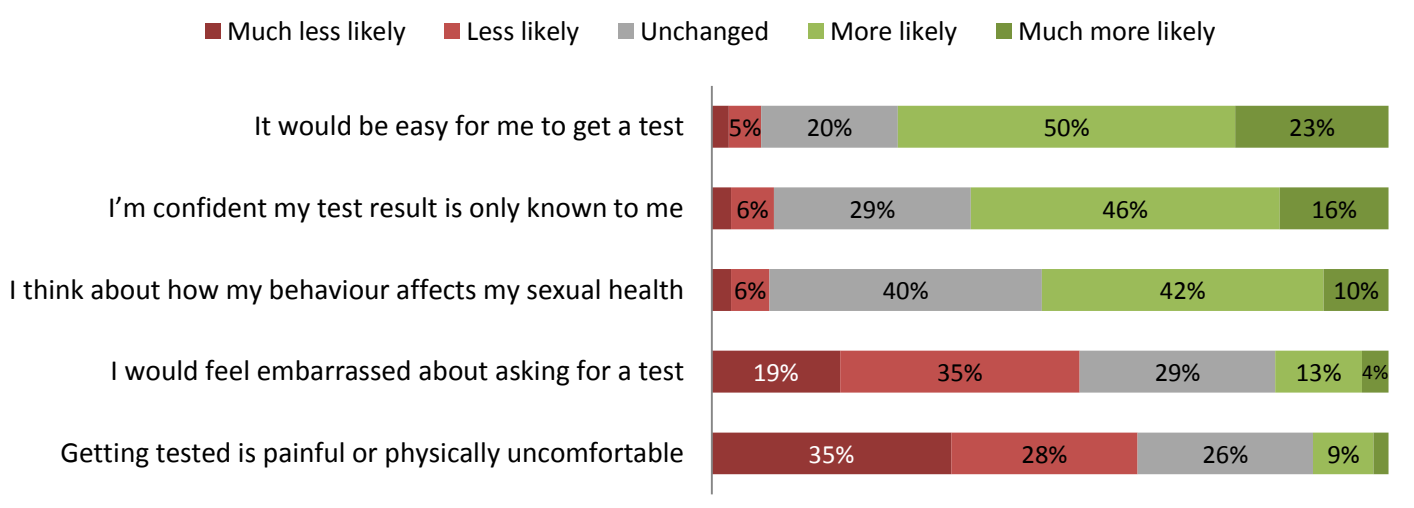


Perceived behavioural control

The survey respondents found that the experience of getting tested was a positive one in terms of reducing potential barriers to future testing: 72% (883/1,218) were more likely to think that getting tested was easy, 54% (662/1,218) felt less embarrassed about asking for a test, and 63% (766/1,218) were less likely to think that testing was painful or uncomfortable.

Over half (52%; 624/1,218) of respondents were more likely to reflect on their sexual health after getting tested, and 62% (752/1,218) were more confident that their test result was confidential (Figure 13).

Figure 13. Changes to perceived behavioural control after being tested for chlamydia "Has getting tested for chlamydia made you more or less likely to think that..." (n=1,218)



Discussion

What we know

Being tested for a sexually transmitted infection (STI) can be associated with changes to subsequent sexual risk behaviour and sexual health knowledge[10] [11]. Different behavioural changes may follow either positive or negative test results[12] [13]. However most studies investigating behavioural change following testing have taken place among adolescents attending STI clinics in the US. Only limited evidence exists on the effect of testing offered to asymptomatic individuals in community settings[2].

This survey explored how testing affects the underlying attitudes and norms which could lead to an impact on subsequent behaviour. The questions around attitudes were chosen to reflect components of the theory of planned behaviour[8], a psychological model that has been widely applied in health behaviour research, and used to examine chlamydia testing uptake among young adults[14].

Survey findings

The survey results show that respondents who reported higher numbers of sexual partners and recent unprotected sex were more likely to be regularly tested, in terms of number of times ever tested and proportion tested in the last year. This is in line with the finding of the recent Natsal population-based survey that young men and women with higher numbers of partners in the past year were more likely to report being tested in the past year than those with low partner numbers[15]. This suggests that the NCSP has been successful at increasing rates of testing among those at higher risk of acquiring chlamydia infection.

Young adults report that chlamydia screening leads to subsequent changes to knowledge and behaviour, particularly an increased likelihood of testing again in future, using condoms with new partners and knowing how to avoid chlamydia infection. Respondents reported a smaller impact of testing on reductions in partner numbers. These findings are consistent with the results of the previous NCSP web survey carried out in 2012[4].

Those who were given four or more types of sexual health information at their last test were more likely to report a change to their behaviour or knowledge; however a change was also reported by many of those who received no sexual health information at their last test. Brief motivational interviewing interventions targeting young adults attending healthcare services have been shown to be effective at reducing levels of alcohol consumption and related harms in this population[16]. It is feasible that chlamydia testing can similarly act as a brief sexual health intervention in itself, beyond diagnosis and treatment alone, providing an opportunity to deliver safer sex messages to young adults.

Respondents who had previously received a positive chlamydia test result were more likely to report both negative and positive behavioural consequences of testing. This could be due to the complex psychosocial implications of receiving a positive test result compared to a negative one, including differences in levels of anxiety, concern for future reproductive health and desire to discuss the implications of a test result with a healthcare professional[17] [18].

Respondents who were last tested in general practice were least likely to have been given any sexual health information to accompany their test. Those who self-collected their last test from the internet or from a pharmacy were least likely to have been given four or more types of information. Consideration should be given to how best to support the provision of safer sex messages in these settings, within time and cost constraints.

Young adults found the experience of getting tested was a positive one in terms of reducing potential barriers to future testing: they were more likely to think that getting tested was easy, felt less embarrassed about asking for a test, and were less likely to think that testing was painful or uncomfortable. Testing had a normalising and destigmatising effect, in terms of making young adults more likely to think that testing was normal and approved of in their peer group. However only a quarter were more likely to think they were at personal risk of acquiring chlamydia after being tested. While normalising chlamydia testing and diagnosis is important in order for screening to be acceptable to young adults[19] [20], increasing levels of awareness of personal risk may also help encourage regular testing.

Limitations to the survey

The survey results are self-reported, and may not reflect actual changes to behaviour or levels of knowledge following testing. Furthermore, the study was cross-sectional, with no control group, and it was not possible to compare behaviours before and after testing. The retrospective nature of the survey questions means that the results are likely to be subject to social desirability bias, leading to under-reporting of stigmatised behaviours and over-reporting of behaviours which fit social and gender norms. However, the observed associations between reporting an impact on future condom use or number of partners, and not having unprotected sex or a new partner in the three months prior to the survey (Figures 8 and 10), suggests that the impact is reflected in recent behaviour.

Quotas were used to ensure the sample was representative of young adults in England in terms of age, gender and geographical location, but it is possible that it was unrepresentative in other respects. This would affect the generalisability of the findings: firstly to the population of young adults who have been tested for chlamydia, and secondly to the NCSP target population of sexually active young adults. Reported rates of partner change were higher than those seen in Natsal, but this may be due to the fact that the sample was restricted to those testing who reported having been tested for chlamydia and so can be assumed to be sexually active, while Natsal included those who had not yet initiated sexual activity[7].

Conclusions

Respondents reported that chlamydia screening resulted in changes to their subsequent knowledge or healthcare-seeking or sexual behaviour. Given that those with higher rates of partner change and unprotected sex are more likely to be tested regularly, chlamydia screening provides an opportunity to deliver safer sex messages to young adults with higher risk of poor sexual health outcomes. While reporting a positive impact was more common among those who received more types of sexual health information with their last test, it was also observed among those who reported receiving no information. These findings suggest that chlamydia screening has a wider effect on young adults' sexual health beyond diagnosis and treatment alone. This will need to be considered in the future development and evaluation of the screening programme.

Annex 1

2014 NCSP web survey questionnaire:

www.chlamydiascreening.nhs.uk/ps/resources/web-survey/2014%20NCSP%20web%20survey%20questionnaire.pdf

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