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How did the COVID-19 pandemic affect access to condoms, chlamydia and HIV testing, and cervical cancer screening at a population level in Britain? (Natsal-COVID)

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ABSTRACT

Objectives To investigate how differential access to key interventions to reduce STIs, HIV and their sequelae changed during the COVID-19 pandemic.

Methods British participants (18–59 years) completed a cross-sectional web survey 1 year (March–April 2021) after the initial lockdown in Britain. Quota-based sampling and weighting resulted in a quasi-representative population sample. We compared Natsal-COVID data with Natsal-3, a household-based probability sample cross-sectional survey (16–74 years) conducted in 2010–2012. Reported unmet need for condoms because of the pandemic and uptake of chlamydia testing/HIV testing/cervical cancer screening were analysed among sexually experienced participants (18–44 years) (n=3869, Natsal-COVID; n=8551, Natsal-3). ORs adjusted for age and other potential confounders describe associations with demographic and behavioural factors.

Results In 2021, 6.9% of women and 16.2% of men reported unmet need for condoms because of the pandemic. This was more likely among participants: aged 18–24 years, of black or black British ethnicity, and reporting same-sex sex (past 5 years) or one or more new relationships (past year). Chlamydia and HIV testing were more commonly reported by younger participants, those reporting condomless sex with new sexual partners and men reporting same-sex partners; a very similar distribution to 10 years previously (Natsal-3). However, there were differences during the pandemic, including stronger associations with chlamydia testing for men reporting same-sex partners; with HIV testing for women reporting new sexual partners and with cervical screening among smokers.

Conclusions Our study suggests differential access to key primary and secondary STI/HIV prevention interventions continued during the first year of the COVID-19 pandemic. However, there was not strong evidence that differential access has changed during the pandemic when compared with 2010–2012. While the pandemic might not have exacerbated inequalities in access to primary and secondary prevention, it is clear that large inequalities persisted, typically among those at greatest STI/HIV risk.

WHAT IS ALREADY KNOWN ON THIS TOPIC

⇒ Though the pandemic disrupted sexual behaviour and sexual and reproductive health (SRH) services, it is unknown how pre-existing disparities in STI/HIV prevention were affected.

WHAT THIS STUDY ADDS

⇒ This study compared differential access to key SRH interventions using Natsal-COVID (2021) and Natsal-3 (2010–2012) data. Many men who have sex with men, people of black ethnicity and young people reported unmet need for condoms because of the pandemic, but there was not strong evidence that these key populations were at additional risk during the pandemic compared with 2010–2012.

HOW THIS STUDY MIGHT AFFECT RESEARCH, PRACTICE OR POLICY

⇒ Improving accessibility to free or low-cost condoms in Britain should be prioritised. Large inequalities in access to key STI/HIV interventions persist, and there remains a need to reduce, if not eradicate, these.

INTRODUCTION

Primary and secondary prevention methods interrupt the transmission or consequences of STIs and HIV. For STIs/HIV, primary prevention aims to prevent infection occurring at all (eg, condoms), while secondary prevention involves detection/treatment of infection before disease manifestations (eg, testing for and treating early chlamydia or HIV infection, or cervical cancer screening to detect abnormal cells and cervical intraepithelial neoplasia caused by infection with high-risk human papillomavirus).¹ Such interventions remained important during the COVID-19 pandemic because potentially risky sexual activity continued despite lockdowns,² and STI/HIV diagnoses nearly regained pre-pandemic levels by the end of 2020.³ Different population groups experienced significant health inequalities during the pandemic due to the direct impacts of COVID-19, as well as impacts on the wider health system and society.⁴ There were also significant pre-existing inequalities in uptake of sexual and reproductive health (SRH) interventions

and outcomes,⁵⁻⁷ and the pandemic disrupted SRH services, which likely delayed diagnoses and led to worse outcomes. However, it is unknown whether or how the pandemic affected inequalities in STI/HIV prevention.

In Britain, a national lockdown was announced on 23 March 2020, which lasted approximately 4 months and caused the most severe disruption. Restrictions continued throughout 2020. Another 4-month national lockdown began in early January 2021. During this period, SRH services were impacted by reduced face-to-face consultations and the need to prioritise key populations and symptomatic patients, as well as by concerns about the risk of SARS-CoV-2 infection, which affected health-seeking behaviour.^{8 9}

The National Survey of Sexual Attitudes and Lifestyles (Natsal)-COVID web-panel study was conducted to understand the population-level impact of the COVID-19 pandemic on SRH in Britain. Survey Wave 1 of Natsal-COVID was conducted 4 months (July–August 2020) after the announcement of the first national lockdown to understand initial changes in SRH service use.^{10 11} STI services were most likely to reach those most at risk of STIs in those first 4 months, though there were often difficulties in access.^{10 12} Survey Wave 2, conducted a year after the initial lockdown, captured key annual STI outcomes, such as HIV and chlamydia testing.¹³ Elsewhere, we have reported an overall reduction in chlamydia testing for Wave 2 compared with Natsal-3 (a household-based representative probability sample survey of the British population conducted from 2010 to 2012), while HIV testing and STI-related service use were similar to Natsal-3.¹⁴

In this paper, we investigated whether and how underlying differential access to key STI/HIV interventions by population group changed during the first year of the pandemic. We used Natsal-COVID survey Wave 2 data on reported unmet need for condoms, chlamydia and HIV testing, and cervical cancer screening to assess the distribution in the general population and among key populations experiencing a disproportionate burden of diagnoses (including men who have sex with men (MSM), young people and people of black ethnicity).¹⁵ We compared these distributions with data from Natsal-3 (2010–2012) as the most recent representative population survey on sexual health in Britain. We hypothesised that differential access to key STI interventions was exacerbated due to the pandemic.

METHODS

Natsal-COVID Wave 2 study design

Natsal-COVID survey Wave 2 was a quasi-representative web-panel survey of sexual health conducted 1 year after the first national lockdown in Britain. Data were collected using a short online questionnaire (median completion time: 13 min) through survey research company Ipsos-MORI's web panel. Participants were asked about uptake of STI interventions in the 1 year from 23 March 2020. The sample comprised longitudinal participants, who completed Wave 1, and new cross-sectional participants recruited at Wave 2. The questionnaire is available at <https://www.natsal.ac.uk/natsal-covid-study>. Details of the Natsal-COVID methods are described elsewhere.¹³

Participants and procedures of Natsal-COVID Wave 2

Altogether, 6658 participants completed the survey between 27 March and 26 April 2021, including 2098 who also participated in Wave 1. To achieve a quasi-representative sample of the British population, we used quotas for age, gender, region (based on Office for National Statistics 2019 midyear estimates)

and social grade (based on Census 2011 data), and weighted the data to match the general population distributions for the quotas, ethnicity and sexual identity. An anonymised dataset will be deposited with the UK Data Service to accompany the Natsal-COVID survey Wave 1 data (SN8865) and datasets from previous decennial Natsal surveys, including Natsal-3 (SN7799).

Comparison with Natsal-3

We compared our findings with data from the Natsal-3 survey. Natsal-3 (2010–2012) used a multistage, clustered and stratified probability sample design.¹⁶ Interviewers visited all sampled addresses, identified residents in the eligible age range (16–74 years) and randomly selected one individual to participate. Participants then completed the survey in their own homes through a combination of face-to-face interviews and a self-completion interview. Interviews lasted about 1 hour on average. Details of the Natsal-3 methods are described elsewhere.¹⁶

Statistical measures and analysis

We used Stata (V.16.1) complex survey analysis functions to incorporate weighting and stratification. Outcomes of interest are shown in online supplemental table 1.

Data from Natsal-COVID are presented for all participants and separately for men (including trans men) and women (including trans women). While we did not present estimates for participants who identified 'in another way', these 22 participants were included in estimates presented for 'all'. For analysis of cervical cancer screening, we included all participants described female at birth, which included some trans men and non-binary people. Natsal-3 used a binary measure of gender.

We examined the outcome of 'unmet need for condoms' among sexually experienced participants (ie, any lifetime vaginal, anal, oral sex or other genital contact) by asking 'Was there any time since the start of the first lockdown when you needed to use condoms, but didn't because you couldn't get hold of any because of the pandemic?' Participants aged 45–59 years were excluded due to low burden of STIs in this age group. Of 6658 Natsal-COVID participants aged 18–59 years, 4323 were aged 18–44 years, and 3869 were sexually experienced and included in analysis. Although some sexually experienced participants (n=270 men and n=240 women) did not report sexual partners in the past year, they were included in denominators for 'unmet need for condoms' since disrupted access to condoms might have prevented some participants from having sex. This question was not asked in Natsal-3.

We estimated reported chlamydia and HIV testing in the past year among sexually experienced participants (18–44 years) for Natsal-COVID and Natsal-3. Natsal-3 participants reporting at least one lifetime sexual partner were considered 'sexually experienced'. Of 15 162 Natsal-3 participants, 8969 were aged 18–44 years, and 8551 were sexually experienced and included in analysis.

We estimated reported cervical cancer screening among eligible participants (ie, reported being described female at birth (Natsal-COVID) or women (Natsal-3) and aged 25–59 years). This age group was chosen to closely reflect UK national screening programme eligibility (25–64 years). Cervical screening estimates are presented for eligible participants for the past year (Natsal-COVID) or past 3 years (Natsal-3); therefore, we focused on comparing characteristics associated with the uptake of cervical screening between surveys, rather than prevalence estimates.

MSM in Natsal-COVID and Natsal-3 were defined as men (based on reported gender identity in Natsal-COVID) reporting

at least one same-sex partner (defined by participant) in the past 5 years.

We used logistic regression to calculate age-adjusted ORs (aORs) to investigate how uptake varied by sociodemographic and behavioural factors. To establish independent associations with 'unmet need for condoms', the model was also adjusted for sociodemographic (age, region, rurality, ethnicity and relationship formation) and behavioural (sexual partners in the past year and previous same-sex experience in the past 5 years) factors. Where possible, we compared aORs in Natsal-COVID analyses with those generated from Natsal-3 data to investigate whether and how patterns of association differed between these studies. We describe the differences in the strength of associations and test for differences in the distribution of associations by including interaction terms in the regression models.

Patient and public involvement

Patients or the public were not directly involved in the design, conduct, reporting or dissemination plans of the Natsal-COVID Study due to the urgency of the research during the pandemic. However, members of the public were involved in the design of the Natsal-4 questionnaire, upon which the Natsal-COVID questionnaire was based.

RESULTS

Primary STI prevention

Unmet need for condoms

Among sexually experienced participants (18–44 years), 6.9% of women and 16.2% of men reported unmet need for condoms in the past year because of the pandemic (online supplemental table 2). Participants aged 18–24 years (women 16.8% and men 33.1%) and MSM (36.8%) were more likely to report this. Unmet need was even higher in young MSM (50.4% of 89 MSM aged 18–29 years old).

In an adjusted model, unmet need for condoms was most likely to be reported by younger participants and, among men, those identifying as black or black British (online supplemental table 2). Participants who reported symptoms of depression or anxiety were also more likely to report unmet need.

There were strong associations between unmet need for condoms and behavioural markers of HIV/STI risk. Participants who reported forming new relationships in the past year or a same-sex experience in the past 5 years were more likely to report unmet need (44.1% of women who reported previous same-sex experience also reported at least one opposite sex partner in the past 5 years). Among participants who reported unmet need, 47.0% (39.6%–54.5%) of men and 34.4% (25.9%–44.0%) of women also reported condomless sex on the first occasion with a new partner during the past year. By comparison, in the group that did not report unmet need, only 13.9% (11.7%–16.4%) of men and 8.6% (7.3%–10.2%) of women reported condomless sex on the first occasion with a new partner (aOR for condomless with new partner: women, 4.42 (2.81–6.95); men, 4.67 (3.21–6.78); data not shown). Among men but not women, participants who reported use of STI-related services in the past year were more likely to report unmet need in the adjusted model.

Secondary STI prevention

Chlamydia and HIV testing

Among sexually experienced participants (18–44 years), 7.3% of women and 4.1% of men reported a chlamydia test in the past year, which was significantly lower than the proportions reported in Natsal-3 (2010–2012) (25.1% women; 15.1% men).

HIV testing in the past year was reported by 8.6% of women and 6.5% of men in Natsal-COVID Wave 2, similar to the 10.4% of women and 6.0% of men in Natsal-3 (online supplemental tables 3 and 4).

The direction and strength of associations for most independent variables with chlamydia and HIV testing were similar for Natsal-COVID and Natsal-3, based on interaction terms (figure 1, online supplemental tables 3 and 4). In both surveys, participants aged 18–24 years were more likely to report an HIV test compared with those aged 35–44 years; black or black British participants were more likely to report testing than white participants, and MSM were more likely than other men to report testing. In each case, the strength of associations was similar.

Nevertheless, there were some statistically significant interactions suggesting several differences between surveys. For example, young people (18–24 years) were significantly more likely to report chlamydia testing compared with the oldest age group in both surveys, and while the strength of this age association was similar for women across surveys, it was significantly stronger for men in Natsal-3 than Natsal-COVID (interaction $p=0.01$). MSM were more likely to report chlamydia testing in Natsal-COVID than Natsal-3 (interaction $p=0.04$).

Cervical cancer screening

Among eligible participants in Natsal-COVID, 10.3% reported use of cervical cancer screening services in the past year. In Natsal-3, 70.6% of women reported cervical screening in the past 3 years.

Associations for reported cervical screening were broadly similar to those in Natsal-3 (figure 2, online supplemental table 5). The youngest participants (25–29 years) were more likely to report screening compared with participants aged 44–59 years in both surveys, although the association with age was stronger in Natsal-COVID than Natsal-3 (interaction $p=0.01$). Gay or lesbian participants were less likely to screen than heterosexual participants in Natsal-COVID, while there was no association with sexual identity in Natsal-3 (interaction $p=0.01$). Notably, participants who reported smoking were more likely to report screening in Natsal-COVID, while this same group was less likely to screen in Natsal-3. Cervical screening was also associated with markers of sexual risk, such as reporting two or more sexual partners in the past year, in Natsal-COVID but not Natsal-3 (interaction $p=0.01$).

DISCUSSION

Principal findings

Findings from this large, quasi-representative survey of the British population indicate differential access to key STI/HIV prevention interventions during the COVID-19 pandemic, particularly for young people, MSM and those reporting new sexual partners. However, we did not find strong evidence that differential access for these key populations had changed during the pandemic when compared with 2010–2012.

Regarding primary prevention, use of condoms is a highly cost-effective way to prevent transmission of STIs/HIV and unplanned pregnancy.¹⁷ However, 6.9% of women and 16.2% of men aged 18–44 years reported unmet need for condoms in the past year because of the pandemic. This was even higher for young men aged 18–24 years (33%) and MSM aged 18–29 years (50%). Participants who reported one or no partners in the past year (ie, low STI risk) still reported unmet need, which could indicate that some people were avoiding sex because they were unable to access condoms. It is also striking that participants

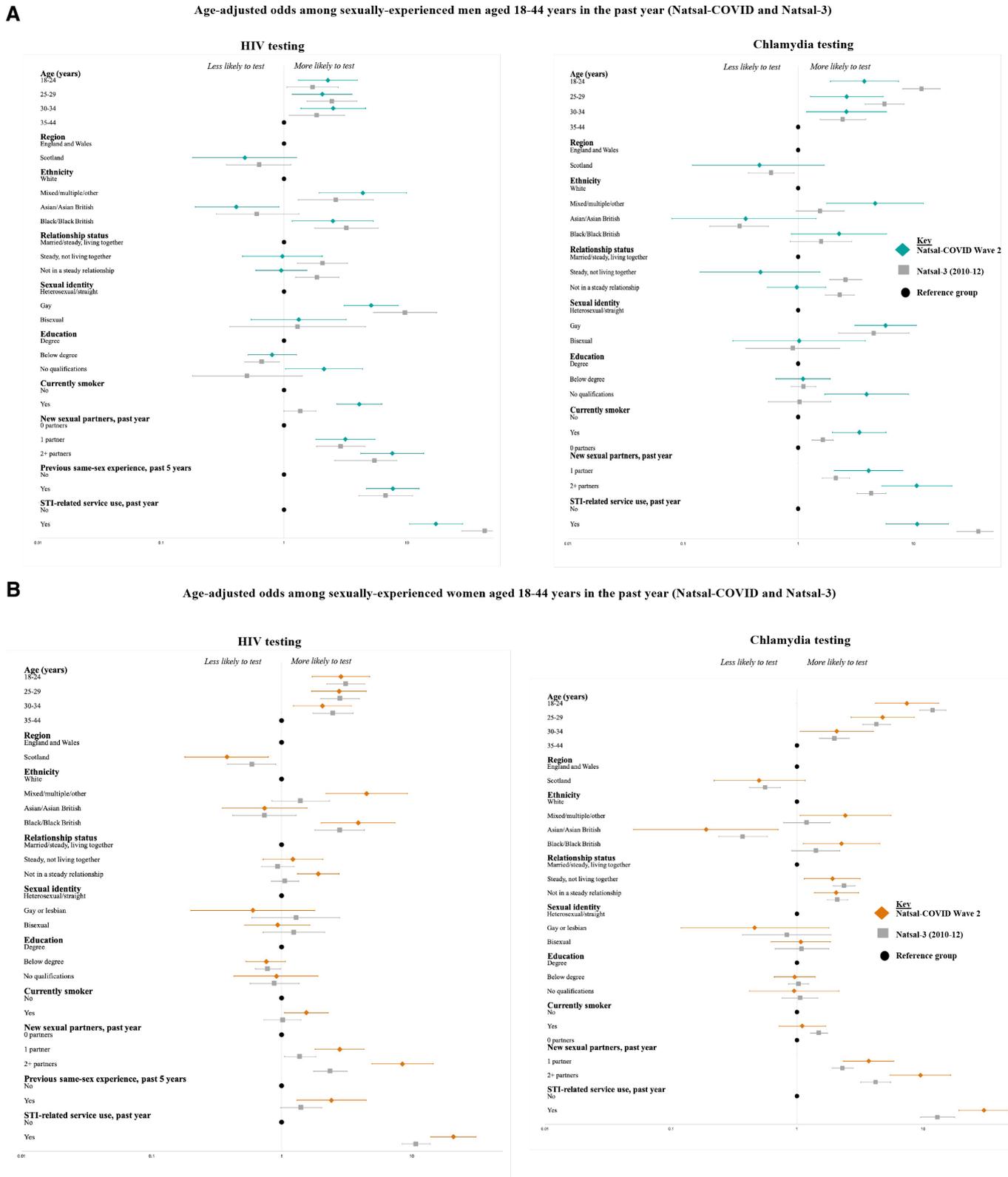


Figure 1 (A) Age-adjusted odds among sexually experienced men aged 18-44 years in the past year (Natsal-COVID and Natsal-3). (B) Age-adjusted odds among sexually experienced women aged 18-44 years in the past year (Natsal-COVID and Natsal-3). Natsal, National Survey of Sexual Attitudes and Lifestyles.

reporting symptoms of depression or anxiety were more likely to report unmet need, though we are unable to determine causality. On the other hand, participants who reported unmet need were more likely to report sexual behaviours associated with STI/HIV risk. For example, they were more likely to

report condomless sex with new partners, which suggests that improving access to condoms might support higher levels of condom use with new partners, in turn reducing STI/HIV transmission. Notably, many men reporting unmet need also reported use of STI-related services in the past year, suggesting a role for

Age-adjusted odds for reporting cervical cancer screening among eligible participants aged 25–59 years in the past year (Natsal-COVID) or past 3 years (Natsal-3)

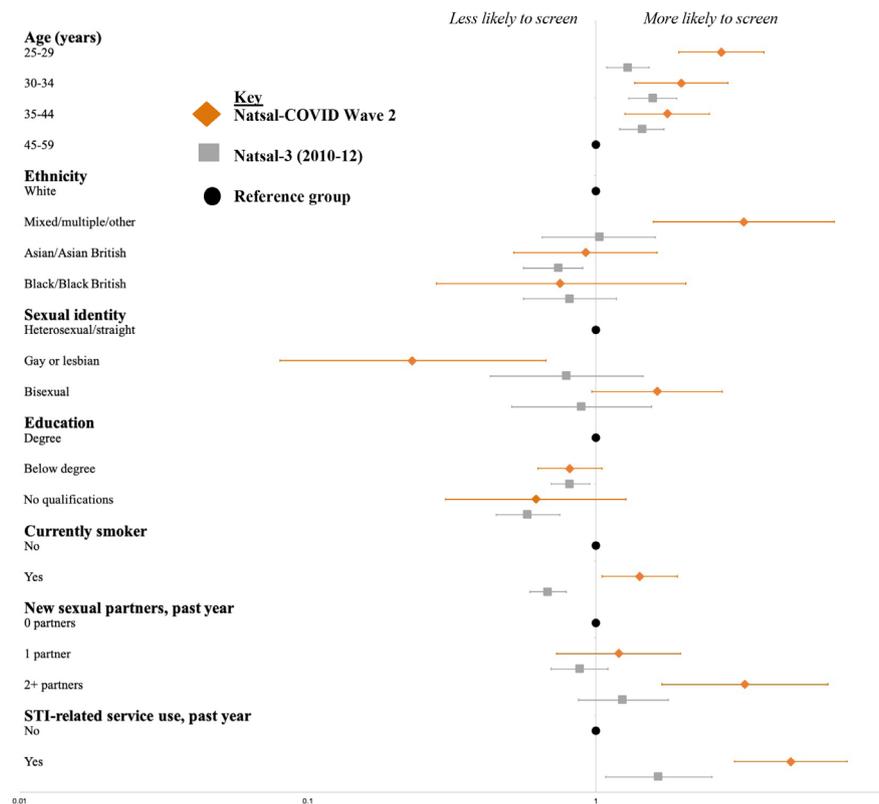


Figure 2 Age-adjusted odds for reporting cervical cancer screening among eligible participants aged 25–59 years in the past year (Natsal-COVID) or past 3 years (Natsal-3). Natsal, National Survey of Sexual Attitudes and Lifestyles.

SRH services in improving access to free or low-cost and easily accessible condoms. Anecdotal evidence suggests that provision of condoms at SRH services has reduced in the past decade and that remote service provision has further limited access during the pandemic. MSM, people of black ethnicity and young people are among the groups most impacted by STIs in Britain,¹⁵ and it is concerning that a high proportion of individuals in these key populations were unable to access condoms when they needed them. A Scottish web survey conducted in July 2020 corroborates our findings on unmet need for condoms, especially among young people.¹⁸ Our data suggest that improving accessibility to free or low-cost condoms should be prioritised.

The distribution in the population of reporting chlamydia and HIV testing was broadly similar for Natsal-COVID (2021) and Natsal-3 (2010–2012). Key populations at most risk of STI transmission, including young people, MSM and those reporting condomless sex with new partners, continue to be most likely to engage with SRH services, and the strengths of association between the different groups were similar in both surveys. In the past decade, HIV testing among MSM has increased due to targeted campaigns.¹⁹ However, we did not detect a stronger association with HIV testing among MSM in Natsal-COVID compared with Natsal-3—potentially due to a reversal of the upward trend in HIV testing among MSM in the years immediately prior to the pandemic.^{19 20}

Although we cannot compare population estimates because of differences in the reporting time frames, patterns of reported access to cervical cancer screening were similar in Natsal-COVID and Natsal-3. However, there was higher reported use

among younger participants (25–29 years) in Natsal-COVID, which might suggest either a longer-term trend over the past decade and/or a greater willingness to access services during the pandemic in younger compared with older participants, who might have perceived higher risk of severe COVID-19. In Natsal-3, reported uptake of cervical cancer screening was lower among smokers, while this group was more likely to screen in Natsal-COVID. At a population level, smoking has declined substantially in the past decade, particularly among those aged 18–24 years old.²¹ Nevertheless, that smokers were more likely to report cervical screening could be positive, given the additional risk for cervical cancer brought by smoking.²² Surveillance data suggest a decrease in invitations and screening in 2020 compared with 2019, which corroborates Natsal-COVID Wave 1 and ave 2 findings suggesting a potential backlog of need for cervical screening.^{10 14 23}

Comparison with other studies

Reprioritisation of healthcare services, including SRH, due to COVID-19 led to unmet need,¹⁰ even though there was a reduction in new partners, particularly among young people and MSM.¹⁴ Data from the UK Health Security Agency demonstrated a fall in bacterial STI testing from 2019 to 2020 among younger people, people of Asian or black ethnicity, and heterosexual men, though there was a small increase in testing among MSM.²⁴ Surveillance data also showed the burden of STIs remained greatest in those aged 15–24 years, as well as black ethnic minorities and MSM in 2020.¹⁵

Strengths and limitations

No previous study has examined whether and how differential access to key interventions to prevent STI or HIV and their sequelae changed at a population level due to the COVID-19 pandemic.²⁰ Missing data were low for Natsal-COVID (ie, non-response was 1%–4%). However, our study also has limitations.¹³ While benefiting from a questionnaire developed by the Natsal team to obtain high-quality data while navigating pandemic-related circumstances and using a large national sample, with quota sampling and weighting to improve generalisability, the Natsal-COVID study is not a probability sample. Specific prevalence estimates should be treated with caution given expected selection and response biases. The question on ‘unmet need for condoms’ was not validated due to time constraints on questionnaire development.

Due to the lack of population-level data on key STI/HIV prevention intervention access by sociodemographic and behavioural characteristics collected immediately prior to the pandemic, we used data from Natsal-3 to compare trends in differential access, which serves as a proxy for inequalities in access. Natsal-3 data provided the best comparison for these population-level STI/HIV interventions—with four key caveats. First, Natsal-3 data were collected 10 years ago, so sexual behaviours and service provision have likely undergone secular changes since then. Second, there are different sampling biases between the surveys that weighting can only partially correct.¹³ Third, it was not possible to determine whether differences in associations were because of a change in the risk group, or a change in the reference group (or both). Likewise, where there was no difference between the surveys, this might be due to methodological differences. Finally, it is not clear whether differences with Natsal-3 are pandemic related or indicative of longer-term secular trends. Therefore, while the associations in the Natsal-COVID are strikingly similar to Natsal-3, comparisons should be interpreted with caution.

Conclusions and policy implications

Our study suggests differential access to key STI/HIV prevention interventions during the first year of the COVID-19 pandemic. However, available evidence does not suggest substantial changes in the patterns of uptake since 2010–2012. While the pandemic might not have exacerbated inequalities in access, we did observe that large inequalities persist. These were typically among those at greatest STI/HIV risk, and there remains a need to reduce, if not eradicate, these. Future comparison with the fourth decennial probability survey (Natsal-4), which starts fieldwork in 2022, will be critical to continue to monitor inequalities and trends more broadly.

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REFERENCES

- 1 WHO/UNAIDS. Sexually transmitted diseases: policies and principles for prevention and care, 1999. Available: https://data.unaids.org/publications/irc-pub004/una97-6_en.pdf
- 2 Mercer CH, Clifton S, Riddell J. Impacts of COVID-19 on sexual behaviour in Britain: findings from a large, quasi-representative survey (Natsal-COVID). *Sex Transm Infect* 2021;382:sextrans-2021-055210.
- 3 Charles H, Ratna N, Thorn L, et al. COVID-19 impact on bacterial sexually transmitted infections in England between 1 January 2019 and 31 December 2020. *Sex Transm Infect*;2021:sextrans-2021-055262.
- 4 Suleman M, Sonthalia S, Webb C. Unequal pandemic, fairer recovery: the COVID-19 impact inquiry report The Health Foundation; 2021.
- 5 Sonnenberg P, Clifton S, Beddows S, et al. Prevalence, risk factors, and uptake of interventions for sexually transmitted infections in Britain: findings from the National surveys of sexual attitudes and lifestyles (Natsal). *Lancet* 2013;382:1795–806.
- 6 Wayal S, Hughes G, Sonnenberg P, et al. Ethnic variations in sexual behaviours and sexual health markers: findings from the third British national survey of sexual attitudes and lifestyles (Natsal-3). *Lancet Public Health* 2017;2:e458–72.
- 7 Mercer CH, Prah P, Field N, et al. The health and well-being of men who have sex with men (MSM) in Britain: evidence from the third national survey of sexual attitudes and lifestyles (Natsal-3). *BMC Public Health* 2016;16.
- 8 British Association for Sexual Health and HIV. BASHH COVID-19 Sexual Health ‘Clinical Thermometer’ Survey Initial Results Snapshot, 2020. Available: <https://members.bashh.org/resources/Documents/COVID-19/BASHH%20COVID-19%20Clinical%20Thermometer%20Survey%20-%20First%20Round%20Results%20Snapshot%20.pdf> [Accessed 06 May 2021].
- 9 Bosó Pérez R, Reid D, Maxwell KJ, et al. Access to and quality of sexual and reproductive health services in Britain during the early stages of the COVID-19 pandemic: a qualitative interview study of patient experiences. *BMJ Sex Reprod Health* 2022. doi:10.1136/bmjsexrh-2021-201413. [Epub ahead of print: 20 Apr 2022].

- 10 Dema E, Gibbs J, Clifton S, *et al.* Initial impacts of the COVID-19 pandemic on sexual and reproductive health service use and unmet need in Britain: findings from a quasi-representative survey (Natsal-COVID). *Lancet Public Health* 2022;7:e36–47.
- 11 Dema E, Copas AJ, Clifton S, *et al.* Methodology of Natsal-COVID wave 1: a large, quasi-representative survey with qualitative follow-up measuring the impact of COVID-19 on sexual and reproductive health in Britain. *Wellcome Open Res* 2021;6:209.
- 12 Glasier A, Cameron ST. Improving access to sexual and reproductive health care. *Lancet Public Health* 2022;7:e4–5.
- 13 Dema E, Conolly A, Willis M, *et al.* Methodology of Natsal-COVID wave 2: a large, quasi-representative, longitudinal survey measuring the impact of COVID-19 on sexual and reproductive health in Britain. *Wellcome Open Res* 2022;7:166.
- 14 Mitchell KR, Willis M, Dema E, *et al.* Sexual and reproductive health in Britain during the first year of the COVID-19 pandemic: national population survey (Natsal-COVID study). *SSRN Journal* 2022.
- 15 England PH. Sexually transmitted infections and screening for Chlamydia in England, 2020, 2021. Available: <https://www.gov.uk/government/statistics/sexually-transmitted-infections-stis-annual-data-tables> [Accessed 06 Jan 2022].
- 16 Erens B, Phelps A, Clifton S, *et al.* Methodology of the third British national survey of sexual attitudes and lifestyles (Natsal-3). *Sex Transm Infect* 2014;90:84–9.
- 17 Carmona C, Kavanagh J, Cullum A. Sexually transmitted infections: condom distribution schemes effectiveness and costs-effectiveness evidence review, 2016. Available: <https://www.nice.org.uk/guidance/ng68/documents/evidence-review> [Accessed 16 Mar 2022].
- 18 Lewis R, Blake C, Shimonovich M, *et al.* Disrupted prevention: condom and contraception access and use among young adults during the initial months of the COVID-19 pandemic. An online survey. *BMJ Sex Reprod Health* 2021;47:269–76.
- 19 UK Health Security Agency. HIV testing, new HIV diagnoses, outcomes and quality of care for people accessing HIV services: 2021 report; 2021. https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1037215/hiv-2021-report.pdf [Accessed 21 Jan 2022].
- 20 Brown JRG, Reid D, Howarth AR. Changes in sexually transmitted infection and HIV testing and testing need among men who have sex with men during the COVID-19 pandemic: results from three large, community-based cross-sectional surveys in the UK. *Sexually Transmitted Infections* 2022.
- 21 Office for National Statistics. Adult smoking habits in the UK: 2019, 2020. Available: <https://www.ons.gov.uk/peoplepopulationandcommunity/healthandsocialcare/healthandlifeexpectancies/bulletins/adultsmokinghabitsingreatbritain/2019> [Accessed 07 Jan 2022].
- 22 International Collaboration of Epidemiological Studies of Cervical Cancer, Appleby P, Beral V, *et al.* Carcinoma of the cervix and tobacco smoking: collaborative reanalysis of individual data on 13,541 women with carcinoma of the cervix and 23,017 women without carcinoma of the cervix from 23 epidemiological studies. *Int J Cancer* 2006;118:1481–95.
- 23 Digital NHS. Cervical Screening Programme, England - 2021-21, 2021. Available: <https://digital.nhs.uk/data-and-information/publications/statistical/cervical-screening-annual/england-2020-21#summary> [Accessed 31 January 2022].
- 24 UK Health Security Agency. Wider impacts of COVID-19 on health (wich) monitoring tool, 2021. Available: <https://analytics.phe.gov.uk/apps/covid-19-indirect-effects/#> [Accessed 07 Jan 2022].

Supplementary Material**Supplementary table 1.** Outcomes of interest in Natsal-COVID and Natsal-3

Outcome of interest	Natsal-COVID	Natsal-3	Denominator	Timeframe
Unmet need for condoms (Natsal-COVID only)	Was there any time since the start of the first lockdown when you needed to use condoms, but didn't because you couldn't get hold of any because of the pandemic? 1. Yes 2. No 3. Prefer not to say	N/A	Sexually experienced participants aged 18-44y	Past year
Chlamydia testing	Have you ever been tested for chlamydia? 1. Yes 2. No 3. Not sure 4. Prefer not to say [If 'Yes' then asked] When were you last tested for chlamydia? Please think about your last chlamydia test, whatever the result. 1. In the last year 2. Between 1 and 5 years ago 3. More than 5 years ago 4. Not sure	In the last year, have you been tested for Chlamydia? 1. Yes 2. No	Sexually experienced participants aged 18-44y	Past year

	5. Prefer not to say			
HIV testing	<p>Have you ever had a test for HIV?</p> <ol style="list-style-type: none"> 1. Yes 2. No 3. Not sure 4. Prefer not to say <p>[If 'Yes' then asked] When was your most recent HIV test?</p> <ol style="list-style-type: none"> 1. In the last three months 2. Between 3 months and 1 year ago 3. Between 1 and 5 years ago 4. More than 5 years ago 5. Prefer not to say 	<p>Have you ever had a test for HIV (the virus that causes AIDS)?</p> <ol style="list-style-type: none"> 1. Yes 2. No 3. Maybe/not sure <p>[If 'Yes' then asked] When was that test? (the last HIV test if more than one)</p> <ol style="list-style-type: none"> 1. In the last year 2. Between 1 and 2 years ago 3. Between 2 and 5 years ago 4. Longer than 5 years ago 	Sexually experienced participants aged 18-44y	Past year
Cervical cancer screening	<p>Since the start of the first lockdown (23 March 2020), did you use any of the following sexual or reproductive health services for yourself? Please include phone, online or video appointments.</p> <ol style="list-style-type: none"> 1. None 2. Contraception services/advice 3. Fertility services/advice 	<p>When did you last have a cervical smear test?</p> <ol style="list-style-type: none"> 1. I have never had one 2. Less than 3 years ago 3. Between 3 and 5 years ago 	Eligible participants aged 25-59y. Natsal-3 used a binary measure of gender, while Natsal-COVID asked about sex at birth and gender identity. Analysis of cervical screening data was limited to just women in Natsal-3, but included women and trans participants in Natsal-COVID	Past year (Natsal-COVID) or past three years (Natsal-3)

	<p>4. Maternity/antenatal services</p> <p>5. Abortion/Pregnancy termination services</p> <p>6. Cervical screening (smear test/pap test)</p> <p>7. STI (Sexually Transmitted Infection) testing</p> <p>8. STI follow-up care</p> <p>9. HIV testing</p> <p>10. Advice or counselling for sexual problems</p> <p>11. Relationship support services/advice</p> <p>12. Sexual assault/rape support services or helplines</p> <p>13. Other type of sexual or reproductive health service/advice</p> <p>14. Prefer not to say</p>	<p>4. Between 5 and 10 years ago</p> <p>5. More than 10 years ago</p>		
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Supplementary table 2. Variations in reporting unmet need for condoms because of the pandemic among sexually-experienced women and men aged 18-44 years in the first year following the start of a national lockdown in Britain (23/03/2020)

	Women (sexually-experienced)										Men (sexually-experienced)												
	Weighted %	95% CI	OR	95% CI	aOR*	95% CI	Model 1 AOR**	95% CI	Model 2 AOR***	95% CI	Denominator† (unweighted, weighted)	Weighted %	95% CI	OR	95% CI	aOR*	95% CI	Model 1 AOR**	95% CI	Model 2 AOR***	95% CI	Denominator† (unweighted, weighted)	
All ages (18-44 years)	6.9%	[5.8%,8.3%]	-	-	-	-	-	-	-	-	1997, 1683	16.2%	[14.2%,18.4%]	-	-	-	-	-	-	-	-	-	1511, 1686

Age (years) **,***			p<0.001			p=0.0046			p=0.02					p<0.001			p<0.001			p=0.005		
			(3.49)	-	-	(1.50)	-	2.95	(1.42)	(1.42)	371,290			(4.27)	-	-	(1.23)	(1.26)	307,342			
18-24	16.8%	[12.8%,21.8%]	5.96	-	-	3.03	-	2.95	-	6.1	6.1	371,290	33.1%	[27.3%,39.4%]	6.51	-	-	2.18	-	2.25	-	307,342
25-29	7.7%	[5.5%,10.8%]	2.48	-	-	2.19	-	2.28	-	6.1	6.1	518,416	23.0%	[18.2%,28.6%]	3.92	-	-	2.59	-	2.30	-	326,336
30-34	4.4%	[2.7%,7.1%]	1.36	-	-	1.03	-	1.27	-	17	18	402,330	11.5%	[7.8%,16.7%]	1.71	-	-	1.15	-	1.19	-	226,264
35-44	3.3%	[2.2%,4.9%]	1.00	-	-	1.00	-	1.00	-	4.0	4.4	706,647	7.1%	[5.2%,9.5%]	1.00	-	-	1.00	-	1.00	-	652,744
Region **,***			p=0.04		p=0.0310		p=0.1715		p=0.24						p=0.03		p=0.02		p=0.27		p=0.36	
			(0.15)	-	(0.14)	-	(0.18)	-	(0.20)	-	1820,1520			(0.20)	(0.17)	(0.22)	(0.24)	129,152				
England/Wales	7.4%	[6.1%,8.8%]	1.00	-	1.00	-	1.00	-	1.00	-	1820,1520	17.0%	[14.9%,19.3%]	1.00	-	1.00	-	1.00	-	1.00	-	1382,1534
Scotland	3.0%	[1.2%,6.9%]	0.38	0.36	0.9	0.49	1.3	0.55	1.5	177,163	8.0%	[4.0%,15.5%]	0.43	0.38	0.8	0.58	1.5	0.64	1.6	0.9	129,152	
Rurality **,***			p=0.01		p=0.0141		p=0.0613		p=0.05						p=0.03		p=0.04		p=0.59		p=0.56	
			(0.18)	-	(0.15)	-	(0.21)	-	(0.16)	-	1406,1184			(0.26)	(0.25)	(0.41)	(0.40)	131,153				
Urban	7.6%	[6.2%,9.3%]	1.00	-	1.00	-	1.00	-	1.00	-	1406,1184	16.2%	[14.0%,18.7%]	1.00	-	1.00	-	1.00	-	1.00	-	1138,1271
Rural	3.0%	[1.5%,6.0%]	0.38	0.35	0.8	0.47	1.0	0.41	1.0	247,199	8.7%	[4.9%,15.1%]	0.49	0.49	0.83	0.8	0.81	1.6	1.6	0.9	131,153	

			0)	1)	4)	1)			4)	7)	5)	6)				
Ethnicity ** ***			p<0. 001	p<0. 001	p=0. 0076	p=0. 007			p<0. 001	p<0. 001	p=0. 02	p=0. 02				
White ¹	5.1% [4.1%,6.4%]		1.00	1.00	1.00	1.00	1736, 1408		13.4 %	[11.4%, 15.6%]	1.00	1.00	1.00	1.00	1253, 1381	
Mixed, multiple, or other ²	13.1 %	[6.5%,2 4.4%]	2.77	(1. 25 6) 2.68	(1. 23 1) 5.8	(0. 91 3) 8.4	(1. 10 5) 9.8	75, 57	34.2 %	[19.3%, 53.0%]	3.37	(1. 52 7) 7.4	(1. 04 8) 5.2	(0. 45 3) 3.4	(0. 39 8) 3.1	54, 69
Asian or Asian British ³	14.9 %	[9.4%,2 2.9%]	3.24	(1. 83 6) 3.04	(1. 67 1) 5.5	(1. 22 3) 5.6	(1. 17 5) 6.5	116, 129	24.1 %	[16.6%, 33.6%]	2.06	(1. 25 7) 3.4	(1. 04 8) 2.9	(0. 65 3) 2.6	(0. 76 8) 3.1	120, 148
Black or Black British ⁴	24.7 %	[14.2%, 39.4%]	6.05	(2. 94 4) 4.43	(2. 16 4) 5.5	(1. 10 2) 2.81	(1. 03 4) 1.93	52, 65	44.4 %	[31.2%, 58.4%]	5.17	(2. 86 0) 3.4	(2. 06 0) 2.9	(1. 48 0) 2.6	(1. 45 3) 3.1	56, 61
			12. 46)	9.0 9)	7.1 4)	8.3 0)			9.3 6)	6.7 3)	6.0 7)	5.6 6)				
Sexual identity			p=0. 10	p=0. 60	p=0. 84	p=0. 08			p=0. 005	p=0. 02	p=0. 08	p<0. 001				
Heterosexual/ straight	6.70 %	[5.6%,8. 2%]	1.00	(0. 62 1)	(0. 48 2)	(0. 46 6)	(0. 03 4)	1714, 1594	16.20 %	[14.2%, 18.5%]	1.00	(0. 11 5)	(0. 09 0)	(0. 08 0)	(0. 02 1)	1298, 1596
Gay or lesbian	10.00 %	[4.4%,2 1.2%]	1.54	(1. 3.8 1) 1.23	(0. 3.1 2) 1.43	(0. 4.4 6) 0.15	(0. 0.7 4)	62, 19	4.90 %	[2.1%,1 1.1%]	0.27	(1. 00 0)	(0. 60 0)	(0. 40 0)	(0. 09 1)	117, 47
Bisexual	12.20 %	[7.7%,1 8.8%]	1.93	(1. 11 3) 1.46	(0. 82 8) 2.5	(0. 44 9) 2.1	(0. 16 4) 1.1	177, 42	31.10 %	[16.4%, 51.0%]	2.33	(1. 00 5) 5.4	(0. 60 3) 3.2	(0. 40 5) 2.1	(0. 09 8) 0.8	66, 19
Other	-	-	-	-	-	-	-	27, 11 ****	-	-	-	-	-	-	-	17, 10 ****

Highest education qualification level			p=0.01	p=0.08	p=0.20	p=0.60			p<0.001	p<0.001	p=0.003	p=0.002		
Degree	5.80 %	[4.4%,7.6%]	1.00	1.00	1.00	1.00	1027, 869	14.40 %	[11.8%,17.4%]	1.00	1.00	1.00	1.00	750, 771
Below degree	7.30 %	[5.6%,9.5%]	1.28	1.07	-	-	880, 736	15.20 %	[12.5%,18.4%]	1.07	0.85	-	-	676, 818
No qualifications	15.70 %	[9.2%,25.3%]	3.00	2.28	-	-	90, 78	38.80 %	[27.6%,51.2%]	3.77	2.65	-	-	85, 98
Days drinking, past 7 days			p<0.001	p<0.001	p=0.0002	p<0.001			p<0.001	p<0.001	p<0.001	p<0.001		
0 days	3.70 %	[2.5%,5.4%]	1.00	1.00	1.00	1.00	857, 730	8.90 %	[6.2%,12.5%]	1.00	1.00	1.00	1.00	453, 496
1-2 days	6.80 %	[5.1%,9.1%]	1.91	1.72	-	-	755, 630	16.10 %	[13.1%,19.6%]	1.96	1.89	-	-	606, 706
3-4 days	14.90 %	[10.7%,20.3%]	4.54	4.03	-	-	255, 218	25.30 %	[20.2%,31.3%]	3.47	3.92	-	-	299, 320
5-7 days	14.20 %	[8.4%,22.9%]	4.30	4.99	-	-	126, 101	21.00 %	[14.8%,28.8%]	2.72	3.22	-	-	151, 162

Currently smoker			p<0.001	p<0.001	p<0.001	p<0.001				p<0.001	p<0.001	p<0.001	p<0.001				
No	4.20 %	[3.2%,5.4%]	1.00	1.00	1.00	1.00	1541, 1301			10.40 %	[8.5%,12.7%]	1.00	1.00	1.00	1.00	1027, 1128	
Yes	16.30 %	[12.8%,20.4%]	4.47	-	4.39	-	447, 374			28.00 %	[23.7%,32.7%]	3.34	(2.43)	(2.16)	(1.44)	(1.45)	474, 549
			(3.01)	(2.93)	(2.41)	(1.92)						(2.43)	(2.16)	(1.44)	(1.45)		
			6.63)	4.39	6.59)	6.23)	3.15	7)				4.58)	2.99	4.15)	3.15)	3.30)	
Importance of sexual health, past year			p=0.003	p=0.02	p=0.12	p=0.11					p<0.001	p=0.003	p=0.20	p=0.18			
Very important/somewhat important	8.50 %	[7.0%,10.4%]	1.00	1.00	1.00	1.00	1293, 1091			18.90 %	[16.3%,21.8%]	1.00	1.00	1.00	1.00	955, 1086	
Not very important/not important	4.10 %	[2.7%,6.3%]	0.46	-	0.53	-	553, 463			13.20 %	[10.0%,17.1%]	0.65	(0.46)	(0.45)	(0.48)	(0.47)	441, 478
This does not apply to me	2.80 %	[0.7%,10.4%]	0.31	-	0.36	-	114, 98			3.10 %	[1.0%,9.2%]	0.14	(0.04)	(0.06)	(0.08)	(0.08)	96, 101
			1.28)	0.36	1.48)	2.61)	0.34	1)	0.32	2)		0.44)	0.20	0.64)	1.45)	1.35)	
Symptoms of depression (PHQ-2) ⁷			p<0.001	p<0.001	p=0.004	p=0.01					p<0.001	p<0.001	p<0.001	p<0.001			
No	3.90 %	[2.9%,5.3%]	1.00	1.00	1.00	1.00	1240, 1061			9.50 %	[7.6%,11.8%]	1.00	1.00	1.00	1.00	938, 1046	
Yes	11.20 %	[8.9%,14.1%]	3.11	(2.05)	2.53	(1.63)	724, 596			26.40 %	[22.5%,30.8%]	3.43	(2.48)	(2.04)	(1.63)	(1.46)	548, 616
			4.7	3.9	2.12	3.5	1.99	3.3				4.7	4.0	2.46	3.7	2.23	3.4

			1)	3)	6)	9)			4)	2)	1)	1)			
Symptoms of anxiety (GAD-2)⁷			p<0.001	p<0.001	p=0.001	p=0.002			p<0.001	p<0.001	p<0.001	p<0.001			
No	4.10 %	[3.0%,5.6%]	1.00	1.00	1.00	1.00	1160, 1011		9.60 %	[7.8%,1.7%]	1.00	1.00	1.00	1.00	996, 1103
Yes	10.60 %	[8.5%,13.3%]	2.78	-	4.1	2.36	820, 656		28.80 %	[24.4%,33.6%]	3.82	-	3.26	-	495, 564
			(1.84)	(1.54)	(1.39)	(1.36)			(2.77)	(2.33)	(1.93)	(1.74)			
			8)	1)	2.34	2)	2.36	7)	6)	4)	2.90	6)	2.66	7)	
Formed new relationship, past year⁸			p<0.001	p<0.001	p<0.001	p<0.001			p<0.001	p<0.001	p<0.001	p<0.001			
No	3.2%	[2.4%,4.3%]	1.00	1.00	1.00	1.00	1640, 1390		7.4%	[5.8%,9.3%]	1.00	1.00	1.00	1.00	1153, 1289
Yes	25.5 %	[20.7%,30.9%]	10.4 2	-	8.34	-	348, 285		45.8 %	[40.0%,51.9%]	10.6 5	-	7.87	-	346, 385
			(6.92)	(5.33)	(4.22)	(3.24)			(7.53)	(5.47)	(4.99)	(3.55)			
			15.69)	13.06)	12.22)	12.59)			15.06)	11.32)	11.71)	9.66)			
Total sexual partners, past year⁵			p<0.001	p<0.001	p=0.3315	p=0.54			p<0.001	p<0.001	p=0.36	p=0.54			
0 or 1 partner	5.2%	[4.1%,6.4%]	1.00	1.00	1.00	1.00	1711, 1439		11.2 %	[9.4%,13.4%]	1.00	1.00	1.00	1.00	1192, 1346
2+ partners	22.5 %	[16.0%,30.6%]	5.34	-	4.08	-	177, 144		37.7 %	[30.7%,45.3%]	4.78	-	3.83	-	222, 237
			(3.31)	(2.49)	(0.69)	(0.60)			(3.29)	(2.58)	(0.76)	(0.71)			
			8.62)	6.67)	3.05)	2.67)			6.95)	5.69)	2.16)	1.95)			

Previous same-sex experience, past 5 years ⁶ ***	p<0.001								p<0.001													
No	5.8%	[4.7%,7.1%]	1.00	1.00	1.00	1.00	1837, 1606	14.1%	[12.1%,16.2%]	1.00	1.00	1.00	1.00	1308, 1553								
Yes	29.8%	[20.5%,41.2%]	6.88	-	6.70	-	5.41	-	5.00	-	143, 65	36.8%	[27.8%,46.8%]	3.56	-	3.37	-	2.93	-	2.85	-	183, 114
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Used an STI-related service, past year	p<0.001								p<0.001													
					p=0.45	p=0.60																
No	5.80%	[4.7%,7.1%]	1.00	1.00	1.00	1.00	1788, 1504	12.80%	[11.0%,15.0%]	1.00	1.00	1.00	1.00	1331, 1492								
Yes	19.90%	[13.8%,27.9%]	4.05	-	2.75	-	162, 135	53.80%	[44.3%,63.1%]	7.91	-	6.40	-	141, 141								
			6.6	3)	4.7	0)	1.32	3)	1.23	5)				12.	06)	10.	02)	7.0	6)	6.7	3.83	1)

CI=confidence intervals. OR=odds ratio. aOR=age-adjusted odds ratio. AOR=adjusted odds ratio. PHQ-2=Patient Health Questionnaire (2 item). GAD-2=Generalized anxiety disorder (2 item)

* Age adjusted

** Sociodemographic adjusted (age, region, rurality, ethnicity, relationship formation)

*** Sociodemographic and behaviour adjusted (age, region, rurality, ethnicity, relationship formation, total partners in the past year, previous same-sex experience in the past 5 years)

† Men or women aged 18-44 who were sexually-experienced. Trans men and trans women are included in data for men and women, respectively. 31 women and 35 men responded 'prefer not to say' to questions about condom access or questions used for routing. These individuals are excluded from the denominator.

**** Unweighted denominator <30. Results not shown due to small denominator

- ¹ White includes all those who identify as White English, Welsh, Scottish, Northern Irish, British, Irish, Gypsy or Irish Traveller, or from any other White background.
- ² Mixed ethnicity includes those who identify as White and Black African, White and Black Caribbean, White and Asian or any other mixed or multiple ethnic background.
- ³ Asian includes those who identify as Indian, Pakistani, Bangladeshi, Chinese or from any other Asian background
- ⁴ Black includes those who identify as African, Caribbean, or from any other Black background.
- ⁵ Includes both opposite-sex and same-sex partners
- ⁶ Same-sex experience defined as oral/anal/vaginal sex
- ⁷ Participants were classified as having symptoms of depression or anxiety if they scored three or more on the patient health questionnaire two item (PHQ-2) or generalised anxiety disorder two item (GAD-2) scales
- ⁸ Formation of new romantic or sexual relationships in the past year instead of 'new sexual partners in the past year' because some new relationships may have delayed sex because of an unmet need for condoms

All percentages are weighted. These are row percentages which describe reported unmet need for condoms because of the pandemic within certain subgroups.

Supplementary table 3. Variations in reporting a chlamydia test among sexually-experienced women and men aged 18-44 years in the first year following the start of a national lockdown in Britain (23/03/2020) compared with Natsal-3 (2010-12)

	Women (sexually-experienced)														Interaction terms between surveys p-value
	Natsal COVID (fieldwork 2021)							Natsal-3 (fieldwork 2010-12)							
	Weighted %	95% CI	OR	95% CI	aOR	95% CI	Denominator [†] (unweighted, weighted)	Weighted %	95% CI	OR	95% CI	aOR	95% CI	Denominator [†] (unweighted, weighted)	
All ages (18-44 years)	7.3%	[6.2%, 8.5%]	-	-	-	-	2145, 1824	25.1%	[23.7%, 26.4%]	-	-	-	-	5004, 3546	

Age (years)			p<0.001					p<0.001				p=0.06		
18-24	15.60 %	[12.1%, 20.0%]	7.46	(4.18 - 13.31)	-	-	411, 328	54.5 %	[51.5%, 57.5%]	11.9 7	(9.42 - 15.22)	-	-	1457, 833
25-29	10.70 %	[8.1%,1 3.8%]	4.79	(2.69 - 8.54)	-	-	545, 440	30.0 %	[27.1%, 33.0%]	4.27	(3.33 - 5.49)	-	-	1357, 667
30-34	4.90 %	[3.2%,7. 5%]	2.07	(1.06 - 4.05)	-	-	429, 355	16.5 %	[14.2%, 19.2%]	1.98	(1.50 - 2.61)	-	-	1018, 645
35-44	2.40 %	[1.5%,3. 9%]	1.00	-	-	-	760, 702	9.1% %	[7.5%,1 1.0%]	1.00	-	-	-	1172, 1402
Region			p=0.11		p=0.11			p<0.001		p<0.001			p=0.71	
England/Wales	7.6%	[6.4%,9. 0%]	1.00		1.00		1955, 1649	25.7 %	[24.3%, 27.2%]	1.00		1.00		4578, 3233
Scotland	4.1%	[1.9%,8. 6%]	0.52	(0.23 - 1.17)	0.50	(0.22 - 1.16)	190, 175	17.9 %	[14.8%, 21.5%]	0.63	(0.49 - 0.80)	0.56	(0.42 - 0.74)	426, 313
Rurality			p=0.25		p=0.30									
Urban	7.1%	[5.8%,8. 7%]	1.00		1.00		1508, 1281	-	-	-	-	-	-	-
Rural	5.1%	[3.0%,8. 6%]	0.71	(0.39 - 1.28)	0.71	(0.38 - 1.36)	254, 206	-	-	-	-	-	-	-
Ethnicity			p<0.001		p=0.001			p<0.001		p<0.001			p=0.25	
White ¹	7.00 %	[5.9%,8. 3%]	1.00		1.00		1839, 1498	25.5 %	[24.1%, 26.9%]	1.00		1.00		4362, 3052
Mixed, multiple, or other ²	16.60 %	[8.4%,3 0.2%]	2.65	(1.19 - 5.90)	2.42	(1.06 - 5.55)	82, 62	34.8 %	[26.6%, 43.9%]	1.56	(1.05 - 2.31)	1.19	(0.78 - 1.83)	180, 116
Asian or Asian British ³	1.80 %	[0.5%,5. 8%]	0.24	(0.07 - 0.83)	0.19	(0.05 - 0.71)	141, 159	11.6 %	[8.1%,1 6.3%]	0.38	(0.26 - 0.57)	0.37	(0.24 - 0.58)	284, 237
Black or Black British ⁴	19.30 %	[10.9%, 31.9%]	3.19	(1.59 - 6.40)	2.25	(1.12 - 4.53)	63, 77	31.4 %	[23.1%, 41.0%]	1.34	(0.87 - 2.05)	1.42	(0.91 - 2.19)	169, 134

Sexual identity			p=0.34		p=0.51				p=0.05		p=0.95			p=0.61
Heterosexual/straight	7.0%	[5.9%,8.3%]	1.00		1.00		1845, 1728	24.9%	[23.5%,26.3%]	1.00	1.00		4786, 3400	
Gay or lesbian	16.6%	[8.4%,30.2%]	0.61	(0.18 - 2.06)	0.46	(0.12 - 1.79)	66, 20	20.6%	[11.7%,33.5%]	0.78	(0.40 - 1.53)	0.83	(0.37 - 1.86)	64, 47
Bisexual	1.8%	[0.5%,5.8%]	1.43	(0.85 - 2.40)	1.07	(0.62 - 1.84)	187, 44	35.9%	[27.8%,45.0%]	1.70	(1.15 - 2.49)	1.09	(0.67 - 1.79)	131, 83
Other	-	-	-	-	-	-	28, 11	-	-	-	-	-	-	14, 10
Social grade			p=0.16		p=0.51									
AB Higher and intermediate managerial/administrative/professional occupation	7.20%	[5.1%,10.0%]	1.00		1.00		500, 393	-	-	-	-	-	-	-
C1 Supervisory, clerical and junior managerial/administrative/professional occupations/C2 Skilled manual occupations	6.30%	[4.9%,8.1%]	0.87	(0.56 - 1.36)	0.86	(0.55 - 1.36)	1042, 933	-	-	-	-	-	-	-
D Semi-skilled and unskilled manual occupations/E On state benefit, unemployed and lowest grade occupations	9.10%	[6.9%,11.9%]	1.29	(0.81 - 2.07)	1.10	(0.68 - 1.79)	603, 498	-	-	-	-	-	-	-
Highest education qualification			p=0.52		p=0.97				p=0.001		p=0.93			p=0.53
Degree	6.70%	[5.3%,8.5%]	1.00		1.00		1086, 930	21.4%	[19.1%,23.8%]	1.00	1.00		1441, 1123	
Below degree	7.70%	[6.1%,9.7%]	1.16	(0.81 - 1.67)	0.96	(0.66 - 1.39)	955, 802	26.9%	[25.3%,28.7%]	1.36	(1.15 - 1.60)	1.03	(0.86 - 1.23)	3239, 2221
No qualifications	9.30%	[5.0%,16.7%]	1.33	(0.70 - 2.94)	0.95	(0.42 - 2.15)	104, 92	25.1%	[20.3%,30.5%]	1.23	(0.91 - 1.67)	1.06	(0.76 - 1.47)	318, 199
Born outside the UK			p=0.56		p=0.54									

No	7.20 %	[6.0%,8.5%]	1.00	1.00	1808, 1509	-	-	-	-	-	-	-	-	-
Yes	8.20 %	[5.4%,12.1%]	1.15	(0.72 - 1.86)	1.16	(0.72 - 1.88)	321, 299	-	-	-	-	-	-	-
Relationship status			p<0.001	p=0.001				p<0.001	p<0.001				p=0.40	
Married/steady and living together	4.70 %	[3.6%,6.1%]	1.00	1.00	1277, 1104	15.7 %	[14.4%,17.2%]	1.00	1.00	2696, 2273				
Steady not living together	11.50 %	[7.9%,16.4%]	2.63	(1.61 - 4.32)	1.91	(1.14 - 3.18)	255, 202	47.4 %	[43.8%,51.1%]	4.84	(4.04 - 5.80)	2.37	(1.94 - 2.89)	1016, 532
Not in a steady relationship	11.10 %	[8.6%,14.2%]	2.53	(1.71 - 3.75)	2.05	(1.37 - 3.08)	607, 512	37.4 %	[34.3%,40.7%]	3.21	(2.70 - 3.82)	2.09	(1.73 - 2.53)	1281, 735
Days drinking, past 7 days			p=0.05	p=0.04										
0 days	5.6%	[4.2%,7.3%]	1.00	1.00	933, 805	-	-	-	-	-	-	-	-	
1-2 days	8.4%	[6.5%,10.8%]	1.56	(1.04 - 2.33)	1.36	(0.90 - 2.05)	808, 678	-	-	-	-	-	-	
3-4 days	8.1%	[5.2%,12.6%]	1.50	(0.85 - 2.65)	1.27	(0.71 - 2.28)	265, 228	-	-	-	-	-	-	
5-7 days	11.3 %	[6.8%,18.3%]	2.16	(1.14 - 4.09)	2.50	(1.32 - 4.73)	133, 107	-	-	-	-	-	-	
Currently smoker			p=0.42	p=0.65				p<0.001	p<0.001				p=0.18	
No	7.0%	[5.7%,8.4%]	1.00	1.00	1647, 1403	22.1 %	[20.6%,23.7%]	1.00	1.00	3418, 2544				
Yes	8.1%	[5.8%,11.3%]	1.19	(0.78 - 1.79)	1.10	(0.72 - 1.70)	486, 411	32.5 %	[29.9%,35.2%]	1.69	(1.46 - 1.97)	1.49	(1.28 - 1.75)	1586, 1002
Importance of sexual health, past year			p<0.001	p<0.001										
Very important/somewhat important	9.8%	[8.3%,11.7%]	1.00	1.00	1372, 1166	-	-	-	-	-	-	-	-	
Not very important/not important	2.3%	[1.4%,3.9%]	0.22	(0.12 - 0.39)	0.24	(0.14 - 0.43)	605, 517	-	-	-	-	-	-	

This does not apply to me	3.6%	[1.2%,1 0.6%]	0.34	(0.11 - 1.10)	0.39	(0.12 - 1.24)	128, 108	-	-	-	-	-	-	-	-
Symptoms of depression (PHQ-2) ⁵			p=0. 35		p=0. 55					p=0. 02		p=0. 08			p=0.0 5
No	6.7%	[5.4%,8. 3%]	1.00		1.00		1300, 1119	24.6 %	[23.2%, 26.0%]	1.00		1.00		4389, 3139	
Yes	7.9%	[6.1%,1 0.2%]	1.19	(0.83 - 1.71)	0.89	(0.60 - 1.31)	805, 671	29.4 %	[25.7%, 33.4%]	1.28	(1.05 - 1.55)	1.22	(0.98 - 1.52)	605, 399	
Symptoms of anxiety (GAD-2) ⁵			p=0. 10		p=0. 69										
No	6.5%	[5.2%,8. 1%]	1.00		1.00		1228, 1075	-	-	-	-	-	-	-	-
Yes	8.5%	[6.7%,1 0.8%]	1.34	(0.94 - 1.90)	1.08	(0.74 - 1.57)	899, 732	-	-	-	-	-	-	-	-
Total sexual partners, past year ⁶			p<0. 001		p<0. 001					p<0. 001		p<0. 001			p=0.3 1
0 partners	3.3%	[1.9%,5. 5%]	1.00		1.00		472, 412	12.4 %	[8.4%,1 7.9%]	1.00		1.00		280, 184	
1 partner	6.4%	[5.2%,7. 9%]	2.02	(1.12 - 3.63)	2.21	(1.19 - 4.10)	1374, 1157	19.7 %	[18.3%, 21.1%]	1.73	(1.12 - 2.67)	1.41	(0.87 - 2.29)	3687, 2758	
2+ partners	27.9 %	[21.0%, 36.0%]	11.4 4	(5.91 - 22.14)	9.42	(4.77 - 18.63)	179, 146	54.2 %	[50.4%, 57.9%]	8.32	(5.19 - 13.34)	4.69	(2.78 - 7.91)	998, 577	
New sexual partners, past year ⁶			p<0. 001		p<0. 001					p<0. 001		p<0. 001			p=0.0 5
0 partners	4.5%	[3.6%,5. 7%]	1.00		1.00		1695, 1443	17.7 %	[16.4%, 19.0%]	1.00		1.00		3582, 2707	
1 partner	18.4 %	[13.5%, 24.7%]	4.74	(3.06 - 7.36)	3.70	(2.33 - 5.89)	233, 196	43.1 %	[39.1%, 47.1%]	3.52	(2.93 - 4.24)	2.30	(1.90 - 2.80)	854, 509	
2+ partners	36.8 %	[26.3%, 48.7%]	12.2 3	(7.10 - 21.07)	9.54	(5.48 - 16.59)	91, 71	61.0 %	[55.6%, 66.0%]	7.28	(5.72 - 9.26)	4.22	(3.21 - 5.54)	526, 299	
Condom-less sex with a new partner on first occasion, past year ⁶			p<0. 001		p<0. 001										

None	5.40 %	[4.4%,6.5%]	1.00		1.00		1845, 1555	-	-	-	-	-	-	-	-
At least one	26.10 %	[19.8%,33.5%]	6.23	(4.11 - 9.44)	5.05	(3.27 - 7.79)	191, 168	-	-	-	-	-	-	-	-
Previous same-sex experience, past 5 years⁷			p=0.09		p=0.13					p<0.001		p=0.04			p=0.61
No	7.2%	[6.0%,8.5%]	1.00		1.00		1977, 1740	24.4 %	[23.0%,25.8%]	1.00		1.00		4709, 3361	
Yes	12.4 %	[6.8%,21.5%]	1.83	(0.92 - 3.65)	1.71	(0.86 - 3.42)	143, 65	36.9 %	[30.9%,43.3%]	1.81	(1.37 - 2.40)	1.39	(1.01 - 1.92)	294, 185	
Used an STI-related service, past year			p<0.001		p<0.001					p<0.001		p<0.001			p=0.01
No	3.1%	[2.3%,4.1%]	1.00		1.00		1912, 1621	19.5 %	[18.3%,20.8%]	1.00		1.00		4465, 3235	
Yes	54.9 %	[46.5%,62.9%]	38.1	(24.60 - 59.03)	30.5	(19.37 - 48.05)	174, 146	83.1 %	[78.8%,86.7%]	20.2	(15.17 - 26.98)	13.0	(9.57 - 17.81)	532, 306	
Unmet need for condoms, past year			p=0.07		p=0.57										
No	7.30 %	[6.2%,8.7%]	1.00		1.00		1852, 1559	-	-	-	-	-	-	-	-
Yes	12.50 %	[7.2%,20.9%]	1.81	(0.96 - 3.43)	1.22	(0.62 - 2.41)	134, 116	-	-	-	-	-	-	-	-

Men (sexually-experienced)															
	Natsal COVID (fieldwork 2021)							Natsal-3 (fieldwork 2010-12)							
	Weighted %	95% CI	OR	95% CI	aOR*	95% CI	Denominator† (unweighted, weighted)	Weighted %	95% CI	OR	95% CI	aOR*	95% CI	Denominator† (unweighted, weighted)	Interaction terms between surveys p-value

All ages (18-44 years)	4.10 %	[3.2%,5.3%]	-	-	-	-	1666, 1870	15.10 %	[13.9%,16.3%]	-	-	-	-	3361, 3534	
Age (years)			p=0.001							p<0.001					p=0.070
18-24	7.00 %	[4.4%,10.9%]	3.75	(1.90 - 7.42)	-	-	358, 399	33.50 %	[30.5%,36.7%]	11.7 9	(8.07 - 17.21)	-	-	1134, 860	
25-29	5.00 %	[3.0%,8.3%]	2.63	(1.28 - 5.40)	-	-	355, 370	19.40 %	[16.7%,22.4%]	5.62	(3.79 - 8.33)	-	-	823, 649	
30-34	5.00 %	[2.7%,9.1%]	2.62	(1.18 - 5.83)	-	-	244, 287	9.50 %	[7.2%,12.3%]	2.44	(1.55 - 3.86)	-	-	621, 645	
35-44	2.00 %	[1.2%,3.1%]	1.00	-	-	-	709, 815	4.10 %	[2.9%,5.7%]	1.00	-	-	-	783, 1380	
Region			p=0.25		p=0.24					p=0.04		p=0.0206			p=0.6067
England/Wales	4.30 %	[3.3%,5.6%]	1.00	-	1.00	-	1526, 1702	15.50 %	[14.2%,16.9%]	1.00	-	1.00	-	3080, 3232	
Scotland	2.10 %	[0.6%,6.9%]	0.47	(0.13 - 1.70)	0.46	(0.12 - 1.68)	140, 168	10.20 %	[6.7%,15.1%]	0.62	(0.39 - 0.98)	0.58	(0.37 - 0.92)	281, 302	
Rurality			p=0.22		p=0.23										
Urban	4.10 %	[3.1%,5.5%]	1.00	-	1.00	-	1245, 1397	-	-	-	-	-	-	-	-
Rural	1.90 %	[0.6%,6.1%]	0.46	(0.14 - 1.57)	0.47	(0.14 - 1.61)	134, 158	-	-	-	-	-	-	-	-
Ethnicity			p<0.001		p=0.001					p<0.001		p<0.001			p=0.45
White ¹	3.50 %	[2.7%,4.7%]	1.00	-	1.00	-	1360, 1509	15.40 %	[14.1%,16.8%]	1.00	-	1.00	-	2929, 2997	
Mixed, multiple, or other ²	17.10 %	[7.6%,34.2%]	5.63	(2.14 - 14.83)	4.66	(1.77 - 12.21)	61, 78	25.50 %	[17.3%,35.8%]	1.88	(1.14 - 3.08)	1.55	(0.96 - 2.51)	112, 112	
Asian or Asian British ³	1.40 %	[0.4%,5.2%]	0.39	(0.10 - 1.55)	0.35	(0.08 - 1.43)	146, 181	4.80 %	[2.8%,8.1%]	0.28	(0.16 - 0.49)	0.31	(0.17 - 0.55)	198, 286	

Black or Black British ⁴	9.30 %	[4.0%,2 0.2%]	2.79	(1.07 - 7.24)	2.26	(0.87 - 5.84)	65, 72	20.50 %	[13.4%, 30.1%]	1.42	(0.84 - 2.39)	1.58	(0.85 - 2.92)	116, 133	
Sexual identity			p<0. 001		p<0. 001					p<0. 001		p<0. 001			p=0.5 8
Heterosexual/straight	3.70 %	[2.7%,4. 9%]	1.00		1.00		1431, 1768	14.50 %	[13.3%, 15.8%]	1.00		1.00		3236, 3422	
Gay	17.90 %	[11.6%, 26.6%]	5.73	(3.17 - 10.34)	5.74	(3.11 - 10.60)	121, 49	42.10 %	[29.7%, 55.7%]	4.29	(2.46 - 7.48)	4.54	(2.24 - 9.18)	82, 69	
Bisexual	5.60 %	[1.8%,1 6.4%]	1.57	(0.46 - 5.34)	1.02	(0.27 - 3.82)	75, 22	16.90 %	[7.4%,3 4.1%]	1.20	(0.47 - 3.06)	0.90	(0.35 - 2.30)	32, 34 ***	
Other	-	-	-	-	-	-	21, 12 **	-	-	-	-	-	-	8, 5 **	
Social grade			p=0. 01		p=0. 01										
AB Higher and intermediate managerial/administrative/professional occupation	6.40 %	[4.4%,9. 1%]	1.00		1.00		580, 433	-	-	-	-	-	-	-	-
C1 Supervisory, clerical and junior managerial/administrative/professional occupations/C2 Skilled manual occupations	2.60 %	[1.6%,4. 1%]	0.39	(0.21 - 0.72)	0.39	(0.21 - 0.73)	691, 1010	-	-	-	-	-	-	-	-
D Semi-skilled and unskilled manual occupations/E On state benefit, unemployed and lowest grade occupations	5.40 %	[3.3%,8. 9%]	0.84	(0.44 - 1.63)	0.75	(0.39 - 1.43)	395, 427	-	-	-	-	-	-	-	-
Highest education qualification			p<0. 001		p=0. 005					p<0. 001		p=0. 70			p=0.0 4
Degree	3.10 %	[2.1%,4. 5%]	1.00		1.00		810, 845	11.40 %	[9.5%,1 3.7%]	1.00		1.00		906, 1057	
Below degree	3.80 %	[2.6%,5. 5%]	1.23	(0.72 - 2.13)	1.10	(0.64 - 1.89)	750, 905	17.10 %	[15.5%, 18.8%]	1.60	(1.26 - 2.02)	1.11	(0.87 - 1.42)	2277, 2273	
No qualifications	13.70 %	[6.9%,2 5.2%]	4.97	(2.13 - 11.59)	3.93	(1.70 - 9.11)	106, 120	11.30 %	[7.1%,1 7.4%]	0.98	(0.57 - 1.70)	1.03	(0.55 - 1.92)	173, 200	

Born outside the UK			p=0.38	p=0.47														
No	4.30 %	[3.3%,5.6%]	1.00	1.00	1491, 1681	-	-	-	-	-	-	-	-	-	-	-	-	-
Yes	2.70 %	[1.0%,7.3%]	0.62	(0.21 - 1.81)	0.67	(0.23 - 1.97)	160, 174	-	-	-	-	-	-	-	-	-	-	-
Relationship status			p=0.54	p=0.45				p<0.001	p<0.001									p<0.001
Married/steady and living together	4.00 %	[2.8%,5.7%]	1.00	1.00	972, 1099	7.00 %	[5.8%,8.3%]	1.00	1.00	1622, 2153								
Steady not living together	2.80 %	[1.0%,7.6%]	0.70	(0.23 - 2.10)	0.47	(0.14 - 1.55)	153, 174	30.40 %	[26.7%,34.5%]	5.84	(4.46 - 7.65)	2.58	(1.87 - 3.56)	676, 531				
Not in a steady relationship	4.90 %	[3.3%,7.0%]	1.23	(0.71 - 2.12)	0.97	(0.54 - 1.74)	526, 577	25.90 %	[23.1%,29.0%]	4.68	(3.64 - 6.01)	2.30	(1.72 - 3.07)	1055, 842				
Days drinking, past 7 days			p=0.03	p=0.03														
0 days	3.90 %	[2.3%,6.6%]	1.00	1.00	505, 559	-	-	-	-	-	-	-	-	-	-	-	-	-
1-2 days	3.30 %	[2.1%,5.1%]	0.83	(0.40 - 1.71)	0.79	(0.38 - 1.63)	667, 780	-	-	-	-	-	-	-	-	-	-	-
3-4 days	7.20 %	[4.8%,10.8%]	1.92	(0.95 - 3.89)	1.91	(0.94 - 3.89)	326, 350	-	-	-	-	-	-	-	-	-	-	-
5-7 days	2.50 %	[1.0%,6.2%]	0.63	(0.21 - 1.89)	0.64	(0.21 - 1.92)	162, 174	-	-	-	-	-	-	-	-	-	-	-
Currently smoker			p<0.001	p<0.001				p<0.001	p<0.001									p=0.04
No	2.30 %	[1.6%,3.2%]	1.00	1.00	1135, 1255	12.40 %	[11.1%,13.9%]	1.00	1.00	2181, 2388								
Yes	8.00 %	[5.7%,11.3%]	3.77	(2.24 - 6.34)	3.39	(1.99 - 5.78)	516, 599	20.60 %	[18.1%,23.3%]	1.83	(1.49 - 2.25)	1.64	(1.32 - 2.02)	1180, 1146				
Importance of sexual health, past year			p=0.002	p=0.002														

Very important/somewhat important	5.40 %	[4.1%,7.2%]	1.00	1.00	1037, 1184	-	-	-	-	-	-	-	-	
Not very important/not important	2.10 %	[1.2%,3.7%]	0.37	(0.19 - 0.72)	0.36	(0.19 - 0.70)	494, 541	-	-	-	-	-	-	
This does not apply to me	0.60 %	[0.1%,4.5%]	0.11	(0.02 - 0.84)	0.14	(0.02 - 1.05)	106, 111	-	-	-	-	-	-	
Symptoms of depression (PHQ-2) ⁵														
			p=0.06	p=0.22				p=0.06	p=0.17				p=0.82	
No	3.20 %	[2.2%,4.5%]	1.00	1.00	1004, 1127	14.70 %	[13.4%,16.0%]	1.00	1.00	3012, 3196				
Yes	5.20 %	[3.5%,7.7%]	1.69	(0.97 - 2.94)	1.44	(0.81 - 2.56)	626, 706	18.90 %	[14.8%,23.8%]	1.35	(0.98 - 1.85)	1.28	(0.90 - 1.82)	343, 332
Symptoms of anxiety (GAD-2) ⁵														
No	2.90 %	[2.0%,4.1%]	1.00	1.00	1066, 1193	-	-	-	-	-	-	-	-	
Yes	6.20 %	[4.3%,8.9%]	2.23	(1.30 - 3.84)	1.94	(1.11 - 3.38)	570, 646	-	-	-	-	-	-	
Total sexual partners, past year ⁶														
			p<0.001	p<0.001				p<0.001	p<0.001				p=0.004	
0 partners	2.60 %	[1.5%,4.5%]	1.00	1.00	412, 462	1.20 %	[0.4%,3.8%]	1.00	1.00	180, 168				
1 partner	2.00 %	[1.3%,3.3%]	0.78	(0.36 - 1.65)	0.88	(0.41 - 1.90)	923, 1056	9.80 %	[8.6%,11.1%]	9.08	(2.71 - 30.44)	11.24	(3.34 - 37.83)	2207, 2545
2+ partners	15.60 %	[10.8%,22.1%]	6.93	(3.38 - 14.18)	6.60	(3.22 - 13.55)	223, 238	34.60 %	[31.1%,38.3%]	44.2 3	(13.12 - 149.21)	35.10	(10.38 - 118.69)	945, 795
New sexual partners, past year ⁶														
			p<0.001	p<0.001				p<0.001	p<0.001				p=0.18	
0 partners	1.70 %	[1.1%,2.7%]	1.00	1.00	1180, 1336	8.20 %	[7.1%,9.5%]	1.00	1.00	2059, 2462				
1 partner	7.40 %	[4.6%,11.6%]	4.54	(2.31 - 8.92)	4.09	(2.06 - 8.09)	226, 257	24.90 %	[21.5%,28.7%]	3.72	(2.86 - 4.82)	2.13	(1.62 - 2.80)	695, 576
2+ partners	18.20 %	[11.7%,27.2%]	12.6 5	(6.34 - 25.23)	10.7 0	(5.31 - 21.59)	146, 155	39.00 %	[34.3%,43.9%]	7.16	(5.51 - 9.29)	4.31	(3.23 - 5.77)	573, 464

Condom-less sex with a new partner on first occasion, past year⁶			p<0.001		p<0.001													
None	2.20 %	[1.5%,3.1%]	1.00		1.00													
At least one	13.20 %	[9.1%,18.6%]	6.89	(3.91 - 12.15)	6.14	(3.46 - 10.87)	260, 297											
Previous same-sex experience, past 5 years⁷			p<0.001		p<0.001				p<0.001		p<0.001							p=0.04
No	3.00 %	[2.2%,4.2%]	1.00		1.00		1452, 1723	14.40 %	[13.2%,15.7%]	1.00		1.00					3231, 3422	
Yes	17.30 %	[11.5%,25.3%]	6.79	(3.77 - 12.24)	6.43	(3.51 - 11.78)	183, 115	35.10 %	[26.2%,45.1%]	3.21	(2.09 - 4.94)	3.01	(1.76 - 5.14)				130, 112	
Used an STI-related service, past year			p<0.001		p<0.001				p<0.001		p<0.001							p<0.001
No	2.40 %	[1.6%,3.5%]	1.00		1.00		1457, 1648	9.90 %	[8.9%,11.0%]	1.00		1.00					3044, 3283	
Yes	23.10 %	[16.9%,30.7%]	12.4	(7.06 - 21.88)	10.8	(5.78 - 20.23)	163, 163	84.0 %	[79.1%,87.9%]	47.7	(33.62 - 67.69)	36.84	(23.95 - 56.67)				314, 247	
Unmet need for condoms, past year			p<0.001		p<0.001													
No	2.60 %	[1.8%,3.6%]	1.00		1.00		1262, 1406											
Yes	14.20 %	[9.8%,20.1%]	6.30	(3.61 - 11.00)	5.23	(2.88 - 9.51)	238, 270											

CI=confidence intervals. OR=odds ratio. aOR=age-adjusted odds ratio. PHQ-2=Patient Health Questionnaire (2 item). GAD-2=Generalized anxiety disorder (2 item)

* Age adjusted

† Men or women aged 18-44 who were sexually-experienced. Trans men and trans women are included in data for men and women, respectively. 18 women and 24 men in Natsal-COVID responded 'prefer not to say' to questions about chlamydia testing. 120 women and 66 men in Natsal-3 did not answer the question. These individuals are excluded from the denominator.

** Unweighted denominator <30. Results not shown due to small denominator

*** Unweighted denominator <50. Results should be interpreted with caution due to small denominator.

¹ White includes all those who identify as White English, Welsh, Scottish, Northern Irish, British, Irish, Gypsy or Irish Traveller, or from any other White background.

² Mixed ethnicity includes those who identify as White and Black African, White and Black Caribbean, White and Asian or any other mixed or multiple ethnic background.

³ Asian includes those who identify as Indian, Pakistani, Bangladeshi, Chinese or from any other Asian background

⁴ Black includes those who identify as African, Caribbean, or from any other Black background.

⁵ Participants were classified as having symptoms of depression or anxiety if they scored three or more on the patient health questionnaire two item (PHQ-2) or generalised anxiety disorder two item (GAD-2) scales

⁶ Includes both opposite-sex and same-sex partners

⁷ Same-sex experience defined as oral/anal/vaginal sex

All percentages are weighted. These are row percentages which describe reported chlamydia testing in the past year within certain subgroups.

Supplementary table 4. Variations in reporting an HIV test among sexually-experienced women and men aged 18-44 years in the first year following the start of a national lockdown in Britain (23/03/2020) compared with Natsal-3 (2010-12)

	Women (sexually-experienced)														Interaction terms between surveys p-value
	Natsal COVID (fieldwork 2021)							Natsal-3 (fieldwork 2010-12)							
	Weighted %	95% CI	OR	95% CI	aOR*	95% CI	Denominator † (unweighted, weighted)	Weighted %	95% CI	OR	95% CI	aOR*	95% CI	Denominator † (unweighted, weighted)	
All ages (18-44 years)	8.6%	[7.4%,1	-	-	-	-	2148,	10.4	[9.5%,1	-	-	-	-	4701,	

		0.0%]				1827	%	1.4%]				3331		
Age (years)			p<0.001						p<0.001				p=0.92	
18-24	12.2 %	[9.0%,1 6.4%]	2.85	(1.71 - 4.75)	-	-	411, 327	14.9 %	[12.8%, 17.3%]	3.11	(2.22 - 4.35)	-	-	1367, 783
25-29	11.8 %	[9.0%,1 5.3%]	2.76	(1.70 - 4.47)	-	-	545, 440	13.7 %	[11.5%, 16.1%]	2.81	(1.99 - 3.96)	-	-	1269, 622
30-34	9.1%	[6.6%,1 2.4%]	2.06	(1.23 - 3.43)	-	-	430, 356	12.3 %	[10.3%, 14.6%]	2.48	(1.74 - 3.53)	-	-	970, 614
35-44	4.6%	[3.2%,6. 6%]	1.00	-	-	-	762, 703	5.3%	[4.1%,7. 0%]	1.00	-	-	-	1095, 1312
Region			p=0.01		p=0.008				p=0.02		p=0.02		p=0.29	
England/Wales	9.1%	[7.8%,1 0.7%]	1.00		1.00		1957, 1650	10.8 %	[9.8%,1 1.8%]	1.00		1.00		4307, 3036
Scotland	3.7%	[1.8%,7. 2%]	0.38	(0.18 - 0.79)	0.37	(0.18 - 0.77)	191, 176	6.7%	[4.6%,9. 7%]	0.59	(0.39 - 0.90)	0.59	(0.38 - 0.90)	394, 294
Rurality			p=0.10		p=0.13									
Urban	8.4%	[7.0%,1 0.2%]	1.00		1.00		1511, 1283	-	-	-	-	-	-	-
Rural	5.3%	[3.1%,8. 9%]	0.61	(0.34 - 1.10)	0.62	(0.34 - 1.14)	255, 207	-	-	-	-	-	-	-
Ethnicity			p<0.001		p<0.001				p<0.001		p<0.001		p=0.11	
White ¹	7.4%	[6.2%,8. 7%]	1.00		1.00		1840, 1498	9.9%	[9.0%,1 0.9%]	1.00		1.00		4076, 2850
Mixed, multiple, or other ²	26.4 %	[15.1%, 41.8%]	4.50	(2.19 - 9.25)	4.28	(2.01 - 9.12)	83, 63	15.0 %	[10.0%, 22.1%]	1.61	(0.99 - 2.63)	1.39	(0.84 - 2.33)	173, 111
Asian or Asian British ³	5.5%	[2.8%,1 0.9%]	0.74	(0.35 - 1.57)	0.68	(0.31 - 1.48)	142, 159	7.2%	[4.4%,1 1.8%]	0.71	(0.41 - 1.23)	0.74	(0.42 - 1.29)	277, 235
Black or Black British ⁴	23.6 %	[14.2%, 36.6%]	3.88	(2.02 - 7.46)	3.15	(1.64 - 6.02)	63, 77	23.1 %	[16.2%, 32.0%]	2.74	(1.73 - 4.33)	2.80	(1.80 - 4.33)	166, 128

No	8.1%	[6.9%,9.6%]	1.00		1.00	1908,1509	-	-	-	-	-	-	-	-
Yes	11.1%	[7.7%,15.9%]	1.41	(0.90 - 2.22)	1.41	(0.90 - 2.22)	323,301	-	-	-	-	-	-	-
Relationship status			p=0.003		p=0.02				p=0.003		p=0.69			p=0.17
Married/steady and living together	6.80%	[5.5%,8.5%]	1.00		1.00	1277,1105	9.2%	[8.1%,10.5%]	1.00		1.00		2518,2132	
Steady not living together	8.20%	[5.3%,12.6%]	1.22	(0.72 - 2.07)	1.01	(0.58 - 1.73)	254,201	12.8%	[10.5%,15.5%]	1.44	(1.11 - 1.88)	0.93	(0.70 - 1.24)	951,498
Not in a steady relationship	12.30%	[9.5%,15.8%]	1.91	(1.32 - 2.76)	1.69	(1.15 - 2.48)	611,515	12.5%	[10.5%,14.9%]	1.41	(1.11 - 1.79)	1.06	(0.83 - 1.35)	1206,687
Days drinking, past 7 days			p=0.12		p=0.13									
0 days	7.1%	[5.4%,9.1%]	1.00		1.00	935,807	-	-	-	-	-	-	-	-
1-2 days	9.8%	[7.7%,12.4%]	1.43	(0.97 - 2.10)	1.31	(0.89 - 1.93)	810,680	-	-	-	-	-	-	-
3-4 days	8.8%	[5.7%,13.3%]	1.26	(0.73 - 2.18)	1.14	(0.67 - 1.95)	265,227	-	-	-	-	-	-	-
5-7 days	12.7%	[7.8%,20.1%]	1.93	(1.05 - 3.54)	2.04	(1.10 - 3.78)	132,107	-	-	-	-	-	-	-
Currently smoker			p=0.03		p=0.05				p=0.96		p=0.46			p=0.04
No	7.7%	[6.5%,9.3%]	1.00		1.00	1652,1408	10.4%	[9.3%,11.6%]	1.00		1.00		3235,2407	
Yes	11.5%	[8.5%,15.4%]	1.55	(1.05 - 2.28)	1.49	(1.00 - 2.21)	483,408	10.5%	[8.9%,12.3%]	1.01	(0.80 - 1.26)	0.92	(0.73 - 1.15)	1466,923
Importance of sexual health, past year			p<0.001		p<0.001									
Very important/somewhat important	10.9%	[9.1%,12.8%]	1.00		1.00	1370,1164	-	-	-	-	-	-	-	-
Not very important/not important	4.5%	[3.1%,6.7%]	0.39	(0.25 - 0.61)	0.42	(0.27 - 0.67)	606,517	-	-	-	-	-	-	-

This does not apply to me	4.7%	[1.8%,1.8%]	0.40	(0.15 - 1.12)	0.43	(0.16 - 1.20)	130, 109	-	-	-	-	-	-	-	-
Symptoms of depression (PHQ-2) ⁵			p=0.55		p=0.75				p=0.81		p=0.89				p=0.71
No	8.1%	[6.6%,9.9%]	1.00		1.00		1305, 1124	10.3%	[9.4%,1.4%]	1.00	1.00			4132, 2945	
Yes	9.0%	[6.9%,1.5%]	1.11	(0.78 - 1.59)	0.94	(0.66 - 1.35)	803, 668	10.7%	[8.2%,3.9%]	1.04	(0.76 - 1.42)	1.02	(0.75 - 1.40)	559, 376	
Symptoms of anxiety (GAD-2) ⁵			p=0.24		p=0.68										
No	7.9%	[6.4%,9.8%]	1.00		1.00		1231, 1077	-	-	-	-	-	-	-	-
Yes	9.5%	[7.6%,2.0%]	1.23	(0.87 - 1.72)	1.08	(0.76 - 1.52)	899, 731	-	-	-	-	-	-	-	-
Total sexual partners, past year ⁶			p<0.001		p<0.001				p<0.001		p<0.001				p<0.001
0 partners	7.6%	[5.1%,1.2%]	1.00		1.00		473, 413	4.6%	[2.3%,8.7%]	1.00	1.00			266, 175	
1 partner	6.6%	[5.4%,8.1%]	0.86	(0.53 - 1.38)	0.87	(0.54 - 1.42)	1376, 1159	9.2%	[8.2%,0.2%]	2.11	(1.04 - 4.26)	1.92	(0.95 - 3.89)	3447, 2573	
2+ partners	32.0%	[24.6%,40.4%]	5.73	(3.27 - 10.05)	5.03	(2.87 - 8.80)	179, 146	19.1%	[16.3%,22.3%]	4.95	(2.36 - 10.37)	3.57	(1.71 - 7.46)	926, 533	
New sexual partners, past year ⁶			p<0.001		p<0.001				p<0.001		p<0.001				p=0.001
0 partners	6.6%	[5.4%,8.1%]	1.00		1.00		1698, 1446	8.5%	[7.6%,9.6%]	1.00	1.00			3348, 2521	
1 partner	16.5%	[11.9%,22.3%]	2.79	(1.81 - 4.30)	2.43	(1.57 - 3.74)	233, 195	13.8%	[11.3%,16.8%]	1.72	(1.31 - 2.26)	1.38	(1.05 - 1.83)	794, 475	
2+ partners	37.5%	[26.7%,49.6%]	8.48	(4.94 - 14.57)	7.29	(4.22 - 12.61)	91, 71	22.9%	[18.7%,27.6%]	3.18	(2.39 - 4.23)	2.36	(1.75 - 3.18)	494, 282	
Condom-less sex with a new partner on first occasion, past year ⁶			p<0.001		p<0.001										

None	7.3%	[6.1%,8.8%]	1.00		1.00		1848, 1558	-	-	-	-	-	-	-	-
At least one	23.8%	[17.8%,31.1%]	3.96	(2.61 - 6.01)	3.44	(2.26 - 5.23)	190, 167	-	-	-	-	-	-	-	-
Previous same-sex experience, past 5 years⁷			p=0.005		p=0.009				p=0.008		p=0.007				p=0.20
No	8.3%	[7.0%,9.7%]	1.00		1.00		1979, 1742	10.1%	[9.2%,11.2%]	1.00	1.00			4428, 3154	
Yes	17.9%	[10.8%,28.1%]	2.41	(1.31 - 4.45)	2.27	(1.23 - 4.19)	143, 65	15.5%	[11.5%,20.5%]	1.63	(1.13 - 2.33)	1.41	(0.98 - 2.03)	271, 174	
Pregnant in past year or currently pregnant			p<0.001		p<0.001				p<0.001		p<0.001				p=0.01
No	6.9%	[5.6%,8.4%]	1.00		1.00		1658, 1393	6.4%	[5.6%,7.3%]	1.00	1.00			3878, 2815	
Yes	23.3%	[18.0%,29.5%]	4.11	(2.78 - 6.06)	3.94	(2.65 - 5.86)	221, 191	33.8%	[30.2%,37.7%]	7.50	(6.04 - 9.31)	7.06	(5.65 - 8.81)	798, 494	
Used an STI-related service, past year			p<0.001		p<0.001				p<0.001		p<0.001				p=0.02
No	4.9%	[3.9%,6.0%]	1.00		1.00		1917, 1625	6.9%	[6.1%,7.7%]	1.00	1.00			4151, 3003	
Yes	51.6%	[43.3%,59.7%]	20.87	(13.95 - 31.23)	20.03	(13.03 - 30.78)	173, 145	47.4%	[42.5%,52.3%]	12.21	(9.67 - 15.40)	10.76	(8.40 - 13.79)	512, 297	
Unmet need for condoms, past year			p<0.001		p<0.001										
No	8.00%	[6.8%,9.5%]	1.00		1.00		1856, 1563	-	-	-	-	-	-	-	-
Yes	19.10%	[12.5%,28.1%]	2.70	(1.58 - 4.62)	2.16	(1.22 - 3.85)	133, 115	-	-	-	-	-	-	-	-

		Men (sexually-experienced)			
		Natsal COVID (fieldwork 2021)		Natsal-3 (fieldwork 2010-12)	

	Weighted %	95% CI	OR	95% CI	aOR*	95% CI	Denominator [†] (unweighted, weighted)	Weighted %	95% CI	OR	95% CI	aOR*	95% CI	Denominator [†] (unweighted, weighted)	Interaction terms between surveys p-value
All ages (18-44 years)	6.5%	[5.4%,7.9%]	-	-	-	-	1668, 1868	6.00%	[5.1%,7.0%]	-	-	-	-	3198, 3366	
Age (years)					p=0.005							p=0.002			p=0.49
18-24	8.6%	[5.9%,12.4%]	2.28	(1.31 - 3.97)	-	-	359, 395	6.40%	[5.0%,8.2%]	1.71	(1.06 - 2.77)	-	-	1082, 820	
25-29	7.8%	[5.3%,11.4%]	2.05	(1.17 - 3.58)	-	-	357, 372	9.00%	[7.1%,11.3%]	2.46	(1.54 - 3.93)	-	-	778, 614	
30-34	9.4%	[6.0%,14.3%]	2.51	(1.37 - 4.60)	-	-	243, 287	6.90%	[5.0%,9.5%]	1.85	(1.10 - 3.11)	-	-	596, 617	
35-44	4.0%	[2.8%,5.6%]	1.00		-	-	709, 815	3.90%	[2.6%,5.7%]	1.00		-	-	742, 1315	
Region					p=0.14	p=0.14						p=0.13	p=0.13		p=0.67
England/Wales	6.8%	[5.6%,8.3%]	1.00		1.00		1529, 1703	6.20%	[5.3%,7.2%]	1.00		1.00		2933, 3082	
Scotland	3.4%	[1.4%,8.4%]	0.49	(0.19 - 1.28)	0.48	(0.18 - 1.27)	139, 165	4.00%	[2.3%,6.9%]	0.63	(0.34 - 1.15)	0.63	(0.34 - 1.14)	265, 285	
Rurality					p=0.03	p=0.03									
Urban	7.1%	[5.7%,8.8%]	1.00		1.00		1243, 1393	-	-	-	-	-	-	-	-
Rural	2.2%	[0.8%,6.0%]	0.29	(0.10 - 0.86)	0.3	(0.10 - 0.87)	132, 155	-	-	-	-	-	-	-	-

Ethnicity			p<0.001		p<0.001			p<0.001		p=0.0002			p=0.64	
White ¹	5.9%	[4.7%,7.3%]	1.00		1.00	1359, 1507	5.50%	[4.7%,6.5%]	1.00	1.00	2785, 2844			
Mixed, multiple, or other ²	23.2%	[12.0%,40.3%]	4.86	(2.11 - 11.20)	4.39	(1.93 - 9.94)	59, 71	14.00%	[7.7%,24.0%]	2.78	(1.40 - 5.54)	2.65	(1.31 - 5.33)	109, 111
Asian or Asian British ³	2.7%	[1.3%,5.6%]	0.45	(0.20 - 0.99)	0.41	(0.19 - 0.91)	149, 184	3.30%	[1.6%,6.8%]	0.58	(0.27 - 1.27)	0.60	(0.28 - 1.32)	190, 279
Black or Black British ⁴	15.3%	[8.2%,26.7%]	2.90	(1.38 - 6.08)	2.50	(1.17 - 5.34)	65, 72	15.60%	[9.5%,24.5%]	3.17	(1.76 - 5.73)	3.23	(1.78 - 5.86)	108, 126
Sexual identity			p<0.001		p<0.001			p<0.001		p<0.001			p=0.37	
Heterosexual/straight	5.9%	[4.7%,7.4%]	1.00		1.00	1432, 1766	5.30%	[4.5%,6.3%]	1.00	1.00	3074, 3255			
Gay or lesbian	24.5%	[17.3%,33.4%]	5.16	(3.14 - 8.47)	5.13	(3.09 - 8.53)	121, 49	36.00%	[24.3%,49.5%]	9.97	(5.54 - 17.91)	9.68	(5.36 - 17.49)	82, 69
Bisexual	9.5%	[4.3%,19.3%]	1.66	(0.70 - 3.95)	1.32	(0.54 - 3.20)	74, 20	7.10%	[2.1%,21.5%]	1.35	(0.37 - 4.91)	1.29	(0.36 - 4.60)	31, 33***
Other	-	-	-	-	-	-	22, 12**	-	-	-	-	-	-	8, 6**
Social grade			p=0.01		p=0.01			-	-	-	-	-	-	
AB Higher and intermediate managerial/administrative/professional occupation	9.5%	[7.2%,12.5%]	1.00		1.00	583, 435	-	-	-	-	-	-	-	
C1 Supervisory, clerical and junior managerial/administrative/professional occupations/C2 Skilled manual occupations	4.9%	[3.5%,6.9%]	0.50	(0.31 - 0.79)	0.50	(0.31 - 0.80)	691, 1006	-	-	-	-	-	-	
D Semi-skilled and unskilled manual occupations/E On state benefit, unemployed and lowest grade occupations	7.3%	[4.9%,10.7%]	0.75	(0.44 - 1.26)	0.70	(0.41 - 1.17)	394, 426	-	-	-	-	-	-	
Highest education qualification			p=0.01		p=0.03			p=0.08		p=0.04			p=0.07	

Degree	6.40 %	[4.8%,8.4%]	1.00	1.00	813, 846	7.50 %	[5.8%,9.6%]	1.00	1.00	868, 1018				
Below degree	5.60 %	[4.1%,7.6%]	0.87	(0.56 - 1.35)	0.80	(0.51 - 1.27)	750, 901	5.50 %	[4.5%,6.6%]	0.71	(0.51 - 0.99)	0.66	(0.48 - 0.92)	2162, 2152
No qualification	14.60 %	[8.5%,24.1%]	2.52	(1.27 - 4.99)	2.12	(1.03 - 4.37)	106, 121	3.80 %	[1.4%,9.5%]	0.48	(0.17 - 1.35)	0.50	(0.18 - 1.41)	163, 191
Born outside the UK														
No	6.8%	[5.5%,8.3%]	1.00	1.00	1492, 1678	-	-	-	-	-	-	-	-	-
Yes	4.6%	[2.2%,9.0%]	0.65	(0.31 - 1.40)	0.68	(0.32 - 1.47)	160, 174	-	-	-	-	-	-	-
Relationship status														
Married/steady and living together	6.30 %	[4.8%,8.2%]	1.00	1.00	975, 1098	4.30 %	[3.3%,5.5%]	1.00	1.00	1535, 2045				
Steady not living together	7.60 %	[4.2%,13.2%]	1.22	(0.62 - 2.41)	0.97	(0.46 - 2.05)	153, 174	9.00 %	[6.8%,11.8%]	2.22	(1.52 - 3.24)	2.06	(1.29 - 3.29)	640, 504
Not in a steady relationship	6.90 %	[4.9%,9.5%]	1.10	(0.70 - 1.73)	0.95	(0.59 - 1.54)	524, 574	8.10 %	[6.4%,10.2%]	1.98	(1.38 - 2.84)	1.86	(1.24 - 2.79)	1006, 802
Days drinking, past 7 days														
0 days	5.4%	[3.6%,7.9%]	1.00	1.00	509, 563	-	-	-	-	-	-	-	-	-
1-2 days	5.1%	[3.6%,7.1%]	0.94	(0.54 - 1.63)	0.91	(0.52 - 1.58)	667, 777	-	-	-	-	-	-	-
3-4 days	12.0 %	[8.6%,16.6%]	2.42	(1.38 - 4.22)	2.41	(1.38 - 4.23)	324, 348	-	-	-	-	-	-	-
5-7 days	6.0%	[3.2%,10.8%]	1.12	(0.52 - 2.41)	1.15	(0.54 - 2.48)	161, 171	-	-	-	-	-	-	-
Currently smoker														
No	3.30 %	[2.5%,4.4%]	1.00	1.00	1132, 1253	5.30 %	[4.4%,6.5%]	1.00	1.00	2086, 2290				

Yes	12.90 %	[10.0%, 16.5%]	4.33	(2.86 - 6.57)	4.10	(2.69 - 6.26)	520, 600	7.40 %	[5.9%,9, 1%]	1.41	(1.04 - 1.91)	1.36	(1.00 - 1.83)	1112, 1076	
Importance of sexual health, past year			p=0. 002		p=0. 002										
Very important/somewhat important	8.2%	[6.6%,1 0.2%]	1.00		1.00		1035, 1178								
Not very important/not important	3.4%	[2.1%,5. 4%]	0.39	(0.23 - 0.67)	0.38	(0.22 - 0.67)	495, 541								
This does not apply to me	2.6%	[0.5%,1 1.2%]	0.29	(0.06 - 1.42)	0.33	(0.07 - 1.63)	108, 113								
Symptoms of depression (PHQ-2) ⁵			p=0. 001		p=0. 005				p=0. 27		p=0. 28				p=0.2 5
No	4.7%	[3.5%,6. 3%]	1.00		1.00		1004, 1128	5.80 %	[4.9%,6. 9%]	1.00		1.00		2862, 3038	
Yes	9.1%	[6.9%,1 1.8%]	2.04	(1.33 - 3.14)	1.88	(1.21 - 2.93)	627, 702	7.50 %	[5.0%,1 1.1%]	1.31	(0.82 - 2.08)	1.29	(0.81 - 2.05)	330, 323	
Symptoms of anxiety (GAD-2) ⁵			p=0. 001		p=0. 006										
No	5.0%	[3.8%,6. 6%]	1.00		1.00		1065, 1192								
Yes	9.5%	[7.2%,1 2.3%]	1.98	(1.30 - 3.02)	1.82	(1.19 - 2.79)	573, 645								
Total sexual partners, past year ⁶			p<0. 001		p<0. 001				p<0. 001		p<0. 001				p=0.0 2
0 partners	4.1%	[2.6%,6. 6%]	1.00		1.00		413, 461	0.30 %	[0.0%,2. 4%]	1.00		1.00		169, 158	
1 partner	4.3%	[3.1%,6. 0%]	1.05	(0.57 - 1.92)	1.12	(0.60 - 2.10)	921, 1054	4.20 %	[3.4%,5. 4%]	13.4 4	(1.81 - 99.93)	13.52	(1.82 - 100.59)	2086, 1404	
2+ partners	19.3 %	[14.3%, 25.6%]	5.54	(3.00 - 10.22)	5.37	(2.90 - 9.92)	221, 233	12.30 %	[10.0%, 15.0%]	42.4 5	(5.73 - 314.60)	41.25	(5.52 - 308.35)	902, 762	
New sexual partners, past year ⁶			p<0. 001		p<0. 001				p<0. 001		p<0. 001				p=0.4 3

0 partners	3.5%	[2.5%,4.9%]	1.00		1.00		1179,1334	3.40%	[2.6%,4.4%]	1.00		1.00		1945,2325	
1 partner	10.8%	[7.4%,15.4%]	3.31	(1.93 - 5.67)	3.16	(1.82 - 5.50)	226,257	8.90%	[6.7%,11.8%]	2.81	(1.87 - 4.24)	2.90	(1.84 - 4.57)	660,547	
2+ partners	23.1%	[16.3%,31.7%]	8.21	(4.70 - 14.34)	7.60	(4.21 - 13.72)	144,149	15.50%	[12.3%,19.3%]	5.28	(3.61 - 7.73)	5.45	(3.58 - 8.30)	548,447	
Condom-less sex with a new partner on first occasion, past year ⁶															
None	4.4%	[3.3%,5.8%]	1.00		1.00		1286,1440	-	-	-	-	-	-	-	-
At least one	16.7%	[12.5%,21.9%]	4.41	(2.82 - 6.91)	4.09	(2.57 - 6.51)	260,298	-	-	-	-	-	-	-	-
Previous same-sex experience, past 5 years ⁷															
No	4.9%	[3.8%,6.2%]	1.00		1.00		1453,1721	5.30%	[4.4%,6.2%]	1.00		1.00		3071,3256	p=0.69
Yes	29.1%	[21.1%,38.7%]	8.02	(4.88 - 13.19)	7.68	(4.68 - 12.59)	183,114	27.90%	[19.7%,38.0%]	7.00	(4.26 - 11.50)	6.72	(4.06 - 11.10)	126,109	
Pregnant in past year or currently pregnant															
No	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Yes	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Used an STI-related service, past year															
No	3.50%	[2.6%,4.7%]	1.00		1.00		1458,1646	2.90%	[2.2%,3.7%]	1.00		1.00		2884,3112	p=0.05
Yes	39.70%	[31.4%,48.5%]	17.93	(11.19 - 28.71)	17.24	(10.46 - 28.42)	160,158	47.70%	[41.4%,54.1%]	30.96	(21.34 - 44.93)	42.92	(27.97 - 65.88)	298,234	
Unmet need for condoms, past year															
No	3.80%	[2.8%,5.0%]	1.00		1.00		1262,	-	-	-	-	-	-	-	-

	%	1%]					1403										
Yes	22.40	[17.1%,	7.27	(4.63 -	6.82	(4.18 -	237,	-	-	-	-	-	-	-	-	-	-
	%	28.6%]		11.42)		11.14)	267										

CI=confidence intervals. OR=odds ratio. aOR=age-adjusted odds ratio. PHQ-2=Patient Health Questionnaire (2 item). GAD-2=Generalized anxiety disorder (2 item)

* Age adjusted

[†] Men or women aged 18-44 who were sexually-experienced. Trans men and trans women are included in data for men and women, respectively. 15 women and 22 men in Natsal-COVID responded 'prefer not to say' to questions about chlamydia testing. 423 women and 229 men in Natsal-3 did not answer the question. These individuals are excluded from the denominator.

** Unweighted denominator <30. Results not shown due to small denominator

*** Unweighted denominator <50. Results should be interpreted with caution due to small denominator.

¹ White includes all those who identify as White English, Welsh, Scottish, Northern Irish, British, Irish, Gypsy or Irish Traveller, or from any other White background.

² Mixed ethnicity includes those who identify as White and Black African, White and Black Caribbean, White and Asian or any other mixed or multiple ethnic background.

³ Asian includes those who identify as Indian, Pakistani, Bangladeshi, Chinese or from any other Asian background

⁴ Black includes those who identify as African, Caribbean, or from any other Black background.

⁵ Participants were classified as having symptoms of depression or anxiety if they scored three or more on the patient health questionnaire two item (PHQ-2) or generalised anxiety disorder two item (GAD-2) scales

⁶ Includes both opposite-sex and same-sex partners

⁷ Same-sex experience defined as oral/anal/vaginal sex

Supplementary table 5. Variations in reporting a cervical cancer screening among eligible participants aged 25-59 years in the first year following the start of a national lockdown in Britain (23/03/2020) compared with Natsal-3 (2010-12, past three years)

	All eligible participants (Described female at birth, aged 25-59 yrs)	
	Natsal COVID (fieldwork 2021)	Natsal-3 (fieldwork 2010-12)

	Weighted %	95% CI	OR	95% CI	aOR	95% CI	Denominator (unweighted, weighted)	Weighted %	95% CI	OR	95% CI	aOR	95% CI	Denominator (unweighted, weighted)	Interaction terms between surveys p-value
All ages (25-59 years)	10.3%	[9.2%,11.5%]	-	-	-	-	2949, 2837	70.6%	[70.6%,70.6%]	-	-	-	-	5176, 4770	
Age (years)			p<0.001							p<0.001					p=0.01
25-29	16.3%	[13.4%,19.8%]	2.72	(1.94 - 3.83)	-	-	582, 473	71.7%	[71.7%,71.7%]	1.29	(1.09 - 1.53)	-	-	1381, 683	
30-34	12.4%	[9.7%,15.9%]	1.98	(1.36 - 2.88)	-	-	463, 385	75.6%	[75.6%,75.6%]	1.58	(1.30 - 1.91)	-	-	1036, 656	
35-44	11.2%	[9.1%,13.8%]	1.77	(1.26 - 2.48)	-	-	816, 762	74.0%	[74.0%,74.0%]	1.45	(1.21 - 1.72)	-	-	1187, 1424	
45-59	6.7%	[5.3%,8.4%]	1.00		-	-	1088, 1217	66.3%	[66.3%,66.3%]	1.00		-	-	1572, 2007	
Region			p=0.17		p=0.10					p=0.62		p=0.52			p=0.07
England/Wales	10.6%	[9.4%,11.8%]	1.00		1.00		2720, 2599	70.5%	[70.5%,70.5%]	1.00		1.00		4740, 4333	
Scotland	7.5%	[4.6%,12.0%]	0.68	(0.40 - 1.17)	0.64	(0.38 - 1.09)	229, 238	71.8%	[71.8%,71.8%]	1.07	(0.83 - 1.38)	1.09	(0.84 - 1.40)	436, 437	
Rurality			p=0.02		p=0.03										
Urban	10.7%	[9.4%,12.2%]	1.00		1.00		2117, 2047	-	-	-	-	-	-	-	-
Rural	6.9%	[4.9%,9.8%]	0.62	(0.42 - 0.93)	0.65	(0.43 - 0.97)	435, 408	-	-	-	-	-	-	-	-

Ethnicity			p=0.003		p=0.01				p=0.30		p=0.12			p=0.10	
White ¹	9.9%	[8.8%,11.2%]	1.00		1.00		2644, 2475		71.1%	[71.1%,71.1%]	1.00		1.00	4527, 4160	
Mixed, multiple, or other ²	29.0%	[17.2%,44.5%]	3.70	(1.86 - 7.34)	3.26	(1.58 - 6.73)	79, 66		72.6%	[72.6%,72.6%]	1.08	(0.69 - 1.69)	1.03	(0.65 - 1.61)	141, 112
Asian or Asian British ³	10.4%	[6.3%,16.5%]	1.05	(0.60 - 1.82)	0.92	(0.52 - 1.63)	151, 188		66.5%	[66.5%,66.5%]	0.81	(0.62 - 1.05)	0.74	(0.56 - 0.96)	304, 297
Black or Black British ⁴	9.0%	[3.5%,21.1%]	0.90	(0.33 - 2.45)	0.75	(0.28 - 2.05)	52, 73		66.9%	[66.9%,66.9%]	0.82	(0.56 - 1.20)	0.81	(0.56 - 1.18)	194, 191
Sexual identity			p=0.001		p=0.003						p=0.93		p=0.86	p=0.01	
Heterosexual/straight	10.2%	[9.1%,11.5%]	1.00		1.00		2663, 2706		70.7%	[70.7%,70.7%]	1.00		1.00	4994, 4626	
Gay or lesbian	3.3%	[1.2%,8.6%]	0.30	(0.11 - 0.83)	0.23	(0.08 - 0.67)	68, 31		66.3%	[66.3%,66.3%]	0.82	(0.44 - 1.51)	0.79	(0.43 - 1.46)	71, 60
Bisexual	21.7%	[13.9%,32.3%]	2.43	(1.39 - 4.24)	1.63	(0.97 - 2.74)	147, 40		70.7%	[70.7%,70.7%]	1.00	(0.58 - 1.73)	0.89	(0.51 - 1.56)	87, 61
Other	5.3%	[1.1%,21.7%]	0.49	(0.10 - 2.44)	0.24	(0.05 - 1.20)	43, 27 ***		-	-	-	-	-	-	14, 13 **
Social grade			p=0.87		p=0.83										
AB Higher and intermediate managerial/administrative/professional occupation	9.8%	[7.8%,12.2%]	1.00		1.00		742, 660		-	-	-	-	-	-	-
C1 Supervisory, clerical and junior managerial/administrative/professional occupations/C2 Skilled manual occupations	10.5%	[9.0%,12.2%]	1.09	(0.80 - 1.47)	1.10	(0.81 - 1.50)	1553, 1554		-	-	-	-	-	-	-
D Semi-skilled and unskilled manual occupations/E On state benefit, unemployed and lowest grade occupations	10.3%	[8.2%,13.0%]	1.07	(0.74 - 1.53)	1.06	(0.73 - 1.53)	654, 623		-	-	-	-	-	-	-
Highest education qualification			p=0.03		p=0.16						p<0.001		p<0.001	p=0.92	

Degree	11.8%	[10.2%,13.7%]	1.00		1.00	1488,1393	75.00%	[75.0%,75.0%]	1.00		1.00	1629,1486		
Below degree	8.9%	[7.5%,10.6%]	0.73	(0.56 - 0.94)	0.81	(0.63 - 1.05)	1346,1331	69.90%	[69.9%,69.9%]	0.77	(0.66 - 0.90)	0.81	(0.70 - 0.95)	3070,2838
No qual	7.5%	[3.9%,14.0%]	0.60	(0.29 - 1.23)	0.62	(0.30 - 1.27)	115,114	60.60%	[60.6%,60.6%]	0.51	(0.40 - 0.66)	0.58	(0.45 - 0.75)	469,438
Born outside the UK														
No	9.3%	[8.2%,10.5%]	1.00		1.00	2579,2456	-	-	-	-	-	-	-	-
Yes	17.5%	[13.5%,22.3%]	2.07	(1.48 - 2.90)	1.78	(1.26 - 2.51)	349,358	-	-	-	-	-	-	-
Relationship status														
Married/steady and living together	9.9%	[8.7%,11.4%]	1.00		1.00	1917,1871	71.7%	[71.7%,71.7%]	1.00		1.00	3204,3465		
Steady not living together	15.4%	[11.0%,21.0%]	1.64	(1.09 - 2.48)	1.47	(0.97 - 2.25)	227,202	75.8%	[75.8%,75.8%]	1.24	(0.97 - 1.58)	1.18	(0.92 - 1.50)	653,409
Not in a steady relationship	10.0%	[7.9%,12.5%]	1.01	(0.75 - 1.35)	0.95	(0.70 - 1.28)	797,754	64.7%	[64.7%,64.7%]	0.72	(0.62 - 0.84)	0.72	(0.62 - 0.85)	1287,873
Days drinking, past 7 days														
0 days	9.3%	[7.8%,11.0%]	1.00		1.00	1342,1302	-	-	-	-	-	-	-	-
1-2 days	11.9%	[10.0%,14.2%]	1.33	(1.00 - 1.75)	1.31	(0.99 - 1.73)	1019,972	-	-	-	-	-	-	-
3-4 days	8.6%	[6.1%,12.0%]	0.92	(0.60 - 1.41)	0.92	(0.60 - 1.42)	358,346	-	-	-	-	-	-	-
5-7 days	12.4%	[8.6%,17.7%]	1.39	(0.88 - 2.19)	1.53	(0.96 - 2.42)	222,208	-	-	-	-	-	-	-
Currently smoker														
No	9.4%	[8.3%,10.7%]	1.00		1.00	2383,2296	72.4%	[72.4%,72.4%]	1.00		1.00	3756,3622		

Yes	14.0%	[11.2%,1 7.4%]	1.57	(1.17 - 2.10)	1.42	(1.05 - 1.92)	557, 532	64.9%	[64.9%,6 4.9%]	0.70	(0.61 - 0.82)	0.68	(0.59 - 0.79)	1420, 1148	
Importance of sexual health, past year			p<0. 001		p<0. 001										
Very important/somewhat important	13.3%	[11.6%,1 5.2%]	1.00		1.00		1520, 1428	-	-	-	-	-	-	-	-
Not very important/not important	8.3%	[6.7%,10 .2%]	0.59	(0.45 - 0.78)	0.67	(0.51 - 0.89)	1050, 1032	-	-	-	-	-	-	-	-
This does not apply to me	4.0%	[2.2%,7. 0%]	0.27	(0.14 - 0.50)	0.30	(0.16 - 0.56)	303, 298	-	-	-	-	-	-	-	-
Symptoms of depression (PHQ-2) ⁵			p=0. 21		p=0. 93				p=0. 02		p=0. 03				p=0.99
No	9.8%	[8.6%,11 .2%]	1.00		1.00		2033, 1983	71.3%	[71.3%,7 1.3%]	1.00		1.00		4535, 4210	
Yes	11.4%	[9.4%,13 .8%]	1.18	(0.91 - 1.55)	1.01	(0.77 - 1.34)	885, 826	65.9%	[65.9%,6 5.9%]	0.78	(0.63 - 0.96)	0.80	(0.64 - 0.98)	629, 546	
Symptoms of anxiety (GAD-2) ⁵			p=0. 07		p=0. 54										
No	9.6%	[8.4%,11 .1%]	1.00		1.00		1976, 1955	-	-	-	-	-	-	-	-
Yes	11.9%	[9.9%,14 .2%]	1.26	(0.98 - 1.64)	1.09	(0.84 - 1.41)	956, 866	-	-	-	-	-	-	-	-
Total sexual partners, past year ⁶			p<0. 001		p=0. 006				p<0. 001		p<0. 001				p=0.01
0 partners	8.4%	[6.5%,10 .6%]	1.00		1.00		873, 860	58.0%	[58.0%,5 8.0%]	1.00		1.00		634, 543	
1 partner	10.8%	[9.4%,12 .4%]	1.33	(0.98 - 1.80)	1.28	(0.94 - 1.75)	1792, 1704	72.3%	[72.3%,7 2.3%]	1.89	(1.56 - 2.29)	1.72	(1.41 - 2.09)	3884, 3762	
2+ partners	24.4%	[16.8%,3 4.2%]	3.55	(2.06 - 6.10)	2.48	(1.42 - 4.33)	114, 99	73.1%	[73.1%,7 3.1%]	1.97	(1.47 - 2.63)	1.64	(1.22 - 2.21)	579, 385	
New sexual partners, past year ⁶			p<0. 001		p=0. 002				p=0. 12		p=0. 22				p=0.06

0 partners	9.9%	[8.8%,11.2%]	1.00		1.00		2560, 2469	70.5%	[70.5%,70.5%]	1.00		1.00		4211, 4089	
1 partner	13.9%	[9.1%,20.7%]	1.47	(0.89 - 2.42)	1.20	(0.73 - 1.97)	163, 148	69.5%	[69.5%,69.5%]	0.95	(0.76 - 1.19)	0.88	(0.70 - 1.10)	620, 435	
2+ partners	32.3%	[19.7%,48.1%]	4.33	(2.20 - 8.55)	3.29	(1.69 - 6.40)	51, 43	77.5%	[77.5%,77.5%]	1.44	(1.00 - 2.06)	1.24	(0.87 - 1.78)	261, 160	
Condom-less sex with a new partner on first occasion, past year ⁶															
None	10.0%	[8.9%,11.3%]	1.00		1.00		2658, 2550	-	-	-	-	-	-	-	-
At least one	20.5%	[13.9%,29.1%]	2.31	(1.42 - 3.75)	1.86	(1.14 - 3.03)	131, 120	-	-	-	-	-	-	-	-
Previous same-sex experience, past 5 years ⁷															
No	10.4%	[9.3%,11.7%]	1.00		1.00		2761, 2707	70.5%	[70.5%,70.5%]	1.00		1.00		4965, 4606	
Yes	8.1%	[4.4%,14.4%]	0.76	(0.39 - 1.47)	0.68	(0.35 - 1.32)	127, 65	72.8%	[72.8%,72.8%]	1.12	(0.77 - 1.61)	1.03	(0.71 - 1.50)	209, 161	p=0.21
Chlamydia test, past year															
No/not sure	9.3%	[8.3%,10.5%]	1.00		1.00		2820, 2724	72.7%	[72.7%,72.7%]	1.00		1.00		2840, 2277	
Yes	40.6%	[30.8%,51.2%]	6.62	(4.23 - 10.36)	2.65	(1.64 - 4.28)	105, 89	81.5%	[81.5%,81.5%]	1.65	(1.29 - 2.12)	1.68	(1.30 - 2.18)	702, 433	p<0.001
HIV test, past year															
No/not sure	9.5%	[8.5%,10.7%]	1.00		1.00		2783, 2680	70.4%	[70.4%,70.4%]	1.00		1.00		4476, 4214	
Yes	26.3%	[18.8%,35.5%]	3.38	(2.15 - 5.31)	5.05	(3.19 - 7.99)	145, 135	73.7%	[73.7%,73.7%]	1.18	(0.87 - 1.60)	0.96	(0.71 - 1.31)	361, 243	p<0.001
Used an STI-related service, past year															
			p<0.001		p<0.001					p=0.001		p=0.02			p=0.002

No	9.2%	[8.2%,10.4%]	1.00	1.00	2830, 2730	70.6%	[70.6%,70.6%]	1.00	1.00	4856, 4542	
Yes	38.0%	[28.9%,48.1%]	6.04	(3.92 - 9.30)	4.74 (3.02 - 7.44)	119, 107	82.9%	[82.9%,82.9%]	2.01 (1.32 - 3.06)	1.65 (1.08 - 2.53)	227, 141
Unmet need for condoms, past year											
			p=0.20	p=0.95							
No	10.70%	[9.5%,12.0%]	1.00	1.00	2525, 2410	-	-	-	-	-	-
Yes	15.10%	[8.8%,24.7%]	1.50	(0.80 - 2.80)	1.02 (0.53 - 1.96)	-	-	-	-	-	-

CI=confidence intervals. OR=odds ratio. aOR=age-adjusted odds ratio. PHQ-2=Patient Health Questionnaire (2 item). GAD-2=Generalized anxiety disorder (2 item)

* Age adjusted

† Participants described female at birth aged 25-29. 90 eligible participants responded 'prefer not to say' to questions about cervical cancer screening. 144 in Natsal-3 did not answer the question. These individuals are excluded from the denominator.

** Unweighted denominator <30. Results not shown due to small denominator

*** Unweighted denominator <50. Results should be interpreted with caution due to small denominator.

¹ White includes all those who identify as White English, Welsh, Scottish, Northern Irish, British, Irish, Gypsy or Irish Traveller, or from any other White background.

² Mixed ethnicity includes those who identify as White and Black African, White and Black Caribbean, White and Asian or any other mixed or multiple ethnic background.

³ Asian includes those who identify as Indian, Pakistani, Bangladeshi, Chinese or from any other Asian background

⁴ Black includes those who identify as African, Caribbean, or from any other Black background.

⁵ Participants were classified as having symptoms of depression or anxiety if they scored three or more on the patient health questionnaire two item (PHQ-2) or generalised anxiety disorder two item (GAD-2) scales

⁶ Includes both opposite-sex and same-sex partners

⁷ Same-sex experience defined as oral/anal/vaginal sex

All percentages are weighted. These are row percentages which describe reported use of cervical cancer screening in the past year (Natsal-COVID) or past three years (Natsal-3) within certain subgroups.