Social Media, HIV+ Men who have sex with men,

Sexual and Holistic Health Study (SMMASH3)

The 3rd longitudinal, triennial study of the sexual and wider health behaviours of gay, bisexual and other men who have sex with men living in Scotland, UK.

A report commissioned by HIV Scotland

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Chapter 1 - Introduction And Methodology

1.1 Overview

This report examines quantitative data collected within the Social Media, Men who have sex with men, Sexual and Holistic Health study (SMMASH3), which was developed in collaboration with HIV Scotland, NHS Greater Glasgow and Clyde, NHS Lothian, Waverley Care and the Sexual Health and BBV Team based at Glasgow Caledonian University. The aim of this report is to present the findings relating to those survey participants who live with HIV in Scotland and said they are HIV+, based on the results of a named HIV test. To these ends, we present a summary of the data for 'HIV+ gay, bisexual, and other men who have sex with men' (GBMSM) in Scotland and then a comparative analysis of men who live in Greater Glasgow and Clyde Health Board (GGC), Lothian Health Board (Lothian) and the 'Rest of Scotland' (RoS). Comparing the experiences of HIV+ GBMSM across these different areas of Scotland, allow us to highlight inequalities across the country, as well as understand the individual needs of HIV+ GBMSM in Scotland as a whole.

Specifically, we address the following research aims in relation to HIV+ GBMSM:

- Demographics (including disabilities, financial worries, gay scene use)
- Sexual behaviours (with M and F)
- HIV medication & HIV viral load
- STI Testing and Results
- HPV Knowledge and Vaccine Uptake
- Sexual Function and Confidence
- Sexual, Physical, and Emotional abuse
- Mental Health (diagnoses, affected by problems, medication, PHQ9, GAD-7)
- Gay Stigma
- Resilience: Sense of Coherence
- Emotional Competency
- Alcohol, Smoking & Vaping, and Recreational Drug Use (including Chemsex)

- Social Media and Gay Social Media use
- Use of Online Sexual And Other Health Services

Subsequently, we examine each of these issues in relation to three further sociodemographic issues as follows;

1. By age category, grouped as aged 16-25 years, 26-35 years, 36-45 years, and 46 years and over.
2. By relationship status, either single or in a relationship with a male/female partner.
3. By financial status, reporting financial worries either 'occasionally/never' or 'sometimes/all of the time' in the past year.

Finally, we also analyse each of these issues by comparing HIV+ with HIV- / untested GBMSM in Scotland.

Therefore, this report allows us to understand the sexual, mental and wider health behaviours of HIV+ GBMSM in Scotland in detail, to understand how these are patterned by NHS region, age group, relationship status and financial worries and also to understand where inequalities between HIV+ and HIV-/untested GBMSM in Scotland exist.

This initial chapter provides a background to the overall report. It describes the methodology underpinning the SMMASH3 survey and the measures used therein. After this initial context setting, subsequent chapters address each of the research aims listed above in turn.

1.2 SMMASH3 Methodology

1.2.1 Funding

SMMASH3 was funded by HIV Scotland, Health Protection Scotland, NHS Greater Glasgow and Clyde, NHS Lothian, NHS Tayside, Waverley Care and GCU. Grindr advertised the survey at no cost whilst Squirt, Gaydar, Growlr and Recon provided survey advertising at a reduced cost due to the community health focus and 'not-for-profit' nature of the work.

1.2.2 Ethical Approval

Ethical approval was obtained from the Nursing and Community Health Sciences ethics committee, Glasgow Caledonian University: HLS/NCH/19/019.

1.2.3 Questionnaire Development

A cross sectional survey was developed using a series of measures (see Appendix 1), largely drawn from previously published work. This was developed in consultation with practitioners in both commissioning organisations and their partner organisations working on GBMSMs Sexual Health. Detailed information was sought regarding participant sociodemographics (age, ethnicity, sexual orientation, partnership status, disabilities, employment, financial worries, 'outness' and commercial gay scene use). Men were asked about their sexual behaviours with men and with women, HIV status and STI testing history. Existing measures were employed to survey participants' sexual wellbeing, sexual confidence, and experiences of sexual, emotional, and physical abuse. We also asked about diagnosed mental health, levels of anxiety and depression, experiences of gay stigma and psychological wellbeing (including emotional competency and sense of coherence). Finally, a range of measures were used to assess participants' alcohol and recreational drug use (including 'chemsex' behaviours) and use of social and 'sociosexual' media. Questionnaire items were derived from our own previous work in the field (see Frankis et al., 2013, Frankis et al., 2016b) or other previously published survey items (as described above). An international steering committee made up of academics, policymakers, statutory and NGO service providers, clinicians and community members

reviewed the questions for clarity, appropriateness, and comprehensiveness. The final version of the survey is available in Appendix 1.

1.2.4 Pilot Work

The methods used in this study were broadly similar to those used in our previous work, the SMMASH and SMMASH2 study (Social Media, Men who have sex with men and Sexual Health survey), which focused on the sexual health and social media use of men who have sex with men in Scotland (see Frankis et al., 2013; Frankis et al., 2016a; Frankis et al., 2016b). This meant that the methods used in this study had effectively already been previously piloted in the earlier work and were successfully redeployed herein. Regarding the new measures which were firstly introduced in the SMMASH3 survey (e.g. HPV vaccine knowledge and uptake), these were adapted by the research group and further piloted in a group of GBMSM experts (see relevant chapters for a detailed description).

1.2.5 Participant Recruitment and Survey Completion Procedures

The SMMASH3 survey collected anonymous, online self-complete questionnaires with GBMSM in Scotland, Wales, England, Northern Ireland, and the Republic of Ireland. It should be noted here that SMMASH3 survey focused on Scotland, Wales, Northern Ireland, and Republic of Ireland only, but a sampling error introduced by some of the social media companies meant that some GBMSM in England were also targeted via some apps. The survey was administered online via REDCap between December 2019 and March 2020. GBMSM using gay specific social media websites and apps (specifically Grindr, Gaydar, Recon, Squirt, Growlr, Planet Romeo, Scruff, and Hornet) were invited to participate when their profile location, IP address or smartphone GPS co-ordinates were located in one of the four target countries. Over a 3-week period (between 15th December 2019 and 7th January 2020) the users of all but one website (Romeo) were sent either a pop-up message or an inbox message asking them to participate in the survey. Banner advertisements were employed to advertise the survey only by Planet Romeo through a one-month period (from 15th December 2019 to 15th January 2020). The SMMASH3 survey was also advertised through Facebook and Twitter. Paid

advertising was used to send a clickable advert to Facebook users, who were men aged 18+ located in one of the four Celtic countries who liked a range of gay and HIV related social issues and media personalities. A recruitment request was tweeted on the SMMASH3 twitter account, targeting various social and relevant health twitter accounts (e.g. 8 gay bars in Scotland, HIV Scotland, Waverley Care etc.), and requesting them to retweet this to advertise the survey; a link was also provided under each tweet publicised by the SMMASH3 Twitter account, which provided the option of survey completion. Due to a lower recruitment rate than expected, a second recruitment wave took place through the gay social media websites and apps, which was completed by the end of February 2020, whilst the Facebook and Twitter recruitment was extended until March 2019. Clicking on the message, banner advert or on the relevant "tweet" publicised by the SMMASH3 Twitter account took participants to the survey landing page on REDCap (see https://www.project-redcap.org) which provided full details of the research, explained the nature of the questions involved and the organisation behind the survey. It also emphasised the anonymous, confidential, and voluntary nature of participation and confirmed the study's ethical approval. Participants were then able to make an informed decision whether to proceed with the survey or decline participation, by clicking the relevant option. When participants agreed to participate in the study, they were asked to complete questionnaires covering socio-demographics, social media use, sexual behaviour, physical, and mental health information. After survey completion, participants were taken to an exit page which provided links to local GBMSM specific sexual and mental health services, should they wish to follow up on any of the issues raised within the survey.

The sampling methods adopted within the study mean that it is impossible to generate an accurate response rate. This is because most social media did not have the ability to ascertain how many messages were read, or adverts were seen, by unique users. A final sample size of n=67 participants living with HIV were recruited. As participants were sampled from gay specific sociosexual media and social media like Facebook and Twitter, the results of this study are only generalizable to GBMSM in

Scotland who use these websites/apps. This is an important limitation of this study and should be borne in mind when interpreting all of the results presented herein.

1.3 Statistical Analyses

Data were analysed using SPSS 25.0. Missing data occurred for many of the variables in this study; within this report we provide the sample size for each sub-analysis in the text or relevant table, but do not separately specify the missing data in each case. Given the small sample size, inferential statistical analyses were performed where possible. Variables with two levels were assessed with Chi-Square analyses. Variables with three levels were assessed ANOVA (using Welch's test where homogeneity of variance was absent) with significant differences further explored with Hochberg' GT2 test (since sample sizes were almost invariably very different).

1.4 Summary

The SMMASH3 survey recruited 67 HIV+ GBMSM aged 16 and over in Scotland from online sociosexual media and wider social media between December 2019 and March 2020. Participants were asked a range of questions around their sexual, mental, and wider health behaviours as well as sociodemographic information. The rest of this report provides a detailed analysis of these results, presenting data for the whole cohort of HIV+ GBMSM in Scotland, then comparing men who live in NHS GGC, NHS Lothian, and the RoS.

Chapter 2 - Sample Demographics

2.1 Introduction

This chapter describes the demographic characteristics of HIV+ GBMSM within the SMMASH3 study. Herein we examine HIV+ GBMSM recruited within Scotland and compare the sub-populations living within three National Health Service (NHS) Scotland Health Board regions: NHS Greater Glasgow and Clyde (GGC), NHS Lothian and NHS Board areas comprising the Rest of Scotland (RoS).

2.2 Sample Size and HIV Status

Participants recruited to the wider SMMASH3 study were GBMSM aged 16 years and over, using gay sociosexual and social media in Scotland. A total of 1069 men completed the SMMASH3 study, of whom 6.3% (n=67) were HIV+, 77.7% (n=831) were HIV- on the basis of their most recent test and 16% (n=171) said they had never had an HIV test. This report focuses on those 67 HIV+ GBMSM who took part in the SMMASH3 study. Of the 67 HIV+ men who completed the online survey, responses from men living within NHS GGC accounted for 35.8% (n=24/67), NHS Lothian 25.4% (n=17/67) and the NHS Board areas comprising the RoS, 38.8% (n=26/67) (see Figure 2.1).

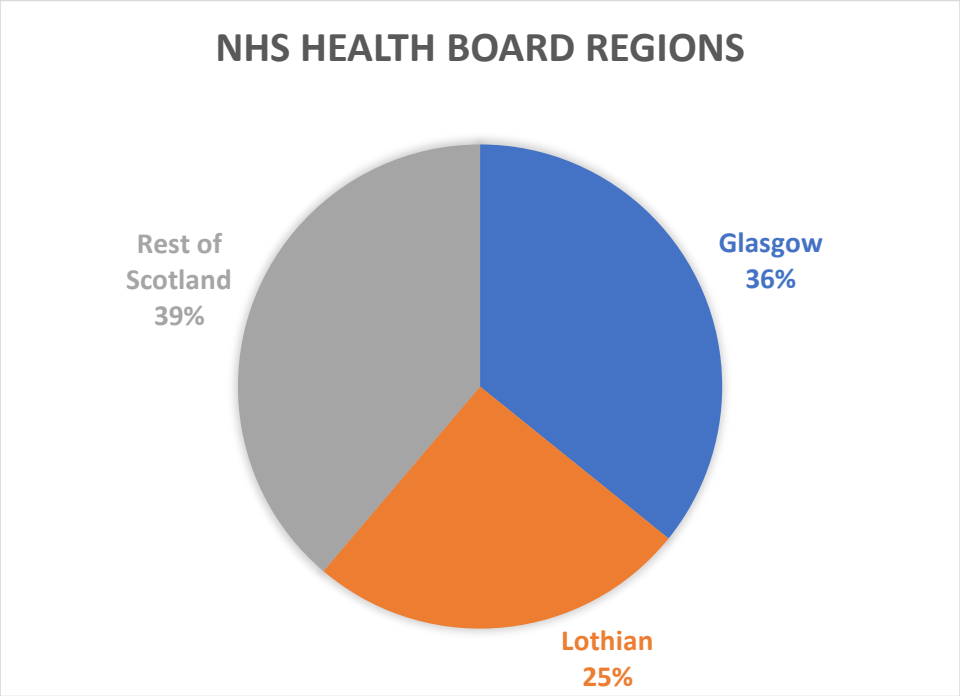

Figure 2.1. Participants recruitment per NHS Health Board region

The median time of HIV diagnosis for men in our study was 10 years (Median=10, IQR [5-18.5]), meaning that half of the men in this survey had been diagnosed with HIV more than 10 years ago.

2.3 Recruitment Via Sociosexual and Social Media Networks

Figure 2.2 outlines the pattern of recruitment via the various sociosexual and social media. The most prevalent group of responders were those using Scruff (25.4%, n=17/67), followed by Squirt (20.9%, n=14/67), Recon (16.4%, n=11/67), and Facebook (10.4%, n=7/67). Proportionally fewer participants were recruited from Hornet (3%, n=2/67), Twitter (3%, n=2/67) and Romeo (1.5%, n=1/67).

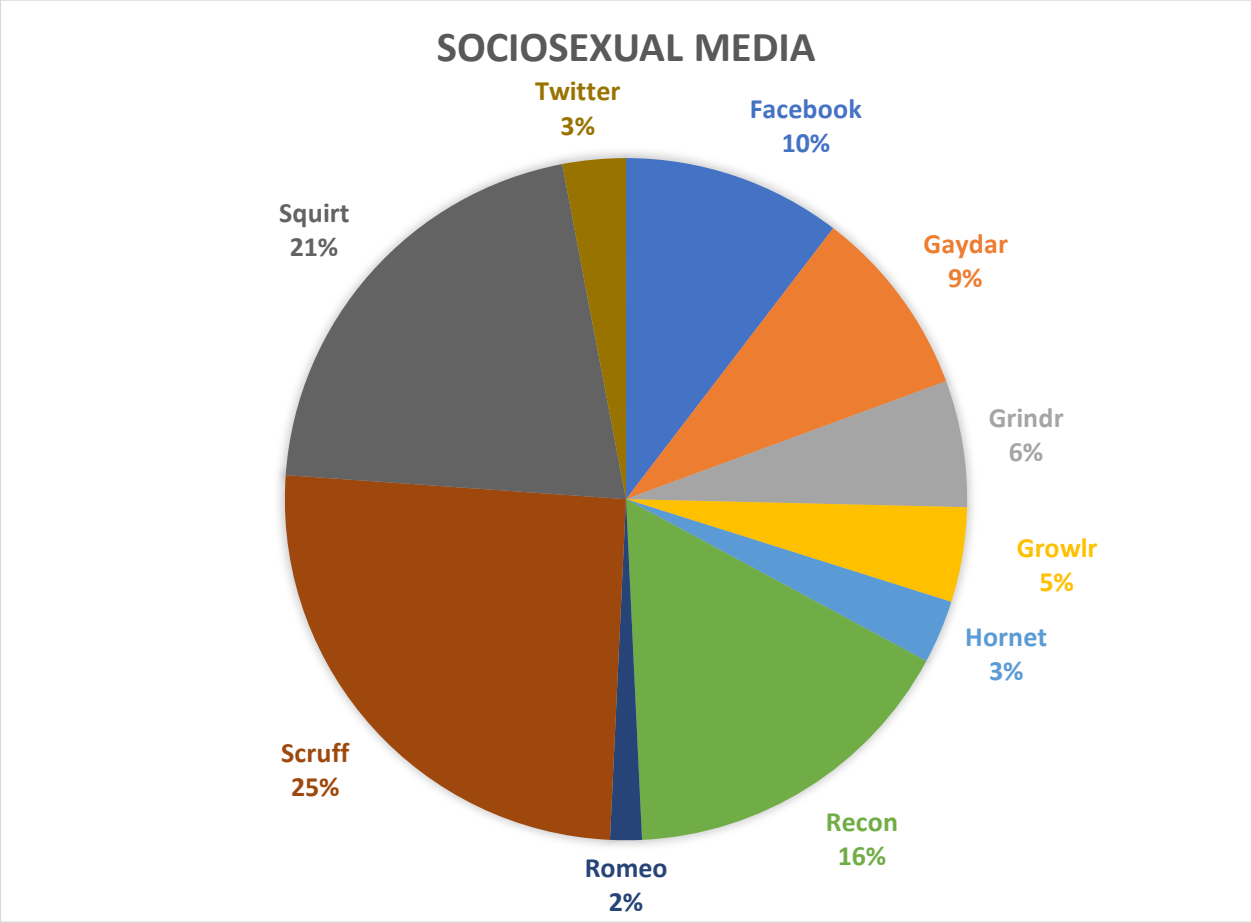

Figure 2.2. Recruitment by sociosexual and social media

2.4 Participants' Age Groupings

Participants in Scotland were asked to provide their age, which was then translated into one of four age groupings (see Table 2.1; Figure 2.3). The majority of our participants were aged 46 years or older (49.3%, n=33/67). By contrast, only 2 participants were in the youngest age group, 16-25 years, (3%,

n=2/67). Those in the 26-35 age range represented the 23.9% (n=16/67) of all HIV+ respondents. Equally, those aged 36-45 represented another 23.9% (n=16/67) of all the HIV+ men taking part in the SMMASH3 survey.

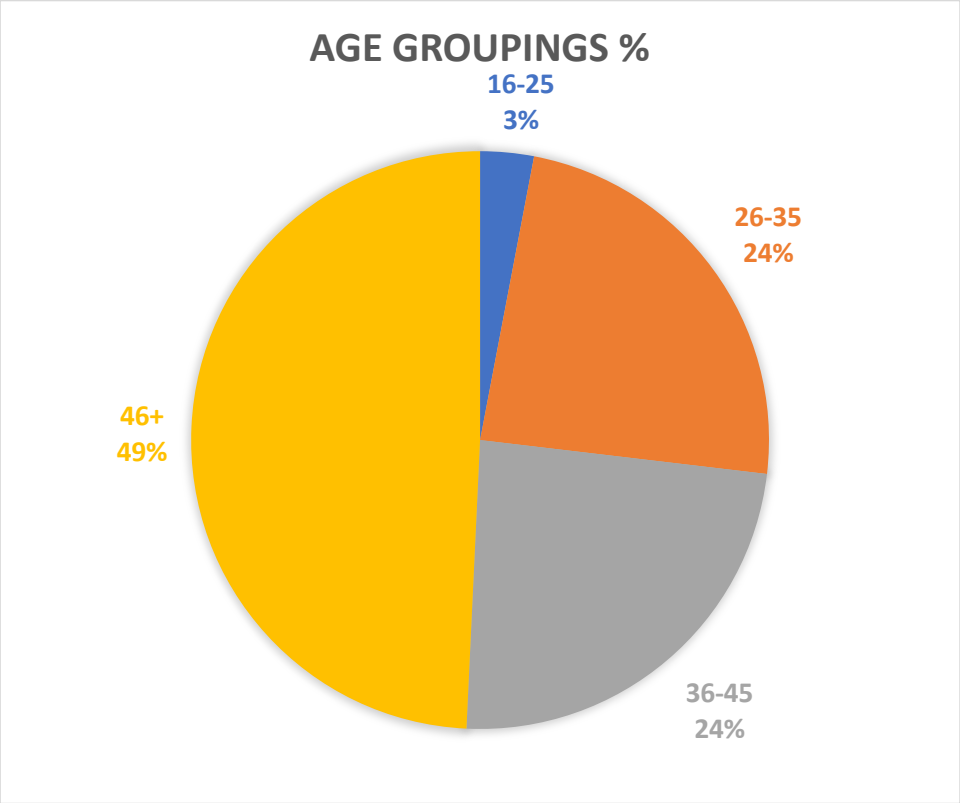

Figure 2.3. Age groupings of all HIV+ SMMASH3 participants

Table 2.1. Age Ranges: HIV+ men as Whole And By NHS Health Board Region

Age Range	Whole Sample		NHS GGC		NHS Lothian		RoS	
	n	%	n	%	n	%	n	%
16-25 years	2	3.0	1	4.2	0	0.0	1	3.8
26-35 years	16	23.9	7	29.2	2	11.8	7	26.9
36-45 years	16	23.9	6	25.0	5	29.4	5	19.2
46+	33	49.3	10	41.7	10	58.8	13	50.0
Total	**67**		**24**		**17**		**26**	

Table 2.1 offers a detailed comparison by NHS Health Boards regions, however further analysis showed there was not a significant difference in age related responses between the three NHS regions

(x^2=3.17, df=6, p=0.79). However, our group of HIV+ men (M=46.1 years, sd=12.9) were significantly older (t(1067)=3.76, p<0.001) than HIV-/untested men (M=39.7, sd=13.5) in the SMMASH3 study.

2.5 Highest Educational Qualification

Men living with HIV in our study who addressed the education question of the SMMASH3 questionnaire (n=65) were highly educated (see Figure 2.4), with half of participants holding a degree (50.8%, n=33), a further quarter (24.6%; n=16) a postgraduate qualification, 23.1% (n=15) educated up to SQA Highers level and only 1.5% (n=1) having no academic qualifications.

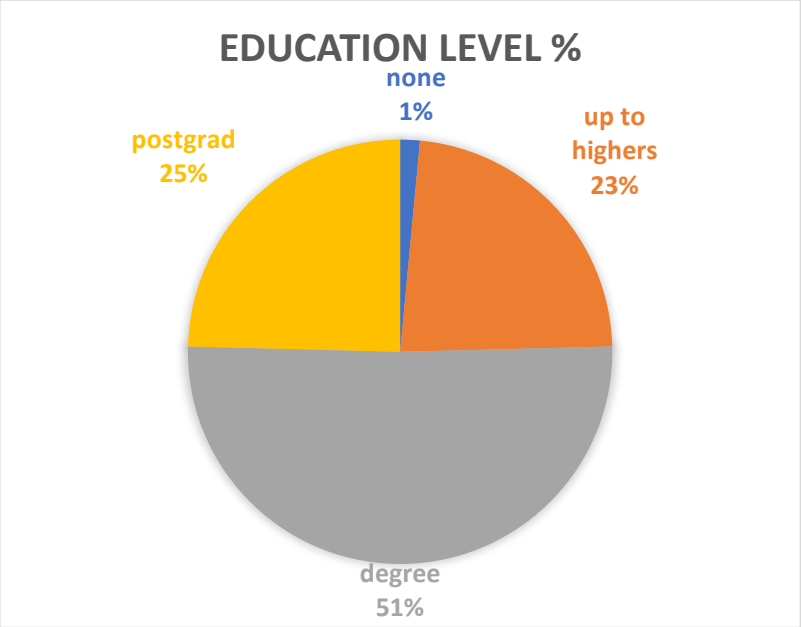

Figure 2.4. Education levels for all HIV+ SMMASH3participants

Table 2.2. Highest Educational Qualification: Whole Sample and By NHS Region

Highest Qualification	Whole Sample		NHS GGC		NHS Lothian		RoS	
	n	%	n	%	n	%	n	%
None	1	1.5	0	0.0	0	0.0	1	4.0
Up to Highers	15	23.1	5	21.7	11	17.6	7	28.0
Degree	33	50.8	9	39.1	3	64.7	13	52.0
Postgrad. Qualification	16	24.6	9	39.1	3	17.6	4	16.0
Total	**65**		**23**		**17**		**25**	

There was not a significant association between participants' educational profile and NHS health board (x^2=6.42, df=6, p=0.38) (see Table 2.2) or HIV status (x^2=3.42, df=3, p=0.33).

2.6 Ethnicity

As noted in Table 2.3, all respondents identified themselves as White; specifically, White Scottish (60.6%, n=40/65), White British (30.3%, n=20/65), White Irish (6.1%, n=4/65) and White Other (3%, n=2/65). As all HIV+ participants were white, and numbers of White Irish and White other participants were small, it was not possible to examine participants' ethnicity by either NHS region or HIV status.

Table 2.3. Ethnicity: Whole Sample and By NHS Health Board Region

Ethnicity	Whole Sample		NHS GGC		NHS Lothian		RoS	
	n	%	n	%	n	%	n	%
White Scottish	40	60.6	15	62.5	8	47.1	17	68.0
White British	20	30.3	8	33.3	7	41.2	5	20.0
White Irish	4	6.1	1	4.2	1	5.9	2	8.0
White Other	2	3.0	0	0.0	1	5.9	1	4.0
Total	**66**		**24**		**17**		**25**	

2.7 Sexual Orientation

Participants were asked to describe their sexual orientation as gay, bisexual, straight, or other. As noted below in Figure 2.5, none of our participants self-identified as straight. Most men identified themselves as gay (92.5%, n=62/67), 6% identified as bisexual (n=4/67), and only one participant identified as "other" (1.5%); as this participant further explained they self-identified as non-binary. Given that the vast majority of all men self-identified as gay, a statistical analysis by NHS region or HIV status could not be conducted; however, sexual orientation is presented by NHS region in Table 2.4.

Figure 2.5. Sexual orientation for all HIV+ SMMASH3 participants

Table 2.4. Sexual Orientation: Whole Sample and By NHS Region

Sexual Orientation	Whole Sample		NHS GGC		NHS Lothian		RoS	
	n	%	n	%	n	%	n	%
Gay	62	92.5	22	91.7	17	100	23	88.5
Bisexual	4	6.0	2	8.3	0	0.0	2	7.7
Other	1	1.5	0	0.0	0	0.0	1	3.8
Total	**67**		**24**		**17**		**26**	

2.8 Gender

Participants were asked about the gender that best described them. The vast majority identified themselves as male (96.9%, n=63/65), 1.5% (n=1/65) considered themselves as non-binary and 1.5% (n=1/65) as intersex. None identified as transwomen or female. Again, gender could not be statistically examined by NHS region or HIV status, as too few of our participants identified other than male.

2.9 Relationship Status

Participants were asked to describe their relationship status. Half of all men (49.3%, n=33/67) had a regular male partner (of whom 66.7% (n=22/33) were married to a man), 47.8% (n=32/67) were single, 1.5% (n=1/67) reported a regular female partner and another 1.5% (n=1/67) were widowed. Relationship status was not patterned by NHS region (x^2=1.76, df=2, p=0.41) (see Table 2.5). However, relationship status was patterned by HIV status (x^2=7.35, df=2, p<0.05) such that HIV+ men were more likely to report a regular male partner (50%; n=33/66)) and less likely to be single (48.5%, n=32/66) or report a regular female partner (1.5%, n=1/66) than HIV-/untested men (36.5% regular male partner (n=360/986); 54.8% single (n=540/986); 8.7% regular female partner (n=86/986)).

Table 2.5. Relationship Status: Whole Sample and By NHS Region

Relationship status	Whole Sample		NHS GGC		NHS Lothian		RoS	
	n	%	n	%	n	%	n	%
Single	33	50.0	9	39.1	9	52.9	15	57.7
Regular partner (male/female)	33	50.0	14	60.9	8	47.1	11	42.3
Total	**66**		**23**		**17**		**26**	

2.10 Declared Disability

The Equality Act (2010) defines being disabled on the basis of a physical or mental impairment that has a 'substantial' and 'long-term' negative effect on someone's ability to undertake normal daily activities. Participants were asked 'Do you have any of the following conditions which have lasted, or are expected to last, more than 12 months?', and given the range of options relating to physical, mental and learning disabilities (see Table 2.6), taken from the UK census. HIV was specifically excluded from this list and participants were told we would ask about this later on in the survey. Herein, it is important to note that the term 'disability' is used to refer to the presence of any of the conditions reported in Table 2.6; we did not ask participants whether they considered themselves to be disabled, nor whether they considered this issue to be a disability.

Overall, 58 men addressed this questionnaire section. About two thirds indicated they had one or more disabilities (65.5%, n=38/58) excluding HIV whilst about a third reported no disability (34.5%, n=20/58) (see Figure 2.7). As Table 2.6 shows, the most common disability reported was a chronic illness, which affected 28.4% of the cohort, followed by those suffering from a mental health condition (17.9%). Note, although we asked men to exclude HIV when answering this question, it is possible that some men referred to their HIV as a chronic illness herein. Reporting any disability was not patterned by NHS region (x^2=0.73, df=2, p=0.69) but was significantly related to HIV status in that HIV+ men (65%, n=38/58) were more likely to report any disability (X^2=18.62, df=1, p<0.001), than HIV-/untested men (37.1%, n=358/966).

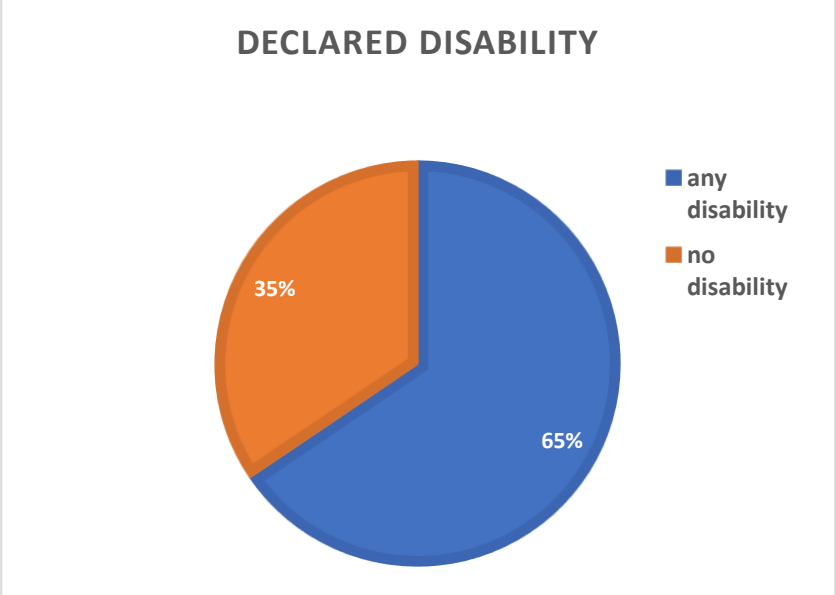

Figure 2.7. Disability as declared from all HIV+ SMMASH3 participants

Table 2.6. Declared Disability: Whole Sample

Declared Disability	Whole Sample	
	n	%
Developmental disorder	3	**4.5**
Learning difficulty	3	**4.5**
Learning disability	0	**0.0**
Blindness	0	**0.0**
Deafness	5	**7.5**
Mental health condition	12	**17.9**
Physical disability	5	**7.5**
Chronic disease	19	**28.4**
Other	5	**7.5**
No Disability	20	**29.9**
Total	**58**	

2.11 Employment Status

Responders' employment status was categorised as either a student, unemployed, employed, self-employed, in receipt of disability of sickness benefits or retired (Figure 2.8). As Table 2.7 shows, most men were in current employment (self-employed/employed: 72.7%, n=48/66), which is slightly lower than the Scottish rate of 75% in 2019 (Scottish Government, 2019). 6.1% (n=4/66) were unemployed. 3% (11%, n=2/66) were students whilst another 3% (n=2/66) were on disability or sickness benefits and 15.2% (n=10/66) were retirees. Employment status was not statistically examined by NHS region or HIV status given the low numbers of men per employment status category.

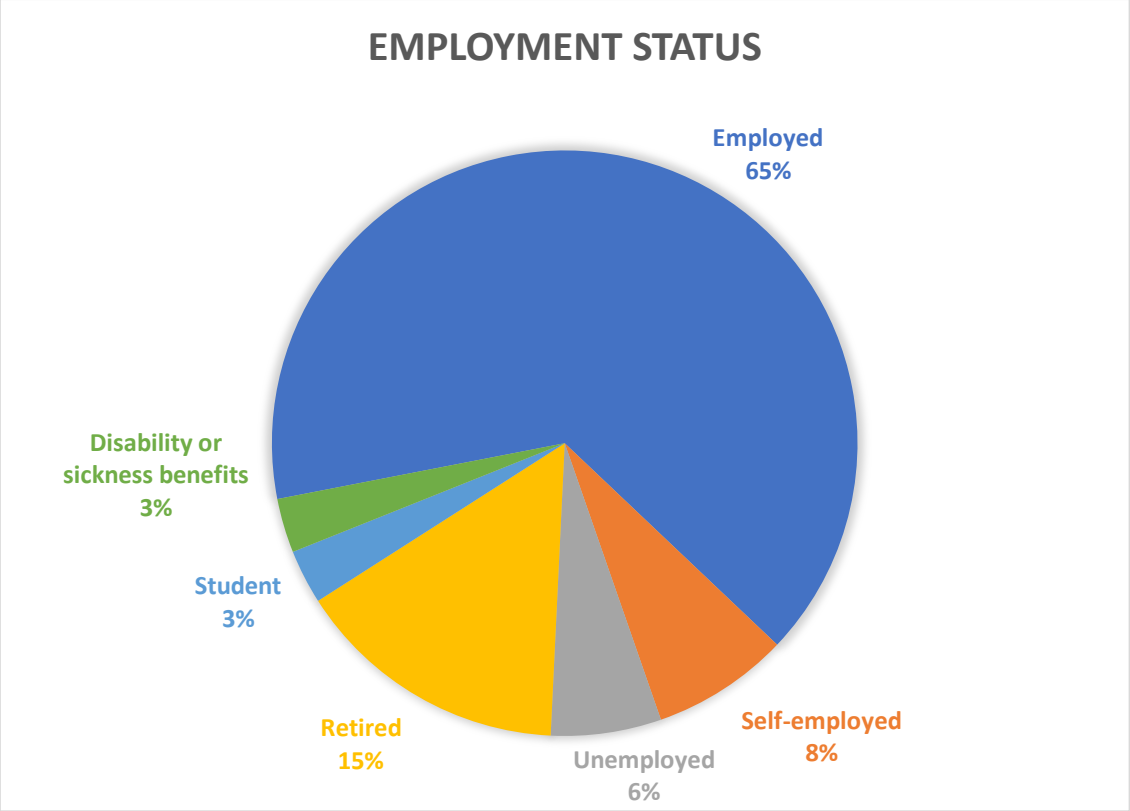

Figure 2.8. Employment status for all HIV+ SMMASH3 participants

Table 2.7. Employment: All SMMASH3 responders living with HIV

Employment Status	Whole Sample	
	n	%
Employed	43	**65.2**
Self Employed	5	**7.6**
Unemployed	4	**6.1**
Retired	10	**15.2**
Student	2	**3.0**
On benefits	2	**3.0**
Total	**66**	

2.12 Financial Worries

Participants were asked, 'Do you currently have any financial worries?', answering on a 5-point Likert scale. As Figure 2.9 illustrates, the majority of all responders (68.8%, n=44/64) said that they never or occasionally had financial worries in the past year. 31.3% (n=20/64) of all men reported that they had financial worries sometimes or all of the time in the past year. As the Chi^2 analysis showed, financial

worries were not patterned by NHS Health board (x^2=0.92 df=2, p=0.63). However, a trend towards significance (X^2=3.46, df=1, p=0.063) was found such that a *smaller* proportion of HIV+ men (31.3%, n=20/64) felt they had financial worries some or all of the time, compared to HIV-/untested men (43.1%, n=428/993). This may be mitigated by HIV+ men's older age overall which is usually linked to having fewer financial worries.

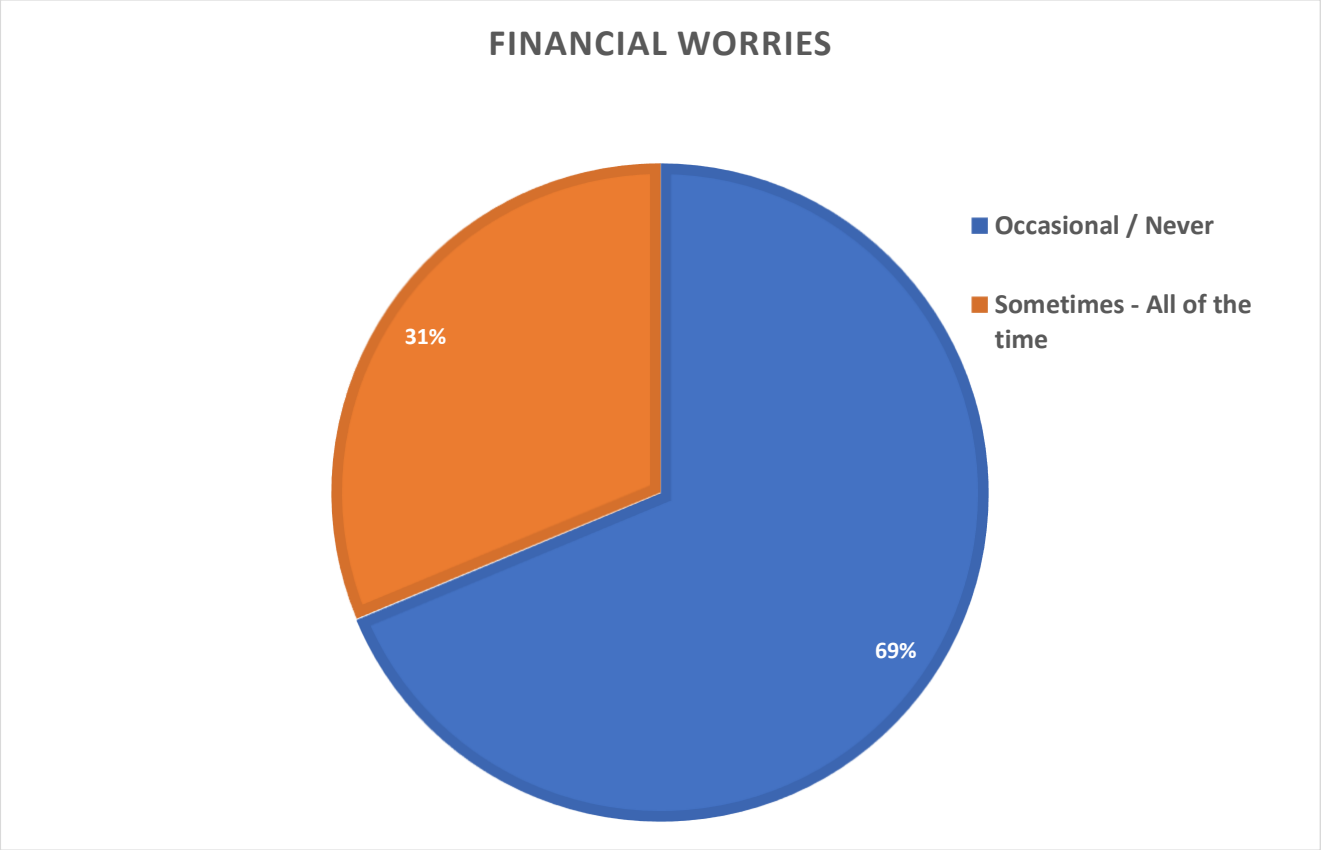

Figure 2.9. Financial worries for all HIV+ SMMASH3 participants

2.13 Gay Scene Use

Participants were asked about their use of the commercial gay scene. Half of all men who addressed this question (50.7%, n=34/67) reported that they never accessed the commercial gay scene and 35.8% (n=24/67) did so once a month or less (see Figure 2.10). 9% (n=6/67) reported around weekly use and a small proportion of the sample stated more frequent usage (4.5%, n=3/67). In concert, the vast majority of HIV+ men in this study (86.6%, n=58) use the commercial gay scene once a month or never, similar to the figure for all men in the SMMASH2 study (Frankis et al., 2018). This is important

because prior to the SMMASH studies, our population-level knowledge of the sexual health and behaviours of gay and other GBMSM in Scotland was based on the Scottish Gay Men's Sexual Health Surveys (see McDaid et al., 2012), which recruited participants exclusively on the commercial gay scene in Glasgow and Edinburgh and whose participants reported higher usage of the commercial gay scene. Therefore, the SMMASH studies provide unique information about a distinct population of HIV+ GBMSM in Scotland who do *not* use the commercial gay scene. Together the surveys provide a fuller picture of a larger and more varied population of GBMSM in Scotland.

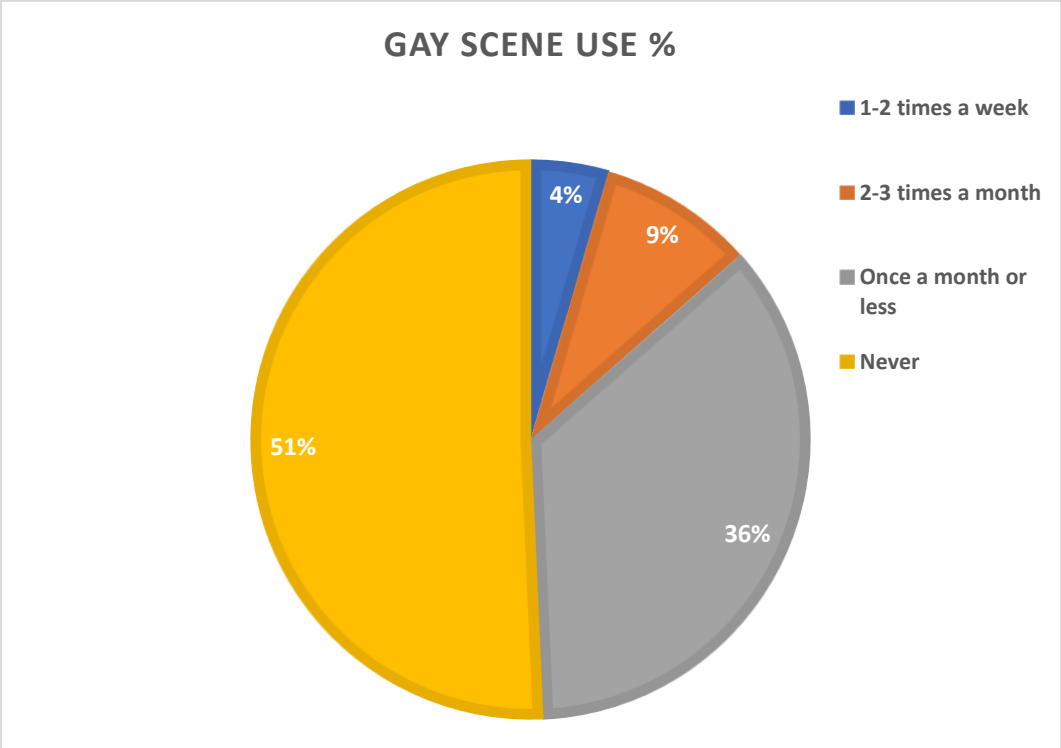

Figure 2.10. Gay scene use for all HIV+ SMMASH3 participants

One-way ANOVA suggested that frequency of use of the commercial gay scene (see Table 2.8) was significantly different by NHS region ($W=8.83$, df (2, 610), $p<0.001$). Specifically, men in NHS Lothian reported significantly more frequent use of the commercial gay scene than men in the RoS. However, in all SMMASH3 groups, the mean level of commercial gay scene use was between 'never' and 'once a month or less', demonstrating that SMMASH3 participants are primarily a non-scene-going population overall. Statistical analysis ($t(1066)=0.79$, $p=0.43$) suggests that HIV+ GBMSM ($M=4.33$) in the SMMASH3 used the commercial gay scene equally infrequently as HIV-/untested men ($M=4.23$).

Table 2.8. Gay Scene Use Frequency: Mean Scores By NHS Health Board Region

Region	N	Mean	SD[1]
NHS GGC	24	4.38	.824
NHS Lothian	17	4.29	.920
RoS	26	4.31	.788
Total	**67**	**4.33**	**.824**

[1] Standard Deviation

2.14 Outness - How 'Out' Are You?

We asked participants about how open or 'out' they were regarding their sexual attraction to men, defined as follows; 'Being 'out' means that you have told people about your sexual orientation and don't try to hide it.' Participants responded on scale of 1-5, where 1 = *'out to everyone'* and 5 = *'not out to anyone'*. Overall, as shown in Figure 2.11, most men were out to everyone (score = 1; 72.7%, n=48/66) or almost everyone (score = 2; 13.6%, n=9/66) and notably fewer were out to some (score = 3; 4.5%, n=3/66), a few people (score = 4; 3%, n=2/66) or no-one (score = 5; 6.1%, n=4/66).

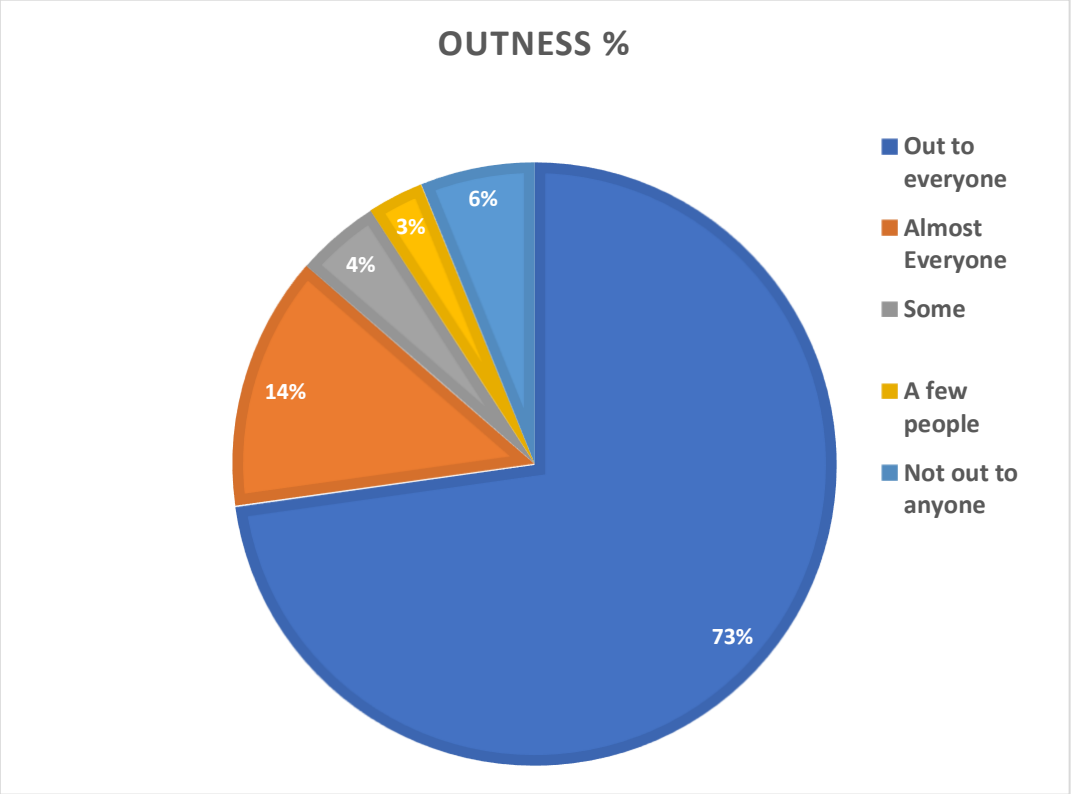

Figure 2.11. Level of outness for SMMASH3 participants

Mean levels of 'outness' (see Table 2.9) were not significantly different (W=0.37, df(2,36.9), p=0.69) between the three NHS regions (see Table 2.9). However, analysis suggested that HIV+ GBMSM

(M=1.56, sd=1.13) were significantly more likely to be out (t(78.5)=3.98, p=0.001) than HIV-/untested men (M=2.14, df=1.37).

Table 2.9. "Being out": Mean Scores By NHS Health Board Region

Region	N	Mean	SD[1]
NHS GGC	23	1.43	0.95
NHS Lothian	17	1.76	1.35
RoS	26	1.54	1.14
Total	**66**	**1.56**	**1.13**

[1] Standard Deviation

2.15 Summary

- Overall, 67 GBMSM living with HIV in Scotland participated in the SMMASH3 survey, recruited across social media and gay sociosexual media websites and apps, distributed across NHS Lothian, NHS GGC, and the RoS. HIV+ men represented 6.3% of the total SMMASH3 study sample, alongside 77.7% whose last HIV last test was negative and 16% who had never had a named HIV test.
- Most of these HIV+ men were recruited from Scruff, followed by Squirt, Recon, and Facebook.
- Half of all HIV+ men (50%) were aged 46 years or older whilst those in the youngest age group, 16-25 years, represented the lowest number of responders (3%). Those aged 26-35 years and those aged 36-45 years represented the 24% of all HIV+ respondents, respectively. HIV+ men were significantly older than HIV-/untested men in SMMASH3.
- Participants were highly educated with 75% possessing a university degree level qualification (undergraduate/postgraduate) and only 1.5% indicating they did not possess any academic qualifications.
- Most participants across the three NHS regions identified themselves as White Scottish (61%) and the remaining identified either as White British (30 %), White Irish (6%) or White Other (3%).

- Most participants identified themselves as gay (92.5%), 6% identified as bisexual, and only one participant identified as “other” (1.5%).
- The vast majority identified themselves as male (97%) while 1.5% considered themselves as non-binary and another 1.5% as intersex.
- Half of all men (49%) were single, almost half had a regular male partner (48%), and 1.5% reported a regular female partner. HIV+ men were more likely to report a regular male partner and less likely to be single or report a regular female partner than HIV-/untested men.
- About 6 in 10 (66%) men in Scotland reported a disability whilst 34% said that they did not suffer from any condition. HIV+ men (65%) were significantly more likely to report a disability other than HIV, compared to HIV-/untested men (37.1%).
- The vast majority of the sample were in current employment (73%); only 6% were unemployed, 3% were students whilst another 15% were retirees.
- Most HIV+ men (69%) said that they never or occasionally had financial worries in the past year but almost one third (31%) said they had financial worries sometimes or all of the time in the past year. Analysis tentatively suggested that HIV+ men (31%) may be *less* likely to report financial worries sometimes or all of the time compared to HIV-/untested men (43.1%). This may be due to HIV+ men’s older age, which is usually linked to greater financial security.
- Most men in this study (87%) used the commercial gay scene once a month or never.
- 9 in 10 men in all three NHS regions were ‘out’ about their sexual orientation to most others (87%) whilst about 1 in 10 men (13%) were out to few people or no-one. HIV+ men were significantly more likely to be ‘out’ compared to HIV-/untested men.

Chapter 3 – Sexual Behaviours

3.1 Introduction

This chapter describes the sexual behaviours of GBMSM living with HIV in the SMMASH3 study. A total of 67 men completed the SMMASH3 questionnaire section which examined men's sexual behaviours. We present the basic descriptive statistics for each of these variables and, where possible, we use inferential statistics to determine if significant differences were observed for each of the following variables;

1. Across the 3 NHS regions of NHS Greater Glasgow and Clyde (GGC), NHS Lothian, and the Rest of Scotland (RoS).
2. By age category, grouped as aged 16-25 years, 26-35 years, 36-45 years, and 46 years and over.
3. By relationship status, either single or in a relationship with a male/female partner.
4. By financial status, reporting financial worries either 'occasionally/never' or 'sometimes/all of the time' in the past year.
5. By HIV status, comparing HIV+ with HIV-/untested GBMSM in the SMMASH3 sample.

3.2 Number of Regular Male Sex Partners

SMMASH3 responders were asked to report the number of regular male partners with whom they had i) any sexual contact, ii) anal sex and iii) anal sex without a condom (henceforth defined as *condomless anal intercourse* or CAI) in the last 12 months. On average, participants reported multiple regular male sexual partners (M=4), multiple regular male anal sex partners (M=3.6), and multiple regular male CAI partners (M=3.3) in the last 12 months (see Table 3.1).

Table 3.1 Number Of Regular Male Sex Partners In The Last 12 Months: Whole Sample And By NHS Region

	Total		GGC		Lothian		RoS	
	N	Mean (SD)	N	Mean (SD)	N	Mean (SD)	N	Mean (SD)
Any sexual contact	67	4 (8.3)	24	3.0 (3.9)	17	5.12 (11.7)	26	4.1 (8.8)
Anal sex	67	3.6 (8.4)	24	2.6 (3.9)	17	4.8 (11.9)	26	3.7 (8.8)
CAI	67	3.3 (7.6)	24	2.5 (3.7)	17	4.5 (11.9)	26	3.1 (6.9)

3.2.1 Number of Regular Male Sex Partners: by NHS Region

Number of regular male sex partners by NHS region is shown in Table 3.1. One-way ANOVA suggested that there were no significant differences across the 3 NHS Health Board regions in the number of regular male sex partners (W=0.40, df(2,31.4), p=0.67), regular male anal sex partners (W=0.41, df(2,31.1), p=0.67) or regular male CAI partners (W=0.25, df(2,31.9), p=0.78) reported in the last 12 months.

3.2.2 Number of Regular Male Sex Partners: by Other Demographics

One-way ANOVA and independent Samples T-tests suggested that there were no significant differences by age, relationship status, financial worries or HIV status in the number of regular male sex partners, regular male anal sex partners and regular male CAI partners reported in the last 12 months.

3.3 Number of Casual Male Sex Partners

Men were asked to report the number of casual male partners with whom they had i) any sexual contact, ii) anal sex and iii) CAI in the last 12 months. On average, participants reported multiple casual male sexual partners (M=23.5), multiple casual male anal sex partners (M=19.3) and multiple casual male CAI partners (M=17.7) in the last 12 months (see Table 3.2).

Table 3.2. Number Of Casual Male Sex Partners In The Last 12 Months: Whole Sample And By NHS Region

	Total		GGC		Lothian		RoS	
	n	Mean (SD)	N	Mean (SD)	N	Mean (SD)	n	Mean (SD)
Any sexual contact	65	23.5 (53.7)	23	18.9 (31)	17	25.4 (51.4)	25	26.4 (7.90)
Anal sex	65	19.3 (51.0)	23	14.1 (21.4)	17	22.1 (48.8)	25	22.1 (69.4)
CAI	65	17.7 (50.5)	23	13.2 (19.4)	17	20.2 (49.1)	25	20.2 (69.5)

3.3.1 Number of Casual Male Sex Partners: by NHS Region

Number of casual sex partners by NHS region is shown in Table 3.2. One-way ANOVA suggested that there were no significant differences across the 3 NHS Health Board regions in the number of casual

male sex partners (W=0.18, df(2,34.4), p=0.83), casual male anal sex partners (W=0.30, df(2,30.9), p=0.74) and casual male CAI partners (W=0.25, df(2,30.2), p=0.78) reported in the last 12 months.

3.3.2 Number of Casual Male Sex Partners: by HIV Status

Statistical analysis suggested that HIV+ men reported more casual male sex partners (t(64.9)=-1.94, p=0.057 *trend towards significance*; M=23.5, sd=53.7), casual male anal sex partners (t(64.6)=2.06, p<0.05, M=19.3, sd=51.0) and casual male CAI sex partners (t(64.4)=2.23, p<0.05, M=17.7, sd=50.6) than HIV-/untested men (M=10.5, sd=18.5; M=6.2, sd=13.8; M=3.7, sd=11.0) in the last year, respectively. While these figures suggest that HIV+ men may be at greater risk of infection with STIs other than HIV, section 3.4 below clarifies why these behavioural differences do not represent an HIV transmission risk.

3.3.3 Number of Casual Male Sex Partners: by Other Demographics

One-way ANOVA and independent Samples T-tests suggested that there were no significant differences by age, relationship status, or financial worries in the number of casual male sex partners, casual anal sex partners, and casual CAI partners reported in the last 12 months.

3.4. Sexual behaviour, Viral Load and HIV transmission.

On average, our sample of HIV+ men reported multiple CAI sex partners in the last year and significantly more than HIV-/untested GBNSM. However, *treatment as prevention* clarifies that HIV+ people with an undetectable viral load cannot pass on HIV to other people. In this study, almost all men reported being on HIV medication (98.5%; 66/67); 65 out of all 67 men living with HIV (97%) said that they had an undetectable viral load whilst two men had a detectable viral load (3%). In addition, all 67 men knew that "U=U", meaning that they knew that HIV is not transmitted when the viral load is undetectable. This means that, in our sample, sexual HIV transmission was extremely unlikely; only 2 men (3%) could potentially transmit HIV to their sex partners, and only one of these men reported any casual male CAI partners in the last year.

3.5 Fisting and Group sex

Men were asked about their experiences of fisting and group sex, and how recently these had occurred. Whilst only 35.8% (n=24/67) of participants had engaged in fisting, 9% (n=6/67) had done so in the past year. Group sex was far more common, with 8 in 10 men (82.1%, n=55/67) reporting lifetime group sex, whilst more than a third (37.3%, n=25/67) reported group sex in the last 12 months.

3.5.1 Fisting And Group Sex: By Key Sociodemographic Variables

None of the five sociodemographic variables (age, relationship status, NHS region, financial worries, HIV status) were significantly related to reporting either fisting or group sex in the last 12 months.

3.6 Sex with Women

Participants in this study were asked when they had last had sex with a woman (see Table 3.3). 64.2% (n=43/67) had never had sex with a woman, whilst 23.9% (n=16/67) had done so more than five years ago. Only 4 men (6%) had sex with women in the last year. Given the low number of men having sex with women in the last year, no further analysis was conducted in relation to the key sociodemographic variables.

Table 3.3. When Did You Last Have Any Kind Of Sex With A Woman?

	n	%
Never	43	**64.2**
Within the last 6 months	1	**1.5**
Within the last 12 months	3	**4.5**
Within the last 5 years	4	**6.0**
More than 5 years ago	16	**23.9**
Total	**67**	

3.7 Selling Or Exchanging Sex

Men were asked three questions about their experiences of selling or exchanging sex and how recently these had occurred. The vast majority of men said that they never received money for sex or last did so more than a year ago (97%). Likewise, 7.5% said that they had sex to have a place to sleep and 4.5% reported having had sex in exchange for something else, such as cigarettes, drugs, or food in the last

year (see Table 3.4). Given the low number of men selling or exchanging sex in the last year, further analyses in relation to our key sociodemographic variables were not performed.

Table 3.4. Experiences Of Sex Work: By Type Of Sexual Exchange

	Total	Never/more than 1 year ago		Yes, in the last year	
	n	n	%	n	%
Received money for sex	67	65	97	2	3.0
Had sex to make sure had a place to sleep	67	62	92.5	5	7.5
Sex in exchange for cigarettes, drugs, food, etc.	67	64	95.5	3	4.5

3.8 Summary

- Overall, GBMSM living with HIV in Scotland reported a high number of regular and casual sex partners in the last 12 months.
- The number of regular and casual sex partners did not differ by the three NHS regions or by any other key sociodemographic variable, however, HIV+ men reported significantly more casual male sex partners, casual male anal sex partners and casual male CAI partners than HIV-/untested men.
- Most men (98.5%) reported being on HIV medication and that they had an undetectable viral load (97%) whilst only two men (3%) said that they had a detectable viral load.
- All men were aware of "U=U", meaning that all SMMASH3 participants knew that HIV is not transmitted when the viral load is undetectable.
- While HIV+ men's sexual behaviours represents increased risk of STI infection, given the efficacy of *treatment as prevention,* as most men had an undetectable viral load, only 3% of HIV+ men in our sample could potentially transmit HIV to their sex partners.
- Almost a third had engaged in fisting, with 9% had done so in the past year. 8 in 10 men reported lifetime group sex, with almost a third reporting group sex in the last 12 months.
- Most men (92%) had never had sex or had sex with a woman more than five years ago whilst only 6% had sex with women in the last year.

- Around 3-8% of men reported sexual exchange for money, a place to sleep or goods in the last 12 months.

Chapter 4 - Sexually Transmitted Infection Testing Behaviours

4.1 Introduction

This chapter describes the sexually transmitted infection (STI) testing behaviours and diagnoses among HIV+ men participating in the SMMASH3 survey. We present the basic descriptive statistics for STI testing variables and where possible we use inferential statistics to determine if significant differences were observed for each of the following variables;

1. Across the 3 NHS regions of NHS Greater Glasgow and Clyde (GGC), NHS Lothian and the Rest of Scotland (RoS).
2. By age category, grouped as aged 16-25 years, 26-35 years, 36-45 years and 46 years and over.
3. By relationship status, either single or in a relationship with a regular male or female partner.
4. By financial status, reporting financial worries either 'occasionally/never' or 'sometimes/all of the time' in the past year.
5. By HIV status, comparing HIV+ with HIV-/untested GBMSM in the SMMASH3 sample.

4.2 When Was Your Most Recent STI Test?

In this sample (see Table 4.1), only one in 67 (1.5%) participants had never had an STI test, whilst an additional 17.9% had most recently tested either over 5 years ago (7.5%, n=5) or between 1 and 5 years ago (10.4%, n=7). This means that 80.6% (n=54) had an STI test within the previous year. Next, we investigate whether STI testing in the last year was related to any of our key sociodemographic variables.

Table 4.1. When Was Your Most Recent STI Test?

	n	%
In the last 3 months	30	**44.8**
Between 3 and 6 months	15	**22.4**
Between 6 months and 1 year ago	9	**13.4**
Between 1 and 5 years ago	7	**10.4**
Over 5 years ago	5	**7.5**
Never	1	**1.5**
Total	**67**	

4.2.1 STI Testing In The Last Year: By NHS Region, Age, Financial worries & Relationship Status

Chi^2 analysis suggested that there were no significant differences in the proportion of participants who reported an STI test in the last year across the 3 NHS regions (x^2= 1.82, df=2, p=0.40) or according to age (x^2= 0.56, df=3, p=0.90), financial worries (x^2= 0.30, df=1, p=0.86), or relationship status (x^2= 2.39, df=1, p=0.12).

4.2.2 STI Testing In The Last Year: By HIV status

Chi^2 analysis (x^2=22.31, df=1, p<0.001) suggested that HIV+ men (80.6%, n=54/67) were significantly more likely to report an STI test in the last year compared to HIV-/untested men (50.8%, n=483/951).

4.3 Result Of Your Last STI Test: Men Who Tested In The Last Year

We asked those men who had an STI test in the last year and answered this question (n=53) whether they had been diagnosed with an STI in the last year. One third of those men (32.1%, n=17) said they had received a positive diagnosis in the last year, whilst the remainder (67.9%, n=36) had not. Eight in ten men who received a positive STI diagnosis (82.4%, n=14/17) in the last year, were diagnosed with chlamydia, LGV, or gonorrhea, 76.5% (n=13/17) reported that they had been diagnosed with rectal chlamydia, LGV, or gonorrhea, and 5.3% (n=1/17) were unsure as to whether these STIs were rectal. The remainder 17.6% (n=3/17) had not been diagnosed with rectal chlamydia, LGV or gonorrhea in the last year.

Next, for those men who reported an STI test in the last year and addressed this section of the questionnaire (n=53), we investigate whether receiving a positive result was related to any of our key sociodemographic variables.

5.3.1 Result Of Your Last STI Test: By NHS Region, Age, Financial Worries, Relationship and HIV Status

Chi^2 analysis suggested that there were no significant differences in the proportion of participants who reported a positive STI test in the last year across the three NHS regions (x^2= 0.82, df=2, p=0.66), or by age (x^2= 3.60, df=3, p=0.31), relationship status (x^2= 0.54, df=1, p=0.82) or HIV status (x^2=0.92, df=1, p=0.336).

However, there was a trend towards significance for the association between STI diagnosis in the last year and financial worries (x^2= 3.75, df=1, p=0.053); a higher proportion of men with financial worries had been diagnosed with STI in the last year (50%) compared to men with no financial worries (22.9%) (see Table 4.2).

Table 4.2. Result Of Your Last STI Test: By Financial Worries

		Positive STI Diagnosis in the last year		No STI Diagnosis in the last year	
Financial Worries	**Total**	**n**	**%**	**n**	**%**
Occasionally/Never	35	8	22.9	27	77.1
Sometimes/all of the time	16	8	50.0	8	50.0
Total	**51**	**16**	**31.4**	**35**	**68.6**

4.4 Regularity of STI Testing

We examined STI testing regularity by asking men "How regularly do you test for sexually transmitted infections (other than HIV)"; men who answered that had ever taken an STI test (n=66) could select from options 1- 8 listed in Table 4.3.

As Table 4.3 illustrates, the most popular option selected by most men was getting an STI test every 6 months (51.5%) followed by every 3 months (25.8%) and annually (12.1%). Some men also said that they get tested when they experience symptoms (7.6%). Only one participant said that he is tested for STIs after risky sex (1.5%), one said he tested every few years (1.5%) and one other every six weeks (1.5%). In concert, most of our survey participants follow a regular, at least annual, STI testing pattern.

Table 4.3. Regularity of STI testing

	n	%
Every 3 months	17	**25.8**
Every 6 months	34	**51.5**
Annually	8	**12.1**
Every few years	1	**1.5**
After risky sex	1	**1.5**
When I have symptoms	5	**7.6**
I have only tested once	0	**0**
I do not think there's a pattern in my HIV testing	0	**0**
(Other) Every 6 weeks	1	**1.5**
Total	**66**	

4.5 Where Did These Men Test In The Last Year?

We asked those men who reported an STI test in the last year (n=54) to tell us where they had been tested, giving them a choice of 15 options (see Table 4.4). Men were asked to tick all options that applied. The most frequently stated testing location was an HIV clinic (48.1%) followed by Chalmers Sexual Health Clinic (18.5%), and sexual health clinics/GUM which are not gay specific (13%). Steve Retson project (11.1%) and a hospital (11.1%) were also popular options among some men. A few men reported being tested at GP Surgeries (5.6%), at THT (3.7%) or at other sexual health clinics for gay men (3.7%). Three men selected the "other" option (3.7%), and reported being tested at the Aberdeen health village, Borders, or the Florey.

Table 4.4. Where Did You Test For HIV And/Or Other STIs In The Last Year?

	n	%
Chalmers Sexual Health Clinic (Edinburgh)	10	**18.5**
Sexual health/GUM clinic (not gay specific)	7	**13.0**
Steve Retson Project (Glasgow)	6	**11.1**
At a hospital (not GUM or sexual health clinic)	6	**11.1**
GP Practice/Surgery	3	**5.6**
Another sexual health clinic for gay men	2	**3.7**
Terrence Higgins Trust Fast Test	2	**3.7**
An HIV Clinic	26	**48.1**
I used a home testing kit	0	**0.0**
A gay sauna	0	**0.0**
Another outreach or community clinic	0	**0.0**
A gay bar	0	**0.0**
Waverley Care	0	**0.0**
ROAM m-test (Edinburgh)	0	**0.0**
Other (Aberdeen health village; Borders; the Florey)	3	**5.6**
Total	**54**	

4.6 HPV Knowledge and HPV Vaccine Uptake

The SMMASH3 project for the first time examined GBMSM's knowledge around Human Papillomavirus (HPV) infection alongside the proportion of the eligible men that have been vaccinated against HPV. Among all the 67 HIV+ SMMASH3 respondents, 35 men (52%) were eligible for the HPV vaccine through the NHS services (defined herein as aged up to 45 years in 2018, when the free HPV vaccine was introduced in Scotland). About nine in ten eligible men (87.9%, n=29/33) said that they had received the HPV vaccine. Given the small number of participants addressing the HPV question, further analyses to examine HPV vaccine uptake by the key variables were not possible.

Regarding eligible men's knowledge towards HPV infection almost all men 96.9% (n=31/32) knew that HPV infection is linked to an increased risk for genital warts and several types of cancer; all men 100% (n=32/32) were aware of the existence of the HPV vaccine; and 96.9% (n=31/32) of all eligible GBMSM knew that the vaccine was available to all GBMSM aged <= 45 years in Scotland for free.

4.7 Summary

- Only one (1.5%) HIV+ SMMASH3 participant said he had never had an STI test. 8 in 10 men living with HIV had an STI test within the previous year. HIV+ men were significantly more likely to report an STI test in the last year compared to HIV-/untested men.
- One third of the men (32%) who tested for STI in the last year said they had received a positive diagnosis in the last year. A trend towards significance suggested that men with financial worries were more likely to have been diagnosed with an STI in the last year. Over 8 in 10 HIV+ men who received a positive STI diagnosis in the last year, were diagnosed with chlamydia, LGV, or gonorrhoea, and 77% had been diagnosed with rectal chlamydia, LGV, or gonorrhea.
- With regards to STI testing regularity, most men said that they regularly take an STI test every 6 months (52%), every 3 months (26%) and/or annually (12%).
- The main locations of testing were HIV clinics (48%) followed by the gay specific sexual health services (30%), and other sexual health clinics/GUM (13%).
- The vast majority of the men who were eligible (88%) for the HPV vaccine had received it at some point in their lives.
- Regarding eligible men's knowledge towards HPV infection, almost all men (97%) knew that the HPV infection is linked to an increased risk for genital warts and several types of cancer. All eligible men were aware of the existence of the HPV vaccine. Similarly, 97% of all eligible GBMSM knew that the vaccine was available to all GBMSM aged <= 45 years in Scotland for free.

Chapter 5 - Sexual Function

5.1 Introduction

This chapter describes the sexual function of SMMASH3 participants living with HIV in Scotland (n=63). To assess these issues, components from the *Sexual Function Clinical Use* scale was employed, which was originally developed as part of the 'National Survey of Sexual Attitudes and Lifestyles' study (NATSAL; Mitchell et al, 2013). We present the basic descriptive statistics (frequency and percentages) for sexual function clinical use scale and, where possible, we use inferential statistics to determine if significant differences were observed for each of the following variables;

1. Across the 3 NHS regions of NHS Greater Glasgow and Clyde (GGC), NHS Lothian and the Rest of Scotland (RoS).
2. By age category, grouped as aged 16-25 years, 26-35 years, 36-45 years, and 46 years and over.
3. By relationship status, either single or in a relationship with a regular male or female partner.
4. By financial status, reporting financial worries either 'occasionally/never' or 'sometimes/all of the time' in the past year.
5. By HIV status, comparing HIV+ with HIV-/untested GBMSM in the SMMASH3 sample.

5.2 Sexual Function

A total of 8 items from the NATSAL *Sexual Function* scale (see Mitchell et al., 2013) were developed to be more appropriate to GBMSM participants (see Table 5.1). Key changes were made to item #4 (adding the word 'unwanted' to acknowledge that certain types of pain may be desirable during sex, e.g. BDSM etc.), items #6 and #7 (including the word 'cum' as a more familiar and contemporary term to express reaching orgasm amongst GBMSM) and an additional response category was added ('Yes, but this was not a problem for me') as suggested by the NATSAL author Dr C Mercer, following the team's research experience using the original scale.

Table 5.1. Response To Sexual Function Scale Items

In the last year, have you experienced any of the following things?	Always		Very Often		Sometimes		Not Very Often		Never		Yes, but this was not a problem for me		Total
	n	%	n	%	n	%	n	%	n	%	n	%	N
1. Lacked interest in having sex	6	**9.5**	11	**17.5**	29	**46.0**	9	**14.3**	6	**9.5**	2	**3.2**	63
2. Lacked enjoyment in sex	3	**4.8**	8	**12.7**	30	**47.6**	11	**17.5**	10	**15.9**	1	**1.6**	63
3. Felt anxious during sex	5	**8.2**	4	**6.6**	17	**27.9**	12	**19.7**	22	**36.1**	1	**1.6**	61
4. Felt unwanted physical pain as a result of sex	2	**3.2**	1	**1.6**	7	**11.3**	18	**29**	31	**50.0**	3	**4.8**	62
5. Felt no excitement or arousal during sex	4	**6.3**	5	**7.9**	23	**36.5**	12	**19**	18	**28.6**	1	**1.6**	63
6. Did not 'cum' (experience an orgasm or climax) during sex, or too a long time to 'cum' despite feeling excited/aroused	4	**6.3**	15	**23.8**	17	**27.0**	11	**17.5**	12	**19.0**	4	**6.3**	63
7. 'Cum' (had an orgasm or climax) more quickly than you would like	5	**7.9**	6	**9.5**	11	**17.5**	25	**39.7**	15	**23.8**	1	**1.6**	63
8. Had trouble getting or keeping an erection	5	**7.9**	13	**20.6**	27	**42.9**	8	**12.7**	9	**14.3**	1	**1.6**	63

While few men (between 3.8%-9.5% per item) reported that they 'always' experienced each of the scale items, respectively, the proportion reporting they 'always', 'very often' or 'sometimes' experienced certain problems suggested that most sexual health problems impacted a large minority of men. For example, 27% said they always or very often lacked interest in sex and most (73%) did at least sometimes. Similarly, 17.5% always or very often lacked enjoyment in sex and 65.1% did at least sometimes. Almost one third (30.1%) always or very often experienced problems relating to orgasm, and over half (57%) did so sometimes. In addition, 28.5% always or very often experienced erectile problems, with 71.4% said they had this problem at least sometimes. Indeed, the proportion of responses across the 6 possible answers was remarkably similar for the remaining items, except for #4 item where markedly fewer men reported unwanted physical pain during sex to be a problem than the remaining answers. In concert, we see that a large proportion of HIV+ men experienced these sexual health problems at least some of the time in the last year.

5.3 Any Sexual Function Problem?

In order to understand the overall proportion of men who reported each sexual function issue, we reanalysed these data to define whether men reported each issue as a problem (reported Always, Very Often or Sometimes) or not (reported Not every often, Never or Yes, but this was not a problem for me). These figures are shown in Table 5.2.

Overall, as we see in Table 5.2, most of these issues were experienced by at least half of all the participants of this study. Whilst 'unwanted physical pain' was experienced by the smallest proportion of men (16.1%) at least sometimes, most of the participants said they 'lacked interest in having sex' (73%) and faced erectile difficulties (71.4%) at least some of the time. About 6 in 10 men experienced lack of orgasm during sex/taking too long to orgasm (57.1%). Similarly, lack of enjoyment in sex (65.1%) and lack of excitement or arousal during sex (50.8%) were experienced by a large proportion of our sample. Of note, more than one third of the SMMASH3 respondents said they 'had an orgasm more quickly than they would like' (34.9%) at least sometimes. In concert, these findings show that a large proportion of GBMSM experience various sexual function problems at least some of the time. These findings should be further investigated within a qualitative study. Herein, we further examine whether these sexual function problems are related to other demographic issues (see sub-section 5.4).

Table 5.2. Proportion Of GBMSM Reporting Each Sexual Function Problem

In the last year, have you experienced any of the following things?	No		Yes		Total
	n	%	n	%	
1. Lacked interest in having sex	17	**27.0**	46	**73.0**	63
2. Lacked enjoyment in sex	22	**34.9**	41	**65.1**	63
3. Felt anxious during sex	35	**57.4**	26	**42.6**	61
4. Felt unwanted physical pain as a result of sex	52	**83.9**	10	**16.1**	62
5. Felt no excitement or arousal during sex	31	**49.2**	32	**50.8**	63
6. Did not 'cum' (experience an orgasm or climax) during sex, or too a long time to 'cum' despite feeling excited/aroused.	27	**42.9**	36	**57.1**	63
7. 'Cum' (had an orgasm or climax) more quickly than you would like	41	**65.1**	22	**34.9**	63
8. Had trouble getting or keeping an erection	18	**28.6**	45	**71.4**	63

5.4 Overall Sexual Function

In order to analyse how men's overall sexual function varied by our key sociodemographic variables, we created a new variable which summed men's responses on each of the sexual function scale variables. We refer to this herein as men's Overall Sexual Function score (OSF). Men's OSF score varied from 32, denoting no sexual function problems (i.e. answered 'never' or 'yes but it is not a problem' on all of the sexual function items) to 0, indicating high sexual function problems (i.e. answered 'Yes' to all of the sexual function items). As such, ***higher*** values on the OSF scale represented ***better*** sexual function. Overall, the mean score on OSF for all sexually active participants in this study was M=20 (SD=6.3) and scores ranged from a minimum of 0 to a maximum of 30. This equates to an average response for each question of 'sometimes'. Below we analyse OSF scores for each of our sociodemographic variables.

5.4.1 Overall Sexual Function: By NHS Region, Age, & Relationship Status

One-way ANOVA suggested that there were no significant differences in men's overall sexual function scores across the three NHS Regions (W=0.22, df (2,36.4), p=0.77), by age group (W=0.79, df (3,4.62), p=0.55) or by relationship status (W=0.72, df (1, 49.18), p=0.40).

5.4.2 Overall Sexual Function: By Financial Worries

Independent samples T-test ($t(56)=2.75$, $p<0.05$) suggested that men who reported financial worries in the last year (OSF, M=16.7) had significantly poorer overall sexual function than men who reported no financial worries in the last year (OSF, M=21.5).

5.4.3 Overall Sexual Function: By HIV Status

Independent samples T-test ($t(936)=-3.54$, $p<.001$) suggested that HIV+ men (OSF, M=20.0) had significantly poorer overall sexual function than HIV-/untested men (OSF, M=22.4)

5.5 Summary

- Overall, at least half of HIV+ men in this study reported at least some sexual function problems at least some of the time, in the last year. Whilst unwanted physical pain was experienced by a lower number of men (16%), most of the participants said they 'lacked interest in having sex' (73%) and faced erectile difficulties (71%) at least some of the time. About 6 in 10 men experienced lack of orgasm during sex (57%). Similarly, lack of enjoyment in sex (65%) and lack of arousal during sex (51%) were experienced by a large proportion of our sample.
- In terms of overall sexual function (OSF), clear sociodemographic differences were observed; men with financial worries had significantly poorer OSF compared to men with no financial worries, and HIV+ men had significantly poorer OSF compared to HIV-/untested GBMSM.
- In concert, a large proportion of HIV+ GBMSM experience various sexual function problems at least some of the time, especially men with financial worries, and over and above those experienced by HIV-/untested GBMSM. These findings are worthy of further attention.

Chapter 6 - Sexual Confidence

6.1 Introduction

This chapter describes the sexual confidence of GBMSM living with HIV (n=62) in the SMMASH3 study. To assess these issues, components of the *Confidence about Sex and Relationships* scale, which was originally developed as part of the 'Sex Unzipped' study (Bailey et al., 2013) were modified. We present the basic descriptive statistics (frequency and percentages) for the *Confidence about Sex and Relationships* scale and where possible we use inferential statistics to determine if significant differences were observed for each of the following variables;

1. Across the 3 NHS regions of NHS Greater Glasgow and Clyde (GGC), NHS Lothian and the Rest of Scotland (RoS).
2. By age category, grouped as aged 16-25 years, 26-35 years, 36-45 years, and 46 years and over.
3. By relationship status, either single or in a relationship with a regular male or female partner.
4. By financial status, reporting financial worries either 'occasionally/never' or 'sometimes/all of the time' in the past year.
5. By HIV status, comparing HIV+ with HIV-/untested GBMSM in the SMMASH3 sample.

6.2 Sexual Confidence

A total of 12 items were developed from the 'Sex Unzipped' *Sexual Confidence* scale to be more appropriate to GBMSM participants (see Table 6.1). As SMMASH3 targeted all GBMSM living in Scotland, regardless of their HIV status, key changes were made as follows; Items #1 and #2 were added to the scale, as GBMSM are a key risk group for HIV infection. The original item 'Could you put a condom on yourself or a partner without losing the erection?' was split into two separate questions #9 and #10. Finally, 3 items from the original scale were omitted from the SMMASH3 questionnaire as follows; 'Ask if they have ever had a sexually transmitted infection?' reflected historical behaviour and so was not relevant; 'Discuss contraception (birth control) (e.g. the pill)' was irrelevant for sex

between men and 'Discuss condom use?' was covered in other questions. Table 6.1 shows the breakdown of answers to these 12 questions for all GBMSM living with HIV in the SMMASH3 study.

Table 6.1. Response To Sexual Function Scale Items: All Sexually Active GBMSM

When communicating about sex with a partner, how easy or difficult would it be for you to…?	Very Difficult		Difficult		Easy		Very Easy		N/A		Total
	n	%	n	%	n	%	n	%	n	%	N
1. Ask about their HIV status?	5	**8.1**	11	**17.7**	26	**41.9**	13	**21.0**	7	**11.3**	62
2. Ask about their viral load?	7	**11.3**	10	**16.1**	26	**41.9**	11	**17.7**	8	**12.9**	62
3. Refuse to have sex if they won't use a condom?	1	**1.6**	7	**11.3**	14	**22.6**	10	**16.1**	30	**48.4**	62
4. Make the first move with sex?	4	**6.5**	13	**21.0**	28	**45.2**	10	**16.1**	7	**11.3**	62
5. Tell them that you like a specific sexual activity?	3	**4.9**	6	**9.8**	39	**63.9**	11	**18.0**	2	**3.3**	61
6. Tell them that you do not want to have sex?	2	**3.2**	7	**11.3**	36	**58.1**	12	**19.4**	5	**8.1**	62
7. Tell them if a certain sexual activity makes you uncomfortable?	0	**0.0**	5	**8.2**	37	**60.7**	17	**27.9**	2	**3.3**	61
	I definitely could		**I probably could**		**I probably could not**		**I definitely could not**		**N/A**		**Total**
8. Stop to use a condom in the heat of the moment	10	**16.9**	18	**29.0**	8	**12.9**	13	**21.0**	13	**21.0**	62
9. Put a condom on yourself without losing the erection?	7	**11.3**	23	**37.1**	7	**11.3**	13	**21.0**	12	**19.4**	62
10. Put a condom on your partner without losing the erection?	12	**19.7**	23	**37.7**	7	**11.5**	8	**13.1**	11	**18.0**	61
11. Suggest sex if you want it?	22	**35.5**	30	**48.4**	6	**9.7**	3	**4.8**	1	**1.6**	62
12. Tell or show someone how they can give you sexual pleasure?	28	**45.2**	22	**35.5**	8	**12.9**	3	**4.8**	1	**1.6**	62

Overall, the proportions of men who found each issue very difficult or difficult differed for each of the 7 items quite markedly. About one quarter of men said that asking partners about their viral load (27.4%) and HIV status (25.8%) were difficult or very difficult. Similarly, 27.5% said that they found it difficult or very difficult to make the first move with sex.

In contrast, about one in eight men said they would find it difficult or very difficult to tell their partners that they do not want to have sex (14.5%) or that they like a specific sexual activity (14.7%). A lower

proportion of men said that they would find it difficult or very difficult to tell their partners that a sexual activity makes them feel uncomfortable (8.2%) or to refuse sex if their partners would not use a condom (12.9%). Importantly, almost half (48.4%) of men said the latter question was not applicable to them. Although 97% of our HIV+ men reported an undetectable viral load, condoms are unnecessary to reduce onward HIV transmission risk though, however, they still reduce the risk of infection with other STIs.

Almost half of our participants felt they could probably or definitely stop to use a condom in the heat of the moment (45.9%) or put a condom on themselves (48.4%) or their partner (57.4%) without losing the erection, with around 1 in 5 men saying these questions were not applicable to them. About 1 in 7 men said that they probably or definitely could not show someone how to give them sexual pleasure (17.7%) or could not suggest sex if they wanted it (14.5%).

6.3 Any Sexual Confidence Problems?

In order to understand the overall proportion of men who reported each sexual confidence problem we reanalysed these data to define whether men reported each issue as a problem (reported the issue as difficult/very difficult, or that they definitely/probably could not do the activity) or not (reported the issue as easy/very easy, or that they probably/definitely could do the activity). These data are shown in Table 6.2. Men who answered *not applicable* to these questions were removed from this analysis and, consequently, the sample size changed for each question as shown in the table.

Overall, we see that the majority of men reported no sexual problems overall. Most men were able to refuse sex if a partner would not use a condom (75%). Most men were confident that they could put a condom on their partner without losing the erection (70%) and that they could ask about their partner's HIV status (70.9%) or viral load (68.5%). Most were able to tell a partner that a certain activity makes them uncomfortable (91.5%), that they do not want to have sex (84.2%), that they like a certain sexual activity (84.7%) or how to give them sexual pleasure (82%). About 7 in 10 men (69.1%) were

confident to make the first move with sex and the vast majority could suggest sex if they wanted it (85.2%). Overall, using a condom in the heat of the moment (57.1%) and putting a condom on themselves without losing erection (60%) were the most difficult issues examined. In concert, these findings show that most GBMSM are sexually confident across a wide range of issues, though each issue was problematic for between 8% and 43% of our survey participants. It is important therefore to examine whether these sexual confidence problems are related to other demographic issues, which is examined in the next section.

Table 6.2. Overall Proportion Of GBMSM Reporting Each Sexual Confidence Problem

When communicating about sex with a partner, how easy or difficult would it be for you to…?	Not problematic		Problematic		Total
	n	%	n	%	
1. Ask about their HIV status?	39	**70.9**	16	**29.1**	55
2. Ask about their viral load?	37	**68.5**	17	**31.5**	54
3. Refuse to have sex if they won't use a condom?	24	**75.0**	8	**25.0**	32
4. Make the first move with sex?	38	**69.1**	17	**30.9**	55
5. Tell then that you like a specific sexual activity?	50	**84.7**	9	**15.3**	59
6. Tell them that you do not want to have sex?	48	**84.2**	9	**15.8**	57
7. Tell them if a certain sexual activity makes you uncomfortable?	54	**91.5**	5	**8.5**	59
8. Stop to use a condom in the heat of the moment	28	**57.1**	21	**42.9**	49
9. Put a condom on yourself without losing the erection?	30	**60.0**	20	**40.0**	50
10. Put a condom on your partner without losing the erection?	35	**70.0**	15	**30.0**	50
11. Suggest sex if you want it	52	**85.2**	9	**14.8**	61
12. Tell or show someone how they can give you sexual pleasure?	50	**82.0**	11	**18.0**	61

6.4 Overall Sexual Confidence

In order to analyse how men's overall sexual confidence varied by our key sociodemographic variables, we created a new variable which summed men's responses on each of the sexual function scale variables. We refer to this herein as men's Overall Sexual Confidence score (OSC). Men's OSC score varied from 36, denoting high sexual confidence (i.e., answered 'very easy' or 'I definitely could' to all

12 sexual confidence items, see Table 6.1) to 0, indicating low sexual confidence (i.e., answered 'very difficult' or 'I definitely could not' to all 12 sexual confidence items – see Table 6.1). As such, ***higher*** values on the OSF scale represented ***higher*** sexual confidence. A total of 25 men answered all 12 questions and so were included in this analysis.

Overall, the mean score on OSC for all HIV+ men participating in this study was 22.7 (SD=6.4) and scores ranged from a minimum of 5 to a maximum of 36. This equates to an average response for each question of 'easy' or 'I probably could'. Below we analyse OSC scores for each of our sociodemographic variables.

6.4.1 Overall Sexual Confidence: By NHS Region, Age, Relationship Status, HIV Status & Financial Worries

Further analyses suggested that there were no significant differences in men's overall sexual confidence scores across the three NHS regions (W=2.39, df (2,14.26), p=0.13) and by age (W=0.36, df(3, 4.14), p=0.78), relationship status (t(23)=-1.29, p=0.21) or HIV status (t(597)=1.76, p=.079). However, sexual confidence was significantly different by financial worries (t(23)=2.24, p<0.05), such that men with no financial worries (M=24.2) had significantly higher sexual confidence than those having financial worries in the last year (M=18.0).

6.5 Summary

- Men's overall sexual confidence differed quite markedly around the different items examined within this study. Whilst certain issues were difficult for a sizeable proportion of participants, most of the other issues were generally less problematic overall.
- In particular, most men had few problems to refuse sex if a partner would not use a condom (75%) and most were confident that they could put a condom on their partner (70%) without losing their erection however, many men felt that condom use questions were not applicable to them. Most men felt confident that they could ask about their partners HIV status (71%) or viral load (69%). The majority of all men were able to tell a partner that a certain activity makes

them uncomfortable (92%), that they do not want to have sex (84%), that they like a certain sexual activity (85%) or how to give them sexual pleasure (82%). About 7 in 10 men (69%) were confident to make the first move with sex and the vast majority could suggest sex if they wanted it (85%). Overall, using a condom in the heat of the moment (57%), and putting a condom on themselves (60%) without losing erection were the most difficult issues examined.

- Considering overall sexual confidence, this did not differ by NHS Region, age group, HIV status, or relationship status. However, men with financial worries had significantly poorer overall sexual confidence; though the direction of this relationship, or whether it is mitigated by other variable(s) related to both issues (for example, mental health), cannot be ascertained from this analysis.

Chapter 7 - Experiences Of Sexual, Physical, And Emotional Abuse

7.1 Introduction

This chapter describes the experiences of sexual, physical, and emotional abuse of GBSMSM living with HIV in the SMMASH3 study. To assess these issues, components of the *Sex and Relationships Problems* scale, which was originally developed as part of the 'Sex Unzipped' study (Bailey et al., 2013) were modified. We present the basic descriptive statistics (frequency and percentages) for these abuse items and, where possible, we use inferential statistics to determine if significant differences were observed for each of the following variables;

1. Across the 3 NHS regions of NHS Greater Glasgow and Clyde (GGC), NHS Lothian and the Rest of Scotland (RoS).
2. By age category, grouped as aged 16-25 years, 26-35 years, 36-45 years and 46 years and over.
3. By relationship status, either single or in a relationship with a regular partner.
4. By financial status, reporting financial worries either 'occasionally/never' or 'sometimes/all of the time' in the past year.
5. By HIV status, comparing HIV+ with HIV-/untested GBMSM in the SMMASH3 sample.

7.2 Experiences Of Sexual, Physical And Emotional Abuse: Survey Items

A total of 5 items were taken from the *Sex and Relationships Problems* scale (see Table 7.1) and an additional item (#6) was developed to measure emotional abuse, targeting those men who experience emotional abuse but may not recognize it as such. In the original 'Sex Unzipped' study, participants were asked about experiences of abuse during the previous 3 months. However, it was felt that this fairly narrow time period would miss recent, if not still on-going, experiences, so we asked participants to report experience of abuse during the previous year, in line with our sexual behaviour questions.

Because of the extremely sensitive nature of these questions, participants were warned they were upcoming and asked whether they were prepared to see them as follows;

"The next questions ask whether you have had any kind of abuse from a partner or ex-partner in the last year. We understand these are difficult issues to talk about, so please feel free to ignore these questions if you would rather (you can click the 'submit' button to move on to the next page of the survey).

If you have experienced abuse in any way, please see below for resources.

Are you happy to see these questions?

Yes No

If you have experienced abuse in any way, and would like to talk to someone about it, click on the resources below, which will open in a new window."

Relevant, local resources were displayed below this message on the survey webpage. Clicking 'Yes' displayed the sexual abuse questions on the webpage. Clicking 'No' then 'Submit' at the bottom of the page, routed participants past these questions and onto the next section of the questionnaire.

7.3 Experiences Of Abuse: Number Of Participants

Overall, 86.9% (n=53/61) of the men who were asked and addressed this question agreed to view the experiences of abuse questions. As such, over 1 in 8 participants did not want to answer questions about abuse. Although we cannot be sure of their reasoning behind this, it may be that these men have had some experiences of abuse they were not prepared to reflect on for the purposes of a survey. As such the results in this chapter should be considered a conservative estimate of the prevalence of experience of abuse amongst GBMSM living with HIV in Scotland.

7.4 Experiences Of Sexual, Physical And Emotional Abuse: Results

Table 7.1 shows the breakdown of answers to these 6 questions for the GBMSM who chose to view and answer them. Overall, we see that between 7.5%-17% of men reported that they had experienced

each of these different abuse issues in the last year. Both measures of emotional abuse (#1 Humiliated or emotionally abused; 15.1%; #6 Put down or told worthless, 17%) were the most commonly reported experiences of abuse, with a similar proportion of men reporting both of these two experiences of emotional abuse. Controlling behaviour (#5 Told who you could see, where you could go) was experienced by 9.4% of men. Similarly, physical partner abuse (#4 Kicked, slapped, or physically hurt) was reported by 13.2% of men whilst the same proportion of men (13.2%) also said they had been afraid of a partner/ex-partner in the past year (#2). Finally, 7.5% of men said they have been forced to have sexual activity by a partner/ex-partner in the last year (#3).

Table 7.1. Response To Sexual, Physical And Emotional Abuse Items

In the last year, have you been….?	Yes		No		Prefer not to say		Total
	n	%	n	%	n	%	n
1. Humiliated or emotionally abused in other ways by a partner or ex-partner?	8	**15.1**	44	**83**	1	**1.9**	53
2. Afraid of a partner or ex-partner?	7	**13.2**	46	**86.8**	0	**0.0**	53
3. Forced to have any kind of sexual activity by a partner or ex-partner?	4	**7.5**	48	**90.6**	1	**1.9**	53
4. Kicked, hit, slapped or otherwise physically hurt by a partner or ex-partner without your consent?	7	**13.2**	45	**84.9**	1	**1.9**	53
5. Told by a partner who you could see and where you could go?	5	**9.4**	47	**88.7**	1	**1.9**	53
6. Been put down or told you are worthless by a partner or ex-partner?	9	**17.0**	43	**81.1**	1	**1.9**	53

7.5 Any Experiences Of Abuse?

In order to understand the overall proportion of men who experienced any kind of abuse, we reanalysed these data. Overall, we found that 30.2% (n=16/53) of men said that they had experienced at least one of these types of abuse in the last year. It is also important to bear in mind that a further 13% of men declined to consider answering these questions, so the level of recent partner abuse

amongst GBMSM may be even higher than these data suggest. We now analyse these data to see if experience of any form of abuse varied with any of our key sociodemographic variables.

7.5.1 Experience Of Abuse: By NHS Region, Age, Relationship Status, HIV Status & Financial Worries

Chi^2 analysis suggested that experience of any form of abuse was not patterned by NHS region (x^2= 1.04, df=2, p=0.59), age (x^2=0.80, df=3, p=0.85), relationship status (x^2=2.13, df=1, p=0.15), financial worries (x^2= 2.50, df=1, p=0.11) or HIV status (x^2=1.25, df=2, P=0.26).

7.6 Summary

- Overall, about one third of HIV+ GBMSM in Scotland (30%) have experienced some form of abuse in the previous year from a partner or an ex-partner.
- Emotional abuse (#1 Humiliated or emotionally abused; 15%; #6 Put down or told worthless, 17%) was the most commonly reported experience of abuse. About 1 in 10 men experienced controlling behaviour, physical partner abuse or they had been afraid of a partner/ex-partner in the past year. 8% of all men said they have been forced to have sexual activity by a partner/ex-partner in the last year.
- Experiences of abuse were not patterned by any of our key sociodemographic variables.
- Finally, since over 1 in 8 participants declined to view these questions, which may be because they were not willing to reflect on difficult experiences, these results should be considered a conservative estimate of the actual levels of abuse experienced by GBMSM living with HIV in Scotland.

Chapter 8 - Mental Health

8.1 Introduction

This chapter describes the mental health of men living with HIV in the SMMASH3 study. To assess these issues, a range of questions were developed based on content within the Mind.org.uk website, items in the 'Adult psychiatric morbidity in England, results of a household survey' study (McManus et al., 2009), the 'National Survey of Sexual Attitudes and Lifestyles 3' study (see natsal.ac.uk), the 'Patient Health Questionnaire' (PHQ9 - see Kroenke et al., 2001) and the 'Generalised Anxiety Disorder' scale (GAD 7 - see Spitzer et al., 2006). We present the basic descriptive statistics (frequency and percentages) for these items and, where possible, we use inferential statistics to determine if significant differences were observed for each of the following variables;

1. Across the 3 NHS regions of NHS Greater Glasgow and Clyde (GGC), NHS Lothian and the Rest of Scotland (RoS).
2. By age category, grouped as aged 16-25 years, 26-35 years, 36-45 years, and 46 years and over.
3. By relationship status, either single, or regular male/female partner.
4. By financial status, reporting financial worries either 'occasionally/never' or 'sometimes/all of the time' in the past year.
5. By HIV status, comparing HIV+ with HIV-/untested GBMSM in the SMMASH3 sample.

8.2 Ever Diagnosed With A Mental Health Problem?

Participants were asked, *'Have you ever been diagnosed with a mental health problem by a doctor?'* Out of the 60 participants who answered this question, 55% (n=33) participants said that they had been diagnosed with a mental health problem, whilst 45% (n=27) said they had not.

8.2.1 Diagnosed Mental Health Problem: By NHS Region, Age, & Relationship Status

Chi^2 analysis suggested that diagnosed mental health problems were not patterned by NHS Region (x^2=0.38, df=2, p=0.83), age (x^2=1.40, df=3, p=0.71) or relationship status (x^2=0.11, df=1, p=0.74).

8.2.2 Diagnosed Mental Health Problem: By Financial Worries

Chi^2 analysis (x^2=7.18, df=1, p<0.05) suggested that diagnosed mental health problems were patterned by financial worries, such that men who reported financial worries (82.4%) were significantly more likely to report a diagnosed mental health problem in their lifetime than men who reported no financial worries in the past year (43.9%).

8.2.3 Diagnosed Mental Health Problem: By HIV Status

Chi^2 analysis (x2=5.03, df=1, p<0.05) suggested that HIV+ GBMSM (55.0%, n=33/60) were significantly more likely to report a diagnosed mental health problem in their lifetime than HIV-/untested men (40.3%, n=343/852).

8.3 Which Mental Health Problems Have You Been Diagnosed With?

We asked those 33 men who said they had been diagnosed with a mental health problem by a doctor in their lifetime to tell us what diagnosis(es) they had received. The results of these questions are shown in Table 8.1 (note, some men specified multiple mental health problems). Overall, it is clear that depression, anxiety, and mixed depression/anxiety make up the overwhelming majority of diagnosed mental health problems amongst men in this study. Three in four men who had been diagnosed with a mental health problem reported a depression diagnosis (75.8%) and about half an anxiety (51.5%) and mixed anxiety/depression (42.4%) diagnosis, respectively. Although post-traumatic stress disorder was reported by 15.2%, and obsessive-compulsive disorder diagnosis by 9.1% of participants, the remaining psychiatric disorders were far less common, with between 0% - 6% of men reporting each of these conditions (see Table 8.1).

In concert, we see that 4 in 10 HIV+ GBMSM in our sample have been diagnosed with depression, and about one quarter with Anxiety or mixed Anxiety/depression (Table 8.1, right hand column).

Table 8.1. Reported Lifetime Diagnosed Mental Health Problems

Which of the following mental health problems have you been diagnosed with by a doctor?	Yes		No		Whole Sample (n=60)
	n	%	n	%	%
Depression	25	**75.8**	8	**24.2**	**41.7**
Anxiety	17	**51.5**	16	**48.5**	**28.3**
Mixed Anxiety/Depression	14	**42.4**	19	**57.6**	**23.3**
Obsessive-Compulsive Disorder	3	**9.1**	30	**90.9**	**5.0**
A Phobia	0	**0.0**	33	**100**	**0.0**
An Eating Disorder	1	**3.0**	32	**97.0**	**1.7**
Post-traumatic Stress Disorder	5	**15.2**	28	**84.8**	**8.3**
Bipolar Disorder	2	**6.1**	29	**93.9**	**3.3**
Schizophrenia	0	**0.0**	33	**100**	**0.0**
Psychotic Illness	1	**3.0**	32	**97.0**	**1.7**
Other	0	**0.0**	33	**100**	**0.0**

8.4 Mental Health Problems: In The Last 12 Months

We asked all participants *'Which of the following mental health problems have affected you in the last 12 months?'* We then stratified these results for men who were diagnosed with each mental health disorder. Table 8.2 shows the results of these questions. Overall, we see that most people who have been diagnosed with each mental health problem in their lifetime have also been affected by them in the previous year. For example, depression had an impact on 88% of all those diagnosed with the condition during the last year (n=22/25 diagnosed) compared to 93% for mixed anxiety/depression (n=13/14 diagnosed); all men diagnosed with anxiety suffered from this condition in the last year (n=17). Similar results were found for the remaining conditions including obsessive-compulsive disorder (66.6%, n=2/3), eating disorder (100%, n=1) and psychotic illness (100%, n=1).

Table 8.2. Reported Experience Of Mental Health Problems In The Last 12 Months

Which of the following mental health problems have affected you in the last 12 months?	Total	Yes	
		n	%
Depression	25	22	**88.0**
Anxiety	17	17	**100**
Mixed Anxiety/Depression	14	13	**93.0**
Obsessive-Compulsive Disorder	3	2	**66.6**
A Phobia	0	0	**0.0**
An Eating Disorder	1	1	**100**
Post-traumatic Stress Disorder	5	3	**60**
Bipolar Disorder	2	1	**50.0**
Schizophrenia	0	0	**0.0**
Psychotic Illness	1	1	**100**

8.5 Generalised Anxiety Disorder (GAD-7) Questionnaire

The GAD-7 (Generalised Anxiety Disorder) Questionnaire is a screening tool and severity measure for generalized anxiety disorder. It consists of 7 anxiety related problems (see Table 8.3) and asks participants to rate how often they have experienced them (Not at all, several days, more than half the days, nearly every day) over the last 2 weeks. These results are summed together so participants can score between 0 (not affected by any issue at all) and 21 (affected by every issue nearly every day). These scores are then translated into an anxiety assessment as experiencing either no (score 0-4), mild (score 5-9), moderate (score 10-14) or severe (score 15-21) anxiety.

Table 8.3. Items On The GAD-7 Scale

1.	Feeling nervous, anxious or on edge?
2.	Not being able to stop or control worrying?
3.	Worrying too much about different things?
4.	Trouble relaxing?
5.	Being so restless that it is hard to sit still?
6.	Becoming easily annoyed or irritable?
7.	Feeling afraid as if something awful might happen?

Overall, as Table 8.4 shows, we found that about half of the participants addressing this section were assessed as experiencing no anxiety according to their self-reported feelings during the previous two weeks. A further quarter of participants (28.6%) were assessed as having mild anxiety, with about 4% assessed as having moderate and another 13% as having severe anxiety symptoms during the previous 2 weeks.

Table 8.4. GAD Diagnosis

GAD Diagnosis	n	%
None	31	**55.4**
Mild	16	**28.6**
Moderate	2	**3.6**
Severe	7	**12.5**
Total	**56**	

When using GAD-7 as a screening tool in clinical practice, it is recommended that people who score 10 or over (equating to an assessment of moderate or severe anxiety) are evaluated further (e.g. by their GP or clinically) in terms of their mental health, to assess whether they should be treated for their anxiety, or may be experiencing other related conditions such as panic disorder, social anxiety disorder or post-traumatic stress disorder. As such, 16.1% (n=9/56) of our sample of HIV+ GBMSM would fall under that category. We further examine those men who were assessed as having moderate/severe anxiety symptoms in the past two weeks by our key sociodemographic variables.

8.5.1 GAD Assessment: By NHS Region, Age, & Relationship and HIV Status

Chi^2 analysis suggested that generalized anxiety disorder was not patterned by NHS region (x^2=0.55, df=2, p=0.76), age (x^2=1.84, df=2, p=0.61), or relationship status (x^2=1.35, df=1, p=0.24). Although not a significant difference, while 16.1% of HIV+ GBMSM were assessed as having moderate to severe anxiety in the last 2 weeks, this compared to 23.3% of HIV-/untested men in the SMMASH3 sample.

8.5.2 GAD Assessment: By Financial Worries

Chi^2 analysis (x^2=5.64, df=1, p<0.05) suggested that generalized anxiety disorder was patterned by financial worries, such that men who reported financial worries (62.5%) were significantly more likely to be assessed as experiencing moderate/severe anxiety in the last 2 weeks than men who reported no financial worries (37.5%).

8.6 Depression Amongst GBMSM Using The PHQ-9 (Patient Health Questionnaire)

The PHQ-9 (Patient Health Questionnaire) is a self-complete questionnaire which assesses levels of depression; unlike the GAD-7, PHQ-9 is not a screening tool for depression, but rather is used to monitor the severity of depression and response to treatment. Moreover, as the PHQ-9 can also be used as a tentative measure of depression in certain populations (e.g. Haddad et al., 2013), it was included within the SMMASH3 study to assess potential levels of depression amongst HIV+ GBMSM.

The PHQ-9 consists of 9 depression related problems (see Table 8.5) and participants rate how often they have experienced them (Not at all, several days, more than half the days, nearly every day) over the last 2 weeks. These results are summed together so participants can score between 0 (not affected by any issue at all) and 27 (affected by every issue nearly every day). These scores are then translated into a depression assessment as experiencing either none (score 0-4), mild (score 5-9), moderate (score 10-14), moderately severe (score 15-19) or severe (score 20-27) depression.

Table 8.5. Items On The PHQ-9 Scale

1. Little interest or pleasure in doing things?
2. Feeling down, depressed, or hopeless?
3. Trouble falling or staying asleep, or sleeping too much?
4. Feeling tired or having little energy?
5. Poor appetite or overeating?
6. Feeling bad about yourself - or that you are a failure or have let yourself or your family down?
7. Trouble concentrating on things, such as reading the newspaper or watching television?
8. Moving or speaking so slowly that other people could have noticed? Or the opposite - being so fidgety or restless that you have been moving around a lot more than usual?
9. Thoughts that you would be better off dead or hurting yourself in some way

Overall, 55 men answered the PHQ-9 questions (see Table 8.6). Less than half of participants (40%) were assessed as experiencing no depression according to their self-reported feelings during the previous 2 weeks. A further fifth of participants (20%) were assessed as having mild depression, and another fifth (21.8%) assessed as having moderate depression. About 1 in 10 men (7.3%) were assessed with moderately severe depression and a further 10.9% as having severe depression symptoms during the previous 2 weeks.

Table 8.6. PHQ Depression Symptoms Assessment

PHQ Diagnosis	**n**	**%**
None	22	**40.0**
Mild	11	**20.0**
Moderate	12	**21.8**
Moderately Severe	4	**7.3**
Severe	6	**10.9**
Total	**55**	

When using PHQ-9 in clinical practice, guidelines (UMHS, 2011) suggest the course of action that the physician should use, based on patients' depression assessment. For patients with 'mild to moderate' depression, physicians should use 'clinical judgment about treatment, based on patients' duration of

symptoms and functional impairment' (UMHS, 2011). Moreover, these guidelines suggest that patients with moderately severe to severe depression 'warrant treatment for depression, using antidepressant, psychotherapy and/or a combination of treatment'. Based on these criteria (see Table 8.7), we see that 40% of GBMSM in this sample do not have depression, 41.8% have mild-to-moderate depression and should be referred to their GPs regarding this issue whilst a further 18.2% had moderately-severe-to-severe symptoms and as such warrant clinically lead treatment for their depression.

Table 8.7. PHQ Depression Symptoms Assessment

PHQ Diagnosis	n	%
None	22	**40.0**
Mild/Moderate	23	**41.8**
Moderately Severe/Severe	10	**18.2**
Total	**55**	

We further examine those men who were assessed as having no depression or having mild/moderate and moderately severe/severe depression symptoms in the past 2 weeks by our key sociodemographic variables.

8.6.1 Depression Assessment: By NHS Region, Age, & Relationship Status

Chi^2 analysis suggested that depression levels were not patterned by NHS region (x^2=6.67, df=4, p=0.16), age (x^2=6.9, df=6, p=0.33) relationship (x^2=1.83, df=2, p=0.40) or HIV status (x^2=0.001, df=2, p=0.99).

8.6.2 Depression Assessment: By Financial Worries

Chi^2 analysis (x^2=12.23, df=2, p<0.001) suggested that depression levels were patterned by financial worries, such that men who reported financial worries were significantly more likely to be assessed as experiencing moderately severe/severe depression (46.7%) in the last 2 weeks than men who reported no financial worries in the past year (7.9%).

8.7 Summary

- Diagnosed mental health problems were common amongst HIV+ GBMSM in Scotland, with almost 6 in 10 (55%) saying that they had ever been diagnosed with a mental health problem.
- HIV+ men who report financial worries in the past year were significantly more likely to report a diagnosed mental health problem in their lifetime.
- HIV+ men were significantly more likely to report a diagnosed mental health problem in their lifetime compared to HIV-/untested men.
- Regarding the type of mental health disorder men have been diagnosed with, depression (76%), anxiety (52%) and mixed anxiety/depression (42%) were by far the most common. Although 15.2% had been diagnosed with PTSD and 9.1% with obsessive-compulsive disorder, few men reported each of the other psychiatric disorders assessed.
- Most men who had been diagnosed with mental health problems in their lifetime had also been affected by them in the previous year. Overall, depression had an impact on 88% of all those diagnosed with the condition during the last year, compared to 93% for mixed anxiety/depression and 100% for anxiety. The pattern for other psychiatric disorders was equally high.
- Just over 1 in 6 (16%) men in this study were assessed as having moderate to severe anxiety symptoms in the previous 2 weeks and as such should be considered for treatment according to clinical guidelines.
- Men with financial worries were significantly more likely to report moderate/severe anxiety symptoms than men reporting no financial worries in the past year.
- Less than half of participants (40%) were assessed as experiencing no depression according to their self-reported feelings during the previous 2 weeks. 42% had mild-to-moderate depression and should be referred to their GPs regarding this issue whilst a further 18% had moderately-severe-to-severe symptoms and as such warrant clinically lead treatment for their depression.

- GBMSM with financial worries were significantly more likely to report depression symptoms than men with no financial worries.
- In concert, these data suggest that HIV+ GBMSM experience higher levels of diagnosed mental illness, compared to both the wider population and HIV-/untested GBMSM. In particular, depression, anxiety, and/or mixed depression/anxiety diagnoses are higher; however, the levels of other mental health disorders are in line with the wider population.
- There is, however, evidence that HIV+ men's current experiences of anxiety / depression are similar to that of HIV-/untested men and may even be slightly *lower* for anxiety symptoms.
- Thus, while HIV+ men have greater levels of lifetime mental health diagnoses, their current mental health experiences are no worse than that of HIV-/untested GBMSM.

Chapter 9 - Stigma And Psychological Functioning

9.1 Introduction

This chapter looks at issues of stigma and psychological functioning amongst GBMSM living with HIV in Scotland. This is divided into three key sections; i) Resilience (measured by the 14 item Sense of Coherence Scale – Orientation to Life Scale, Antonovsky, 1987), ii) Emotional Competency (measured by the Trait Emotional Intelligence Questionnaire – Short Form (TEIQue-SF), Petrides and Furnham, 2006) and iii) Personalised stigma and sexual orientation concealment (measured by the Frost et al.'s (2007) modification of the Berger et al. (2001) HIV stigma scale). We examine the reliability of each scale for our sample of HIV+ GBMSM, based on Cronbach's Alpha, before using inferential statistics to determine if significant differences were observed for each of the following variables;

1. Across the 3 NHS regions of NHS Greater Glasgow and Clyde (GGC), NHS Lothian and the Rest of Scotland (RoS).
2. By age category, grouped as aged 16-25 years, 26-35 years, 36-45 years, and 46 years and over.
3. By relationship status, either single or regular male/female partner.
4. By financial status, reporting financial worries either 'occasionally/never' or 'sometimes/all of the time' in the past year.
5. By HIV status, comparing HIV+ with HIV-/untested GBMSM in the SMMASH3 sample.

9.2 Resilience: Sense of Coherence Questionnaire

The 13-item Sense of Coherence – Orientation to Life (SoC) questionnaire, measures resilience to stressful life situations which might otherwise deleteriously impact upon health issues. This is based on the salutogenic concept of a "sense of coherence" as a specific way of viewing life as comprehensible, manageable and meaningful' (Eriksson, 2007). This approach theorises that the way that people relate to their life will subsequently impact upon their health. Of particular interest to Health Promotion is that, where SoC is found to be related to poor health behaviours and outcomes,

interventions that improve SoC and resilience should also improve these poor health behaviours and outcomes. The SoC questionnaire comprises an overall score (0-78) as well as 3 subscales as follows; Comprehensibility (0-30), Manageability (0-24), and Meaning (0-24). To calculate each component, the relevant questions for each subscale are summed, with the overall SoC score comprising all 13 items summed. Low scores are indicative of low resilience and a poor sense of coherence. Herein these will be referred to as Overall SoC, SoC Comprehensibility, SoC Manageability and SoC Meaning. No imputations for missing data were included in this analysis, resulting in slightly different sample sizes for the overall SoC score, and each subscale, respectively.

9.1 Sense Of Coherence Scale: Reliability Analysis

The psychometric properties and robustness of the SoC scale and subscales has already been established (see Eriksson, 2007) amongst the general population. However, it is good practice to check the reliability of this scale with our population, HIV+ GBMSM. Cronbach's Alpha is used herein. Scores of around 0.7 – 0.8 indicate good reliability within the items in a scale. Table 9.1 shows that the reliability analysis of the overall SoC scale, and two of the subscales were within the region of 0.7 – 0.9 which suggests good reliability. Although the SoC Manageability score of 0.69 was a little low, this subscale is well established, so this value is not troubling. Moreover, in each case, deleting a variable did not substantially impact on the scales' reliability statistic overall. In concert, these results suggest that no amendments should be made to the SoC scale and subscales for this population of GBMSM.

Table 9.1. Reliability Analysis Of SOC Scale And Subscales

Scale/Sub-scale	Cronbach's Alpha
Overall SoC	**0.906**
SoC Comprehensibility	**0.804**
SoC Manageability	**0.692**
SoC Meaning	**0.812**

9.3 Sense Of Coherence: Overall Mean Score

For the 44 men who answered all 13 SoC questions, the overall mean score was 42.3 (see Table 9.2). This is substantially lower than the average levels of SoC reported for a general population research study conducted in Glasgow (SoC mean = 51.2), Manchester (M=47.1) and Liverpool (M=44.0) (Walsh et al., 2014) where gender was not a significant predictor of SoC. As such, we may tentatively conclude that overall, GBMSM living with HIV in Scotland have lower resilience, as measured by the SoC scale, than the general population.

9.3.1 Sense Of Coherence: By NHS Region, Age and HIV status

Overall SoC (W=1.63, df (2,27.3), p=0.21) and each of the three SoC subscales were not significantly related to the NHS region. This means that levels of resilience amongst GBMSM in Scotland did not differ by the area in which they live. Overall, the three SoC subscales were not significantly related to HIV status. However, for overall SoC (t(763)=1.85, p=0.065) there was a trend towards significance, such that HIV+ men had higher overall resilience than HIV-/untested men. Given the low number of participants falling under the four age groups (16-25; 26-35;36-45;46+ years), SoC was not examined in relation to age.

Table 9.2. Sense Of Coherence Mean Scores: By Sociodemographic Variables

Sociodemographic variable (Range)	SoC Scale (0-78)	Comprehensibility (0-30)	Manageability (0-24)	Meaning (0-24)	N (SoC Scale)
N	44	47	46	47	
Average score overall	42.3	15.8	11.6	14.3	
HIV Status					
HIV+	42.3	15.8	11.6	14.3	47
HIV-/Untested	39.2	14.3	11.7	13.1	718
Relationship Status					
Single	38.4	14.5	11.4	12.6	20
Regular Partner	46.8	17.3	12.2	15.8	23
Financial Worries					
No (Occasional/Never)	46.8	17.3	12.5	15.8	31
Yes (always/sometimes)	27.8	10.8	8.3	9.5	11

9.3.2 Sense Of Coherence: By Relationship Status

Independent Samples T-tests suggested that SoC ($t(41)=-2.06$, $p<0.05$) and the Meaning sub-scale ($t(44)=-2.16$, $p<0.05$) only were significantly related to relationship status (see Table 9.2). Single men had significantly lower levels of resilience (SoC M=38.4; and SoC Meaning M=12.6) than men with a regular male or female partner (SoC M=46.8; and SoC Meaning M=15.8). SoC Comprehensibility ($t(44)=1.64$, $p=0.11$) and SoC Manageability ($t(43)=-61$, $p=0.54$) were not significantly related to relationship status (see Table 9.2).

9.3.3 Sense Of Coherence: By Financial Worries

Independent Samples T-test suggested that SoC ($t(40)=4.81$, $p<0.001$) and each of the three subscales [Comprehensibility ($t(43)=3.78$, $p<0.001$), Manageability ($t(42)=2.94$, $p<0.05$) and Meaning ($t(43)=4.40$ $p<0.05$)] were significantly related to financial worries. In each case, men who reported financial worries had significantly lower levels of resilience than men who reported no financial worries (see Table 9.2).

9.4 Emotional Competency

The Trait Emotional Intelligence Questionnaire (TEI-QUE) is a 30-item scale that measures emotional competency, that is, an individual's capacity of emotional awareness, expression, identification, regulation, and situational knowledge (Blair, 2002; Petrides & Furnham, 2003). The scale is used to measure Emotional Competency (EC) overall, as well as four subscales which measure Wellbeing, Self-control, Emotionality and Sociability. In each case, items relating to each subscale and overall EC scale are summed, then each scale is adjusted to score from 1 (low EC) to 7 (high EC). It is important to note that these measures do not directly equate to our everyday understanding of the concepts after which they are named. Rather, these measure components of the participants' emotional competency. As such, herein we will refer to these as Overall EC (Overall EC score), EC Wellbeing (EC wellbeing subscale

score), EC Self-Control (EC self-control subscale score), EC Emotionality (EC emotionality subscale score) and EC Sociability (EC sociability subscale score).

9.5 TEI-QUE Emotional Competency Scale: Reliability Analysis

The psychometric properties and robustness of the TEIQue-SF scale and subscales has already been established (see Petrides & Furnham, 2006) amongst the general population. However, it is good practice to check the reliability of this scale with our population, GBMSM. Cronbach's Alpha is used herein. Scores of around 0.7 – 0.8 indicate good reliability within the items in a scale. Table 9.3 shows that the reliability analysis of the overall EC scale, and four subscales were within the region of 0.7 – 0.9 which suggests good reliability. Moreover, in each case, deleting a variable did not substantially impact on the scales' reliability. In concert, these results suggest that no amendments should be made to the TEIque-SF EC scale and subscales for this population of GBMSM.

Table 9.3. Reliability Analysis Of TEI-QUE Scale And Subscales

Scale/Sub-scale	Cronbach's Alpha
Overall EC	**0.937**
EC Wellbeing	**0.895**
EC Self-Control	**0.729**
EC Emotionality	**0.731**
EC Sociability	**0.799**

9.6 Emotional Competency: Overall Mean Score

For the men who completed the EC questionnaire, the overall mean score was M=3.24. This is substantially lower than the average level of overall EC reported for a wider male population research study conducted in the UK (M=4.95) (Petrides, 2009) (see Table 9.4). Next, we examine EC according to each key sociodemographic variable.

9.6.1 Emotional Competency: By NHS Region, Age & HIV Status

Overall EC (W=1.04, df(2,26.88), p=0.37) and each of the four EC subscales were not significantly related to the NHS region. This means that levels of EC amongst GBMSM living with HIV in Scotland did not differ by the area in which they live. Similarly, neither EC (t(750)=-0.717, p=0.473) nor the four

EC subscales were related to HIV status. Given the low number of participants falling under the four age groups (16-25; 26-35;36-45;46+ years), EC was not examined in relation to age.

Table 9.4. Emotional Competency Mean Scores: By Sociodemographic Variables

Sociodemographic variable	EC Total	Wellbeing	Self-control	Emotionality	Sociability	N (EC total)
N	46	48	48	49	47	
Average score overall	3.2	3.0	3.6	3.0	2.0	
Relationship Status						
Single	3.6	3.3	4.0	3.3	2.8	19
Regular Partner	2.9	2.8	3.3	2.7	2.0	26
Financial Worries						
No (Occasional/Never)	3.1	2.8	3.4	2.9	2.3	32
Yes (always/sometimes)	3.7	3.9	4.1	3.4	2.7	12

9.6.2 Emotional Competency: By Relationship Status

Independent Samples T-tests suggested that overall EC ($t(43)=2.71$, $p<0.05$) and three EC subscales [EC self-control ($t(45)=2.43$, $p<0.05$); EC emotionality ($t(46)=2.26$, $p<0.05$); EC sociability ($t(44)=3.04$, $p<0.05$)] were significantly related to relationship status (see Table 9.3). Single men had significantly higher levels of EC than men with a regular male or female partner. However, EC well-being ($t(45)=1.14$, $p=0.26$) was not significantly related to men's relationship status (see Table 9.4).

9.6.3 Emotional Competency: By Financial Worries

Independent Samples T-test suggested that EC ($t(42)=-2.05$, $p<0.05$) and EC well-being ($t(44)=-2.39$, $p<0.05$) were significantly associated to financial worries. In each case, men who reported financial worries had significantly higher levels of EC than men who reported no financial worries (see Table 9.4). Nevertheless, EC Emotionality ($t(45)=-1.68$, $p=0.10$), EC Self-control($t(44)=-1.97$, $p=0.55$, and EC Sociability ($t(43)=-1.54$, $p=0.13$) were not significantly related to financial worries.

9.7 Stigma – Personalised And Concealment Stigma

The 20–item Gay-Related Stigma scale (Frost et al, 2007), measures *overall* gay-related stigma (using all 20 items) along with two sub-components of gay-related stigma;

- Personalised Stigma, which measures men's 'awareness of social attitudes about gay people' and their perceptions of 'the potential social consequences related to being gay' (Frost et al, 2007; p637) and
- Concealment Stigma, which measures 'the extent to which participants disclose their sexual orientation and how worried they were about others finding out they were gay' (Frost et al, 2007; p637).

9.8 Gay-Related Stigma Scale Sub-Component Analysis And Scoring

Factor analysis (not reported here) suggested that the *Personalised Stigma subscale* comprised items #1 – #7 and #20 and the Concealment Stigma subscale comprised items #10 - #19 from the questionnaire (see SMMASH3 questionnaire, Appendix 1). Each item on the scale was scored from 0 (Strongly disagree) to 3 (Strongly agree), after 3 items were reversed, following Frost et al's (2007) guidelines. This meant that Overall Gay-Related Stigma ranged from 0 – 60, Personalised Stigma from 0 – 24 and Concealment Stigma from 0 – 32. In each case, low values corresponded to lower levels of perceived stigma.

9.9 Gay-Related Stigma Scale: Reliability Analysis

The psychometric properties and robustness of the Gay-Related Stigma Scale have already been established amongst GBMSM in the USA (see Frost et al, 2007). However, it is good practice to check the reliability of this scale with our population of GBMSM in Scotland. Cronbach's Alpha is used herein. Scores of around 0.7 – 0.8 indicate good reliability within the items in a scale. Table 9.5 shows that the reliability analysis of the overall Gay-Related Stigma Scale, and two of the subscales were all around 0.9 which suggests good reliability. Moreover, in each case, deleting a variable did not substantially

impact on the scales' reliability statistic overall. In concert, these results suggest that no amendments should be made to the Gay-Related Stigma scale and subscales for this population of GBMSM.

Table 9.5. Reliability Analysis Of Gay-Related Stigma Scale And Subscales

Scale/Sub-scale	Cronbach's Alpha
Gay-Related Stigma	**0.911**
Personalised Stigma	**0.855**
Concealment Stigma	**0.939**

9.10 Gay Related Stigma: Mean Values

The Mean score for Overall Gay-Related Stigma was M=19.2, for Personalised Stigma was M=7.5 and for Concealment Stigma was M=8.7. This equated to 'disagreeing' that men experienced stigma for each item on average, meaning that overall men did not feel they experienced gay related, personalised or concealment stigma.

9.10.1 Gay-Related Stigma: By NHS Region & Age

ANOVA suggested gay related stigma (W=0.49, df(2, 30.7), p=0.62), Personalised Stigma (W=0.58, df(2, 30.8), p=0.57), and concealment related stigma (W= 1.39, df(2, 30.5), p=0.27) were all not significantly different by NHS region. Similarly, gay related stigma (W=0.37, df(3, 46), p=0.77), Personalised Stigma (W=0.67, df(3, 46), p=0.58), and concealment related stigma (W= 0.78, df(3, 46), p=0.97) were not related to age.

9.10.2 Gay-Related Stigma: By Relationship Status & Financial Worries

Independent Samples T-tests suggested that Gay-Related Stigma (t(47)= 0.43, p=0.66) Personalised Stigma (t(47)= 0.80, p=0.43) and Concealment Stigma (t(47)=0.11, p=0.91) were not significantly associated with men's relationship status. Likewise, independent Samples T-tests showed that none of the stigma scales (Gay-Related Stigma (t(46)= -1.14, p=0.26; Personalised Stigma (t(46)= -0.70, p=0.47); and Concealment Stigma (t(46)= -1.58, p=0.12) were significantly related to financial worries.

9.10.2 Gay-Related Stigma: By HIV Status

Independent Samples T-tests suggested that both overall Gay-Related Stigma (t(802)=-2.30, p=0.02) and Personalised Stigma (t(826)=-3.16, p=0.002) were significantly ***lower*** among HIV+ men (Gay-related stigma M=19.2; Personalised Stigma M=7.5) compared to HIV-/untested men (Gay-related stigma M=23.0; Personalised Stigma M=10.3). This means that HIV+ men felt they experience lower levels of both overall Gay-Stigma and Personalised Stigma. This result is likely impacted by the fact that HIV+ men were more likely to be out than HIV-/untested men and so more likely to move in a social milieu that does not discriminate against their sexuality, as well as high level of HIV services uptake by HIV+ men in this sample, which is likely to support them in these areas too.

9.11 Summary

- The salutogenic concept of a "sense of coherence" (Eriksson, 2007), theorises that the way people relate to their life will subsequently impact upon their health. The Sense of Coherence (SoC - Eriksson, 2007) scale was used in the SMMASH3 study to measure participants' overall resilience, which comprises three sub-scales of Comprehensibility, Manageability and Meaning as well as an overall SoC score.
- Reliability analysis using Cronbach's Alpha suggested good reliability for the overall SoC, Comprehensibility and Meaning. SoC Manageability demonstrated acceptable reliability, given this is a well-established measure.
- Average SoC amongst HIV+ GBMSM in Scotland was lower than the general population. As such, we may tentatively conclude that overall, GBMSM living with HIV in Scotland have lower resilience, as measured by the SoC scale, than the general population.
- Analyses suggested that single men had significantly lower levels of resilience (SoC and SoC Meaning) than men with a regular male or female partner. Also, men who reported financial worries in the past year had significantly lower levels of resilience than men who reported no

financial worries. However, there was a trend towards significant that HIV+ men have *higher* overall resilience (i.e. overall SoC) than HIV-/untested men.

- Emotional Competency (EC) is the capacity of emotional awareness, expression, identification, regulation, and situational knowledge. EC was assessed using the Trait Emotional Intelligence Questionnaire (Petrides and Furnham, 2003), which measures overall EC as well as EC Wellbeing, EC Self-control, EC Emotionality and EC Sociability. It is important to note that these measures do not directly equate to our everyday understanding of the concepts after which they are named. Rather, they measure components of participants' emotional competency.
- Reliability analysis using Cronbach's Alpha suggested that the overall EC scale, and four subscales demonstrated good reliability amongst this population.
- Single men had significantly higher levels of EC than men with a regular male or female partner. However, EC well-being was not significantly related to relationship status. Further research is required to interpret these differences.
- Men who reported financial worries had significantly higher levels of overall EC and EC Well-being than men who reported no financial worries. Nevertheless, EC Emotionality, EC Self-control, and EC Sociability were not significantly related to financial worries. Further research is required to interpret these differences.
- The 20–item Gay-Related Stigma scale (Frost et al, 2007), was used to measure overall gay-related stigma, along with two sub-components of gay-related stigma as follows; Personalised Stigma, which measures men's 'awareness of social attitudes about gay people' and their perceptions of 'the potential social consequences related to being gay' and Concealment Stigma, which measures 'the extent to which participants disclose their sexual orientation and how worried they were about others finding out they were gay'.

- Reliability analysis using Cronbach's Alpha suggested that the Gay-Related Stigma Scale and the Personalised Stigma and Concealment Stigma sub-scales demonstrated good reliability amongst this population.
- Overall men's average score on the Gay-Related Stigma scale equated to 'disagreeing' that they experienced stigma for each item on average, meaning that overall men did not feel they experienced gay related, personalised or concealment stigma.
- HIV+ men reported significantly lower levels of both overall Gay-Related Stigma and Personalised Stigma than HIV-/untested men. This was potentially impacted by HIV+ men being more likely to be 'out' than HIV-untested men and so more likely to move in a social milieu that does not discriminate against their sexuality, as well as high level of HIV services uptake by HIV+ men in this sample, which is likely to support them in these areas too.
- None of the other variables examined were related to perceived gay stigma amongst HIV+ men in this study.

Chapter 10 - Alcohol, Recreational Drug Use & Chemsex And Smoking/Vaping

10.1 Introduction

This chapter describes alcohol and recreational drug use amongst GBMSM living with HIV in Scotland. To assess these issues, a range of questions were drawn from the Vital Statistics study (Sigma Research, 2014). In addition, the Fast Alcohol Screening Tool (FAST; Hodgson et al., 2002, Meneses-Gaya et al., 2010) was also included in the questionnaire. We present the basic descriptive statistics (frequency and percentages) for these items and subsequently use inferential statistics, where possible, to determine if significant differences were observed for each of the following variables;

1. Across the 3 NHS regions of NHS Greater Glasgow and Clyde (GGC), NHS Lothian and the Rest of Scotland (RoS).
2. By age category, grouped as aged 16-25 years, 26-35 years, 36-45 years and 46 years and over.
3. By relationship status, either single, regular male partner or regular female partner.
4. By financial status, reporting financial worries either 'occasionally/never' or 'sometimes/all of the time' in the past year.
5. By HIV status, comparing HIV+ with HIV-/untested GBMSM in the SMMASH3 sample.

10.2 When Did You Last Consume Alcohol?

Participants were asked *'When was the last time you consumed alcohol… even if this was not typical for you?'* This wording allows for a more accurate estimate at a population, rather than individual, level. Out of the 55 HIV+ men who answered this question, most men (41.8%) had consumed alcohol within the last 24 hours, a further fifth (21.8%) within the last 7 days, and a 16.4% in the last 4 weeks (see Table 10.1). As Table 10.1 shows, a further 9.1% consumed alcohol with the last 6 months whilst another 10.9% (n=6) of men last drank alcohol over a year ago or never.

As such, 80% (n=44) of participants could be described as 'regular drinkers' and 20% (n=11) as infrequent drinkers.

Table 10.1. When Did You Last Consume Alcohol?

	n	%
Never	3	**5.5**
Within the last 24 hours	23	**41.8**
Within the last 7 days	12	**21.8**
Within the last 4 weeks	9	**16.4**
Within the last 6 months	5	**9.1**
Within the last 5 years	1	**1.8**
More than 5 years ago	2	**3.6**
Total	**55**	

10.3 Sex And Alcohol In The Last 12 Months

We asked those men who reported any sexual partners in the last 12 months and answered our questions about alcohol use (n=49), how much of the sex they have had was after drinking alcohol. The results are shown in Table 10.2. About 4 in 10 men (42.9%) said none of the sex they had was after drinking alcohol, and a further quarter (26.5%) answered 'a little'. Only 8.2% said that about half of the sex they had was after alcohol consumption and 16.4% (n=8) said that more than half or almost all of it was after alcohol consumption. Finally, 2% reported having all their sex after alcohol consumption in the last 12 months. Therefore, overall, most (69.4%, n=34) GBMSM living with HIV who took part in our survey reported that most or all of their sex was sober.

Table 10.2. In The Last 12 Months, How Much Of The Sex You've Had Was After Consuming Alcohol?

	n	%
None of it	21	**42.9**
A little	13	**26.5**
Less than half	2	**4.1**
About half	4	**8.2**
More than half	4	**8.2**
Almost all	4	**8.2**
All of it	1	**2.0**
Total	**49**	

10.4 Fast Alcohol Screening Tool Results

The FAST consists of 4 questions designed to identify alcohol misuse during a clinical interaction with a client in order that a brief alcohol prevention intervention may be delivered. The initial question uses a graphic to help clients identify a 'standard drink', which roughly equates to 1 unit of alcohol (see Figure 10.1). Male clients are then asked; 'Using the graphic to work this out… How often do you have EIGHT of more standard drinks on one occasion?'. This graphic and question were included in the SMMASH3 questionnaire; the results are shown in Table 10.3.

Figure 10.1 FAST Standard Drink Image

Table 10.3. How Often Do You Have EIGHT Or More Standard Drinks On One Occasion?

	n	%
Never	11	**22.4**
Less than monthly	19	**38.8**
Monthly	7	**14.3**
Weekly	9	**18.4**
Daily or almost daily	3	**6.1**
Total	**49**	

As Table 10.3 shows, in total, 49 men addressed this question. About one in four men (22.4%) said they 'never' consume this level of alcohol on one occasion and a further 38.8% do so 'less than

monthly'[1]. As such, these men are defined by the FAST as 'not misusing alcohol'. Next, 18.4% said they consumed at least 8 units of alcohol on one occasion weekly and 6.1% did so daily or almost daily; these men are defined by the FAST as 'hazardous, harmful, or dependent drinkers' who would benefit from a brief alcohol intervention. Finally, 14.3% said they consumed 8+ units of alcohol on one occasion 'monthly'. The FAST requires that these participants are asked additional questions to determine whether their drinking is hazardous or not. In this study, we asked all participants who report drinking 8+ units on one occasion either 'monthly' or more often, the remaining 3 FAST questions, as follows;

1. How often during the last 6 months have you been unable to remember what happened the night before because you had been drinking?

2. How often in the last 6 months have you failed to do what was normally expected of you because of drinking?

3. In the last 6 months has a relative or friend, or doctor or other health worker been concerns about your drinking or suggested you cut down?

Responses to <u>all 4 FAST questions</u> were then scored as follows;

0 Never, **1** Less than monthly, **2** Monthly, **3** Weekly, **4** Daily or almost daily

Therefore, the FAST score ranges from 0 – 16, with a score of 3 indicating potentially hazardous, harmful, or dependent drinking. Note, men who said they consumed 8+ units of alcohol on one

[1] Although FAST scoring usually suggests men who report drinking 8 units of alcohol 'less than monthly' are assessed on the additional 3 questions to determine potentially hazardous drinking, given the wider cultural context of alcohol consumption in Scotland, we considered this level of drinking to be non-hazardous.

occasion either 'Never' (score 0) or 'Less than monthly' (score 1) were not scored on the remaining 3 FAST questions and defined as not reporting hazardous, harmful or dependent drinking.

The FAST suggests that a score of 3 or more indicates 'hazardous, harmful, or dependent drinkers'. Among HIV+ men in the SMMASH3 sample, whilst two thirds (71.4%) of participants were assessed as 'safe' drinkers, a further third (28.6%) were assessed as 'hazardous' drinkers (see Table 10.4). We now analyse these data to examine whether hazardous alcohol consumption is pattered by our key sociodemographic variables.

Table 10.4. FAST Score Categorization, Either 'Safe' Or 'Hazardous' Alcohol Consumption

FAST Score Categorization	n	%
Safe	35	**71.4**
Hazardous	14	**28.6**
Total	**49**	

10.4.1 Hazardous Alcohol Consumption: By NHS Region, Age, Relationship and HIV Status

Chi^2 analysis suggested that hazardous alcohol consumption was not patterned by NHS region (x^2=0.33, df=2, p=0.85), age (x^2=4.68, df=3, p=0.17), relationship (x^2=0.20, df=1, p=0.65) or HIV status (x^2=0.45, df=2, p=0.50).

10.4.2 Hazardous Alcohol Consumption: By Financial Worries

Chi^2 analysis (x^2=0.89, df=1, p=0.35) suggested that hazardous alcohol consumption was not patterned by financial worries.

10.5 Recreational Drug Use: Legal Drugs

We asked participants about their most recent use of recreational drugs, including poppers and erectile dysfunction medicine. Herein, 54 men living with HIV addressed this questionnaire sub-section. In each case, participants were asked to say when they last used each drug, even if this was not typical for them. This wording allows for a more accurate estimate at a population, rather than individual, level. The results of these questions are shown in Table 10.5. Most men (96.3%) had ever

tried poppers, with 55.7% doing so in the last year and 51.9% within the last month. 70.4% of all men had ever tried erectile dysfunction medications (such as Viagra©, Cialis© etc.), with more than half (55.6%) doing so in the last year and a third (33.3%) in the last month.

Table 10.5. When Did You Last Consume The Following Drugs?

	Poppers		Erectile Dysfunction Medications	
	n	**%**	**n**	**%**
Never	2	**3.7**	16	**29.6**
Within the last 24 hours	7	**13.0**	2	**3.7**
Within the last 7 days	15	**27.8**	6	**11.1**
Within the last 4 weeks	6	**11.1**	10	**18.5**
Within the last 6 months	1	**1.9**	5	**9.3**
Within the last 12 months	1	**1.9**	7	**13.0**
Within the last 5 years	5	**9.3**	5	**9.3**
More than 5 years ago	17	**31.5**	3	**5.6**
Total	**54**		**54**	

10.6 Recreational Drug Use: Illicit Drugs

We then asked men whether they had ever taken any other recreational or illicit drugs (e.g. cannabis, ecstasy, cocaine etc.). Overall, out of the 54 men who answered this section, 77.8% (n=42) said they had and 22.2% (n=12) said they had not.

Next, we asked those 42 men who had ever taken illicit drugs when was the last time they had taken a range of recreational drugs (Cannabis, Ecstasy, Amphetamines, Crystal Methamphetamine, Mephedrone, GHB/GBL, Ketamine, Cocaine, Crack Cocaine and Heroin) including chems and injected illicit drugs. The results of these questions are shown in Tables 10.6-10.11 below. In these tables, the first column 'n' shows the number of men reporting each drug use type, the second column '%' shows the proportion within all men who had used each illicit drug whilst the third column '% Tot' shows the proportion within all men who completed the drugs section of the SMMASH3 questionnaire (n=54).

In the next sub-section, we discuss the frequency of drug use amongst all HIV+ men who addressed the SMMASH3 drugs section (n=54).

10.7 Illicit Recreational Drug Use: Cannabis, Ecstasy, Cocaine, and Amphetamines

In Table 10.6, we see that most men living with HIV (65%; n=35) who answered the drugs section of the SMMASH3 survey (n=54) had ever used cannabis, one in four (24.2%, n=13) did so in the last year and 18.6% (n=10) in the last month.

57.5% (n=31) of all men had ever used ecstasy, 22% (n=12) did so in the last year and 11.2% (n=6) in the last month. 46.3% (n=38) had ever used amphetamines, 7.5% did so in the last year (n=4) and 3.8% (n=2) in the last month. Finally, 64.9% (n=48) of all men have ever used cocaine, 29.7% (n=16) in the last year and 13% did so in the last month (n=7). As such, cannabis and cocaine were the most widespread and frequently used drugs among HIV+ GBMSM, followed by ecstasy and amphetamines.

Table 10.6. When Did You Last Consume The Following Drugs?

	Cannabis			Ecstasy			Amphetamines			Cocaine		
	n	**%**	**% Tot**	**n**	**%**	**% Tot**	**n**	**%**	**% Tot**	**n**	**%**	**% Tot**
Never	7	16.7	**35.0**	10	24.4	**42.5**	16	38.1	**53.7**	6	14.6	**35.1**
Within the last 24 hours	5	11.9	**9.3**	1	2.4	**1.9**	0	0.0	**0.0**	0	0.0	**0.0**
Within the last 7 days	1	2.4	**1.9**	1	2.4	**1.9**	1	2.4	**1.9**	2	4.9	**3.7**
Within the last 4 weeks	4	9.5	**7.4**	4	9.8	**7.4**	1	2.4	**1.9**	5	12.2	**9.3**
Within the last 6 months	1	2.4	**1.9**	4	9.8	**7.4**	0	0.0	**0.0**	5	12.2	**9.3**
Within the last 12 months	2	4.8	**3.7**	2	4.9	**3.7**	2	4.8	**3.7**	4	9.8	**7.4**
Within the last 5 years	9	21.4	**16.7**	5	12.2	**9.3**	8	19.0	**14.8**	4	9.8	**7.4**
More than 5 years ago	13	31.0	**24.1**	14	34.1	**25.9**	14	33.3	**25.9**	15	36.6	**27.8**
Total (n)	**42**		**54**	**41**		**54**	**42**		**54**	**41**		**54**

10.8 Illicit Recreational Drug Use: Injecting Drug Use

Among the 42 men who had said that they had ever taken drugs, 13 said that they had ever injected illicit drugs. When examining this number in relation to the total number of 54 men who addressed

the entire drugs section of the SMMASH3 questionnaire, it was found that 24.1% had ever injected drugs. Only 16.7% (n=9/54) of all men had done so in the last year, and 7.4% (n=4/54) in the last 4 weeks (see Table 10.7).

As Table 10.7 shows, out of the 9 men who injected drugs in the last year, all 9 men reported that they injected drugs at a sex party in the last year. When comparing this number against the entire SMMASH3 population addressing the drugs section of the questionnaire (n=54), it was found that 16.7% (n=9) of our HIV+ GBMSM men injected drugs at a sex party in the last year.

Table 10.7. Injecting Drug Use

	Injecting Drugs			Injecting Drugs At A Sex Party		
	n	**%**	**% Tot**	**n**	**%**	**% Tot**
Never	29	69.0	**75.9**	n/a	n/a	**83.3**
Within the last 24 hours	2	4.8	**3.7**	1	11.1	**1.8**
Within the last 7 days	0	0.0	**0.0**	0	0	**0.0**
Within the last 4 weeks	2	4.8	**3.7**	2	22.2	**3.7**
Within the last 6 months	3	7.1	**5.6**	3	33.3	**5.6**
Within the last 12 months	2	4.8	**3.7**	3	33.3	**5.6**
Within the last 5 years	2	4.8	**3.7**	-	-	**-**
More than 5 years ago	2	4.8	**3.7**	-	-	**-**
Total (n)	**42**		**54**	**9**		**54**

10.9 Recent Illicit Drug Use

Combining these data, we calculated the proportion of men who reported recent (within the last 4 weeks) illicit drug use. Since exclusive cannabis use accounted for almost half of those men who reported recent illicit drug use, we calculated two measures of recent illicit drug use 1) Recent illicit drug use (all drugs) and 2) Non-cannabis recent illicit drug use. Table 10.8 shows that 37% of all men living with HIV in Scotland reported recent illicit drug use, but a lower proportion (27.8%) reported non-cannabis recent illicit drug use. As such, 9.2% (n=5) of men in this study report recent cannabis use but no other illicit drugs.

Table 10.8. Recent Illicit Drug Use

	Recent Illicit Drug Use		Recent Illicit Drug Use excluding cannabis	
	n	**%**	**N**	**%**
No	34	**63.0**	39	**72.2**
Yes	20	**37.0**	15	**27.8**
Total	**54**		**54**	

10.9.1 Recent Illicit Drug Use (Including Cannabis): By NHS Region, Age, & Relationship Status

Chi^2 analysis suggested that recent illicit drug use was not patterned by NHS region (x^2=1.82, df=2, p=0.40), age (x^2=3.79, df=2, p=0.29), or relationship status (x^2=2.54, df=1, p=0.11).

10.9.2 Recent Illicit Drug Use: By Financial Worries and HIV Status

Chi^2 analysis (x^2=8.25, df=1, p<0.05) suggested that recent illicit drug use was patterned by financial worries (see Table 10.9), such that men with financial worries were more likely (66.7%) to report recent illicit drug use than men with no financial worries (24.3%). Chi^2 analysis (x^2=11.35, df=1, p<.05) suggested that recent illicit drug use was patterned by HIV status, (see Table 10.9) such that HIV+ men (37%) were significantly more likely to report recent illicit drug use than HIV-/untested men (19.5%).

Table 10.9. Recent Illicit Drug Use (Including Cannabis): By Financial Worries and HIV Status

	Recent Illicit Drug Use			
Financial Worries	**Yes**		**No**	
	n	**%**	**n**	**%**
No (Occasional/Never)	9	**24.3**	28	**75.7**
Yes (Sometimes/All of the time)	10	**66.7**	5	**33.3**
HIV Status	**n**	**%**	**n**	**%**
HIV +	20	**37%**	34	**63%**
HIV- / Untested	171	**19.5%**	708	**80.5%**

10.9.4 Recent Illicit Drug Use (Excluding Cannabis): By NHS Region & Age

Chi^2 analyses suggested that recent illicit drug use (excluding cannabis) was not patterned by NHS Region (x^2=1.57, df=2, p=0.46) or age (x^2=0.74 df=3, p=0.87).

10.9.5 Recent Illicit Drug Use (Excluding Cannabis): By Relationship Status, Financial Worries and HIV Status

Chi^2 analysis (x^2=4.61, df=1, p<0.05) suggested that recent illicit drug use (excluding cannabis) was patterned by relationship status, such that single men (43.5%) were more likely to report recent illicit drug use compared to men in relationship (16.7%) (see Table 10.10). Likewise, chi^2 analysis (x^2=4.17, df=1, p<0.05) suggested that recent illicit drug use (excluding cannabis) was patterned by financial worries (see Table 10.10), such that men with financial worries were more likely (46.7%) to use illicit drugs compared to men with no financial worries in the last year (18.9%). Chi^2 analysis (x^2=14.67, df=1, p<.05) suggested that recent illicit drug use (excluding cannabis) was patterned by HIV status, (see Table 10.10) such that HIV+ men (27.8%) were significantly more likely to report recent illicit drug use than HIV-/untested men (10.5%)

Table 10.10. Recent Illicit Drug Use (Excluding Cannabis): By Relationship Status & Financial Worries

	Recent Illicit Drug Use (excluding Cannabis)			
Sociodemographics				
Financial Worries	**Yes**		**No**	
	n	**%**	**n**	**%**
No (Occasional/Never)	7	**18.9**	30	**81.1**
Yes (Sometimes/All of the time)	7	**46.7**	8	**53.3**
Relationship Status	**n**	**%**	**n**	**%**
Single	10	**43.5**	13	**56.5**
In a relationship	5	**16.7**	25	**83.3**
HIV Status	**n**	**%**	**n**	**%**
HIV +	15	**27.8**	39	**72.2**
HIV- / Untested	87	**10.5**	738	**89.5**

10.10 Sex And Illicit Drugs Amongst GBMSM: Chemsex

Crystal methamphetamine, mephedrone, GHB/GBL and ketamine are typically referred to as 'chemsex' drugs. They can be used to enhance sexual feelings, pleasure, appetite and reduce inhibitions and fuel long sexual sessions often with multiple partners.

In total, among the 42 men who reported drug use, 61.9% (n= 26/42) reported using at least one of these four chemsex drugs in their lifetime and 38.1% (n=16/42) reported using chemsex drugs in the last year.

We asked those men who said they had used chemsex drugs in the last 12 months (n=16), how much of the sex they'd had was under the influence of chemsex drugs (see Table 10.11).

Table 10.11. Amount Of Sex Reported Whilst Using Chemsex Drugs

	Sex using chemsex drugs		Total of whole sample
	n	%	
None of it	1	**6.3**	**1.9**
A little	3	**18.8**	**5.6**
Less than half	1	**6.3**	**1.9**
About half	2	**12.5**	**3.7**
More than half	5	**31.3**	**9.2**
Almost all	3	**18.8**	**5.6**
All of it	1	**6.3**	**1.9**
Did not use chems in the last year			**70.4%**
Total	**16**		**54**

Overall, we see that, for those men who used chemsex drugs, most did so for sexual purposes, at least some of the time. In particular, as Table 10.11 shows, for those men who reported chemsex drug use in the last year, most (68.8%) said that at least half of their sex in the last year occurred while taking chems. This is an important issue, and worthy of further study to understand the meaning of chemsex to those HIV+ GBMSM in Scotland that use chems for sexual purposes. However, considering the whole sample of HIV+ GBMSM, most (70.4%) did not take chems at all in the last year. Therefore, whilst 3 in 10 of HIV+ GBMSM in our sample report chemsex in the last year, and about the-thirds of

them report most of their sex takes place on chems, the large majority of HIV+ GBMSM in Scotland do not report chemsex.

10.11 Smoking & Vaping

55 participants addressed the smoking section of the SMMASH3 questionnaire. As Table 10.12 shows, about half of these men were non-smokers (52.7%) while another 12.7% were ex-smokers or ex-vapers. 23.6% were current smokers, 9.1% were current vapers, and 1.8% were current smokers and vapers. As such, 25.4% of all men living with HIV in our survey smoked; this percentage is somewhat higher than the smoking rate of the adult male population (21%) smoking in Scotland in 2018 (Scottish Public Health Observatory, 2019).

Overall, 34.5% (n=19/55) of all men addressing the smoking section of the SMMASH3 questionnaire were current smokers or vapers and 65.5% (n=36/55) were non-smokers or vapers or ex-smokers and vapers. Next, we analyse smoking and vaping by our key sociodemographic variables.

Table 10.12. Smoking & Vaping Status Of GBMSM living with HIV In Scotland

	Smoking/Vaping Status of GBMSM	
	n	**%**
Non-smoker	29	**52.7**
Current smoker (tobacco)	13	**23.6**
Current vaper (e-cigarettes/vaporizer)	5	**9.1**
Current smoker (tobacco) and vaper	1	**1.8**
Ex-smoker and/or Ex-vaper	7	**12.7**
Total	**55**	

10.11.1 Smoking And Vaping: By NHS region

Chi^2 analysis (x^2=1.91, df=2, p=0.38) suggested that smoking and vaping was not patterned by NHS region.

10.11.2 Smoking And Vaping: By Age

Chi^2 analysis (x^2=3.21, df=3, p=0.36) suggested that smoking and vaping did not differ by age.

10.11.3 Smoking And Vaping: By Relationship Status

Chi^2 analysis (x^2=1.35, df=1, p=0.25) suggested that smoking and vaping was not patterned by relationship status.

10.11.4 Smoking And Vaping: By Financial Worries

Chi^2 analysis (x^2=1.07, df=1, p=0.30) suggested that smoking and vaping was not patterned by financial worries.

10.11.5 Smoking And Vaping: By HIV Status

Chi^2 analysis (x^2=2.79, df=1, p=0.1) suggested that smoking and vaping was not patterned by financial worries.

10.12 Summary

- 80% of GBMSM living with HIV and took part in the SMMASH3 study are regular drinkers, that is, they consume alcohol on a weekly basis or more. According to the Fast Alcohol Screening Tool, one third of GBMSM (28.6%) in Scotland were assessed as 'hazardous' drinkers, who would therefore benefit from a brief intervention to reduce their alcohol intake. Hazardous drinking was not patterned by any of the key sociodemographic variables.
- Levels of recreational drug use (both legal and illicit) were very common amongst GBMSM living with HIV in Scotland, however, this depended strongly on the type of drug considered. Most men had ever tried poppers (96%) and 70% had used erectile dysfunction medications. 65% of all men, addressing the drug use section of the questionnaire, had used cannabis and cocaine. 58% had ever used ecstasy whilst 46% had tried amphetamines.
- A large proportion within all SMMASH3 participants (24%) addressing the drugs use sub-section, had ever injected illicit drugs. Out of the 9 men who injected drugs in the last year, all 9 men reported using injected drugs at a sex party in the last year. However, overall, 16.7%

(9/54) of all SMMASH3 participants, said that they injected drugs at a sex party within the last year.

- Combining these data, we calculated the proportion of men who reported recent (within the last 4 weeks) illicit drug use. Since exclusive cannabis use accounted for almost half of those men who reported recent illicit drug use, we calculated two measures of recent illicit drug use: 1) Recent illicit drug use (all drugs) and 2) Non-cannabis recent illicit drug use. 37% of all men living with HIV in Scotland reported recent illicit drug use, but a lower proportion (28%) reported non-cannabis recent illicit drug use.
- Single men were significantly more likely to report recent illicit drug use (excluding cannabis) than men in a relationship. Men with financial worries were more likely to report recent illicit drug use (including and excluding cannabis) than men with no financial worries. Finally, HIV+ men were significantly more likely to report recent illicit drug use in the last year (including and excluding cannabis) than HIV-/untested men.
- Crystal methamphetamine, mephedrone, GHB/GBL and ketamine are typically referred to as 'chemsex' drugs. They can be used to enhance sexual feelings, pleasure, appetite and reduce inhibitions and fuel long sexual sessions often with multiple partners. In total, among the 42 men who reported drugs use, 62% reported using at least one of these four chemsex drugs in their lifetime and 38% reported using chemsex drugs in the last year.
- We asked men who said they had used chemsex drugs in the last 12 months (n=16), how much of the sex they had had was under the influence of chemsex drugs. Most men (68.8%) said that at least half of their sex in the last year occurred while taking chems. However, considering the whole sample of HIV+ GBMSM, most (70.4%) did not take chems at all in the last year, while almost 3 in 10 did.
- 34.5% of all men addressing the smoking section of the SMMASH3 questionnaire (n=55) were current smokers or vapers and 65.5% were non-smokers or vapers or ex-smokers and vapers. Smoking and vaping were not related to any of the key sociodemographic variables.

Chapter 11 - Social And Sociosexual Media Use

11.1 Introduction

This chapter describes social media use amongst GBMSM living with HIV in Scotland. Herein, this section first examines social media (including Facebook, YouTube, Instagram) which are primarily used for social means, and then considers gay specific sociosexual media (including Gaydar, Grindr, Recon etc.) which are primarily used for sexual and romantic means. The questions used were derived from the original SMMASH studies (Frankis et al, 2013; Frankis et al., 2016b). We present the basic descriptive statistics (frequency and percentages) for these items and, where possible, we use inferential statistics to determine if significant differences were observed for each of the following variables;

1. Across the 3 NHS regions of NHS Greater Glasgow and Clyde (GGC), NHS Lothian and the Rest of Scotland (RoS).
2. By age category, grouped as aged 16-25 years, 26-35 years, 36-45 years and 46 years and over.
3. By relationship status, either single, or regular male or female partner.
4. By financial status, reporting financial worries either 'occasionally/never' or 'sometimes/all of the time' in the past year.
5. By HIV status, comparing HIV+ with HIV-/untested GBMSM in the SMMASH3 sample.

11.2 Social media use

Men were asked *'Which of the following social media they had used in the previous 12 months (Click as many as apply)'* and provided with the options in Table 11.1 to choose from. As Table 11.1 shows, out of the 53 men who completed this section, only 5.7% said that they did not use any social media at all.

Facebook was the most popular social media site among the men taking part in the SMMASH3 survey, with 88.7% of all men living with HIV reporting Facebook use in the last 12 months. YouTube was the

second most popular option with 67.9% of all men selecting this option. However, one limitation with this question is that participants were not asked to distinguish between consuming and producing content for YouTube, which means that many users may not be using the media in a social way relating to themselves. Six out of ten men (60.4%) were using Twitter, 49.1% Instagram and about a third (34%) were using Snapchat. 22.6% of all men were using LinkedIn and 15.1% Pinterest. However, Google+ (13.2%), Reddit (11.3%), and TikTok (3.8%) were less popular options for all men compared to the social media sites described above.

Table 11.1. Which Of The Following Social Media Have You Used In The Last 12 Months?

	n	%
Facebook	47	**88.7**
YouTube	36	**67.9**
Twitter	32	**60.4**
Instagram	26	**49.1**
Snapchat	18	**34.0**
LinkedIn	12	**22.6**
Pinterest	8	**15.1**
Google+	7	**13.2**
Reddit	6	**11.3**
TikTok	2	**3.8**
None	3	**5.7**
Total	**53**	

11.3 Social Media Use

We asked those 53 men 'How often do you use these social media' in order to examine social media use frequency. As Table 11.2 shows, 24.5% of men said they use social media daily, with a further third (34%) using them several times a day. 7.5% said that they used social media all the time. Interestingly, although our survey recruited participants through social media, about 1 in 9 men (13.2%, n=7) said that they either never, or used to, use social media websites.

Table 11.2. How Often Do You Use These Social Media?

	n	%
I used to use them but have stopped	5	**9.4**
I never use them	2	**3.8**
Every few months or longer	1	**1.9**
About once a month	1	**1.9**
About once a week	3	**5.7**
Every few days	9	**17.0**
At least once a day	13	**24.5**
Several times a day	18	**34.0**
All the time	4	**7.5**
Total	**53**	

Next, we computed a new variable distinguishing between men using social media monthly or less often and those men using social media at least weekly. As Table 11.3 shows, 86.8% of all men addressing the social media section, were using social media at least weekly whilst 13.2% monthly or less. Social media use was then examined by each of our key sociodemographic variables.

Table 11.3. Social Media Use: Monthly or less/ Weekly or more

Social media use (any media)	Monthly or less		Weekly or more		Total
	n	%	n	%	N
	7	**13.2**	46	**86.8**	53

11.3.1 Social Media Use: By NHS Region

Chi^2 analysis (x^2=1.22, df=2, p=0.55) suggested that social media use was not patterned by NHS Region.

11.3.2 Social Media Use: By Age

Chi^2 analysis (x^2=0.56, df=3, p=0.92) suggested that social media use was not patterned by age.

11.3.3 Social Media Use: By Relationship Status

Chi^2 analysis (x^2=0.73, df=1, p=0.39) suggested that social media use was not related to relationship status.

11.3.4 Social Media Use: By Financial Worries

Chi^2 analysis (x^2=0.44, df=1, p=0.51) suggested that social media use was not patterned by financial worries.

11.3.5 Social Media Use: By HIV Status

Chi^2 analysis (x^2=4.27, df=1, p<0.05) suggested that social media use was patterned by HIV status, with HIV+ men significantly less likely to use social media weekly or more (86.8%) compared to HIV-/untested men (94%) (see table 11.4).

Table 11.4. Social Media Use: By HIV Status

Social media use (any media)	Monthly or less		Weekly or more		Total
	n	%	n	%	N
HIV+	7	**13.2**	46	**86.8**	54
HIV- / untested	49	**6.0**	766	**94**	815

11.4 Gay Sociosexual Media Use

We asked participants about their use of gay sociosexual media, distinguishing between gay sociosexual media websites (like Gaydar, Grindr, Recon, Squirt etc.) and gay sociosexual media smartphone apps (like Grindr, Growlr, Scruff etc.). It is recognized that there is not a clear delineation between these two types, such that several websites (e.g. Gaydar, Recon etc.) also have smartphone apps, but we theorized that there may be differences between men who use websites and smartphone apps, primarily due to the more advanced geospatial technological facilities the latter more explicitly offer.

11.5 Which Websites Have You Used To Meet Male Sex Partners In The Last 12 Months?

Men were asked to specify *'Which of the following WEBSITES have you used to meet male sex partners in the last 12 months? (Click as many as apply)*'. These data (from n=53 participants), and the various websites which men were able to choose from, are shown in Table 11.5. This selection of websites was chosen as a combination of the most often mentioned in the SMMASH2 study, the EMIS study

and those which purported to have the largest user group in 2019, based on their online claims, along with the most prominent gay specific websites operating in the UK.

Fabguys (47.2%) was the most popular website used to meet male sex partners in the previous year among all men addressing this questionnaire section, followed by Squirt (37.7%) and Recon (34%). FabSwingers (22.6%) and Gaydar (20.8%) were also reported by over 2 in 10 men. As participants were recruited through Gaydar, Squirt and Recon, it is unsurprising that these websites were most frequently cited; however, it is notable that so many survey participants mentioned FabGuys and FabSwingers since we did not recruit through these websites (although the research team contacted FabGuys for advertising purposes, their advertising team did not reply). Of the bareback websites, BareBackRT (37.7%) was by far the most popular amongst our survey responders, with about 4 in 10 men report using it. BareBackCom (9.4%) was used by a sizeable proportion of our participants. Heterosexually oriented websites POF (Plenty of Fish 3.8%) were used by a limited number of men to source male sex partners. Finally, when we asked our participants about any other websites, they had used to meet male sex partners in the last year, a sizeable proportion (5.7%) reported using Nasty Kink Pigs.

Table 11.5. Which Of The Following WEBSITES Have You Used To Meet Male Sex Partners In The Last 12 Months?

	n	%
FitLads	2	**3.8**
POF (Plenty of Fish)	2	**3.8**
Manhunt	2	**3.8**
PlanetRomeo	5	**9.4**
Bareback.com	5	**9.4**
Gaydar	11	**20.8**
FabSwingers	12	**22.6**
Recon	18	**34.0**
Squirt	20	**37.7**
BareBackRealTime	20	**37.7**
FabGuys	25	**47.2**
Nasty Kink Pigs (Other)	3	**5.7**
Total	**53**	

11.6 Gay Social Networking Websites

As this sample of men was recruited primarily through gay sociosexual media, we would expect their use of such media to be higher than in the wider GBMSM population. These data are presented in Table 11.6. Accordingly, 49% (n=26/53) of men said they used gay sociosexual media websites on a daily basis (at least once a day/several times a day/all the time), with a 22.7% (n=12) using gay sociosexual media websites weekly (3.8%) or every few days (18.9%). However, 18.8% (n=10) said they either never, or used to use gay sociosexual media websites; this finding might be explained by the fact that over the past years all the gay social websites have introduced mobile applications that might be more frequently used by the men taking part in our survey. This issue is further examined in the next section of this chapter.

Therefore, overall, as Table 11.6 shows, 72.7% of all men were using gay social websites at least weekly whilst 28.3% did so monthly or less often. We now analyse these data to examine whether they are pattered by our key sociodemographic variables.

Table 11.6. How Often Do You Use Gay Social Networking Websites?

	n	%
I used to use them but have stopped	4	**7.5**
I never use them	6	**11.3**
Every few months or longer	4	**7.5**
About once a month	1	**1.9**
About once a week	2	**3.8**
Every few days	10	**18.9**
At least once a day	12	**22.6**
Several times a day	10	**18.9**
All the time	4	**7.5**
Total	**53**	

11.6.1 Gay Sociosexual Media Website Use: By NHS Region

Chi^2 analysis (x^2=6.57, df=2, p<0.05) suggested that weekly gay sociosexual media website use was patterned by NHS region, such that men living in NHS GGC (71.4%) and RoS (88.2%) were significantly

more likely to report frequent website use compared to those living in NHS Lothian (46.7%) (see Table 11.7).

Table 11.7. Gay Sociosexual Media Website Use: By NHS Region, Relationship Status and HIV status

Sociodemographic variable	Monthly or less		Weekly or more		Total
	n	%	n	%	N
Total	16	**30.2**	37	**69.8**	53
NHS Region					
GGC	6	**28.6**	15	**71.4**	21
Lothian	8	**53.3**	7	**46.7**	15
RoS	2	**11.8**	15	**88.2**	17
Relationship Status					
Single	3	**13.6**	19	**86.4**	22
Regular Partner	13	**43.3**	17	**56.7**	30
HIV Status					
HIV+	16	**30.2%**	37	**69.8**	54
HIV- / Untested	358	**43.6**	463	**56.4**	874

11.6.2 Gay Sociosexual Media Website Use: By Age

Chi^2 analysis (x^2=3.12, df=3, p=0.37) suggested that gay sociosexual media website use was not patterned by age.

11.6.3 Gay Sociosexual Media Website Use: By Relationship Status

Chi^2 analysis (x^2=5.25, df=1, p<0.05) suggested that single men (86.4%) were significantly more likely to report weekly gay sociosexual media website use than men with a regular male or female partner (56.7%) (see Table 11.7).

11.6.4 Gay Sociosexual Media Website Use: By Financial Worries

Chi^2 analysis (x^2=2.61, df=1, p=0.10) suggested that gay sociosexual media website use was not patterned by financial worries.

11.6.5 Gay Sociosexual Media Website Use: By HIV Status

Chi^2 analysis (x^2=3.66, df=1, p=0.056) suggested a trend towards significance that gay sociosexual media website use was patterned by HIV status, such that HIV+ men (69.8%) were more likely to report using them weekly or more compared to HIV-/untested men (56.4%). As this is a trend towards significance, this relationship must be treated more cautiously than findings that reach significance.

11.7 Which Apps Have You Used To Meet Male Sex Partners In The Last 12 Months?

Men were asked to specify *'Which of the following SMARTPHONE APPS have you used to meet male sex partners in the last 12 months? (Click as many as apply)'*. These data (from n=53 participants) alongside the various smartphone apps which men were able to choose from, are shown in Table 11.8. The selection of these apps was based upon the apps most commonly mentioned in the SMMASH2 study, the EMIS study and after consultation with GBMSM experts.

Grindr (64.2%) was by far the most frequently used sociosexual media app used by HIV+ men in the SMMASH3 study, followed by Scruff (52.8%) and FabGuys (32.1%). About a third said they used Recon (28.3%) whilst a quarter used Squirt (24.5%) to meet sex partners in the last year. About one in five men used Growlr (18.9%) and FabSwingers (18.9%) in the last 12 months while 1 in 8 men used Gaydar (15.1%). The popularity of FabGuys/FabSwingers is again interesting since we did not recruit through this app and again is likely to be powered at least partly by the free nature of app use. 'Heterosexual' apps were also reported by a sizeable proportion of men, although Tinder (13.2%) was substantially more popular than POF (3.8%). Almost none of the participants reported any new smartphone apps, as an additional option to these provided within the SMMASH3 questionnaire.

Table 11.8. Which Of The Following SMARTPHONE APPS Have You Used To Meet Male Sex Partners In The Last 12 Months?

	n	%
Grindr	34	**64.2**
Scruff	28	**52.8**
FabGuys	17	**32.1**
Tinder	7	**13.2**
Recon	15	**28.3**
Growlr	10	**18.9**
Squirt	13	**24.5**
Gaydar	8	**15.1**
FabSwingers	10	**18.9**
Hornet	4	**7.5**
PlanetRomeo	2	**3.8**
Jack'd	1	**1.9**
POF (Plenty of Fish)	2	**3.8**
Fitlads	1	**1.9**
Manhunt	2	**3.8**
Blued	1	**1.9**
Total	**53**	

11.8 Gay Sociosexual Media Smartphone App Use-frequency

Participants were also asked about their use of gay sociosexual media smartphone app use, like Grinder, Scruff, Growlr etc. Again, the recruitment strategy of this sample means we would expect their use of these media to be higher than the wider population. These data are presented in Table 11.9.

22.6% of all men who addressed this section (n=53) said they used gay sociosexual media apps at least once daily, with a further 18.9% using them several times a day and another 7.5% all the time. 3.8% said that they used these apps weekly, 1.9% monthly, and 7.5% every few months or longer. Again, there is a relatively large number of men who say they never (11.3%) or no longer (7.5%) use smartphone sociosexual networking apps, which reflects that these men were probably recruited through Facebook and Twitter.

Therefore, overall, 28.3% (n=15) used sociosexual smartphone apps monthly or less often and 71.7% (n=38) used these apps at least weekly (see Table 11.9). Next, we analyse apps use frequency by our key sociodemographic variables.

Table 11.9. How Often Do You Use Gay Social Networking APPS On Your SMARTPHONE (Like Grindr, Scruff, Growlr Etc.)?

	n	%
I used to use them but have stopped	4	**7.5**
I never use them	6	**11.3**
Every few months or longer	4	**7.5**
About once a month	1	**1.9**
About once a week	2	**3.8**
Every few days	10	**18.9**
At least once a day	12	**22.6**
Several times a day	10	**18.9**
All the time	4	**7.5**
Total	**53**	

11.8.1 Gay Sociosexual Media Smartphone App Use: By NHS Region, Age, Relationship Status and HIV status.

Chi^2 analyses suggested that gay sociosexual media app use was not patterned by NHS region (x^2=3.57, df=2, p=0.16), age (x^2=7.22, df=3, p=0.07), relationship status (x^2=2.11, df=1, p=0.15) or HIV status (x^2=0.07, df=1, p=0.8).

Table 11.10. Gay Sociosexual Media Smartphone App Use: By Sociodemographic Variables

Sociodemographic variable	Monthly or less		Weekly or more		Total
	n	%	n	%	N
Total	15	**28.3**	38	**71.7**	53
Financial Worries					
No (Occasional/Never)	14	**37.8**	23	**62.2**	37
Yes (Sometimes/All of the time)	1	**7.1**	13	**92.9**	14

11.8.2 Gay Sociosexual Media Smartphone App Use: By Financial Worries

Chi^2 analysis (x^2=4.61, df=1, p<0.05) suggested that men with financial worries (92.9%) were significantly more likely to report weekly gay sociosexual media app use compared to men with no financial worries (62.2%) (see Table 11.10).

11.9 Summary

- Participants in the SMMASH3 study were recruited via social media, gay sociosexual media and apps. As such, it is likely that the social media and sociosexual media use of this sample is higher than that of the wider community of GBMSM. Unsurprisingly, this sample of GBMSM are highly active social media users.
- 87% of all men were using social media at least weekly whilst 13% did so monthly or less. Only 1 in 9 men said that they either never, or used to, use social media websites. In terms of the key sociodemographic variables, social media use was patterned only by HIV status, such that HIV+ men were less likely to use social media weekly or more (87%) compared to HIV-/untested men (94%).
- Facebook was the most popular social media site among the men taking part in the SMMASH3, with 89% of HIV+ GBMSM in this sample reporting Facebook use in the last 12 months. YouTube (68%) was the second most popular option followed by Twitter (60%) and Instagram (49%).
- Most participants (70%) were using gay socio-sexual websites to meet male sexual partners at least weekly in the last year whilst 30% did so monthly or less often. Single men and men residing in NHS GGC or in the RoS were significantly more likely to report frequent gay sociosexual media website use compared to men in a relationship and those living in NHS Lothian, respectively. HIV+ men were more likely to report frequent sociosexual media website use compared to HIV-/untested men.
- HIV+ men reported using multiple websites to meet male sex partners in the last year. Fabguys (47%), BareBackRealTime (38%), Squirt (38%) and Recon (34%) were the most frequently reported.
- Most participants (72%) said they use gay sociosexual apps to meet male partners as least weekly and 28% used them monthly or less often. A relatively large proportion of men said that they had never (11%) or no longer (8%) used smartphone sociosexual networking apps.

In terms of the key sociodemographic variables examined herein, gay sociosexual media use was patterned only by HIV status, such that HIV+ men (70%) were more likely to report frequent use compared to HIV-/untested men (56%).

- HIV+ GBMSM reported using multiple apps to meet male sex partners. Grindr (64%) was by far the most frequently used sociosexual media app used by men completing the social media section in this study, followed by Scruff (53%) and FabGuys (32%). Over one quarter (28%) said they used Recon whilst a quarter used Squirt to meet sex partners in the last year, reflecting the recruitment strategy of this survey.

Chapter 12 – Use Of Online Sexual Health And Other Health Services

12.1 Introduction

This chapter describes the use of online sexual health and other health services among GBMSM living with HIV in Scotland. Specifically, this section describes the proportion of men who reported using online health information and health services in the last 12 months. Moreover, this section also examines the views of GBMSM around using an online sexual health service in the future. A group of experts (including, clinicians, researchers, 3rd sector experts with GBMSM representation) developed the questions presented in this chapter, based on their expertise and on past literature. These questions were also piloted in and further adapted from a group of GBMSM 'experts'. Herein, we present the basic descriptive statistics (frequency and percentages) for these items and, where possible, we use inferential statistics to determine if significant differences were observed for each of the following variables;

1. Across the 3 NHS regions of NHS Greater Glasgow and Clyde (GGC), NHS Lothian and the Rest of Scotland (RoS).
2. By age category, grouped as aged 16-25 years, 26-35 years, 36-45 years, and 46 years and over.
3. By relationship status, either single or regular male partner or female partner.
4. By financial status, reporting financial worries either 'occasionally/never' or 'sometimes/all of the time' in the past year.
5. By HIV status, comparing HIV+ with HIV-/untested GBMSM in the SMMASH3 sample.

12.2 Use of Online Health Services In The Last 12 Months

47 men living with HIV in total addressed the online health services section of the SMMASH3 questionnaire. Herein, we examined the use of online health services such as seeking online health information and booking online clinical appointments (see Table 12.1).

In the last 12 months, most men (78.7%) had used the internet to search for health-related information. Over half (57.4%) had searched online for the location of a clinic or googled the phone number of a health clinic or service (57.4%). In addition, 40.4% had booked a clinical appointment online and half (48.9%) had ordered a repeat medical prescription online. One in four (19.1%) had purchased medication via an online pharmacy or medical service and about a third (29.8%) accessed the results of their medical tests online. Almost one quarter (23.4%) had communicated directly with a health professional via email, Facetime or Skype. A small group of men (6.4%) had ordered a medical test online. Finally, only two men (4.3%) said that they have used none of the health services listed in Table 12.1.

Therefore, as Table 12.2 shows, overall, half (48.9%) of HIV+ men had used any online health services in the last 12 months whilst 51.1% had not done so. We now examine the use of online health services in the last 12 months by our key sociodemographic variables.

Table 12.1. In the last 12 months which of the following have you done online?

	n	%
Searched for health-related information	37	**78.7**
Searched for the location of a clinic or health service	27	**57.4**
Searched for the phone number of a clinic or health service	27	**57.4**
Booked a GP/clinic/hospital appointment online	19	**40.4**
Communicated directly with a health professional (e.g. via email, FaceTime, Skype)	11	**23.4**
Ordered a medical test	3	**6.4**
Accessed medical test results	14	**29.8**
Ordered a repeat prescription	23	**48.9**
Purchased medication via an online pharmacy or medical service	9	**19.1**
None of the above	2	**4.3**
Total	**47**	

12.2.1 Use Of Online Health Services In The Last 12 Months: By NHS Region

Chi^2 analysis (x^2=8.10, df=2, p<0.05) suggested that the use of online health services in the last 12 months among GBMSM living with HIV was patterned by NHS region. Men living in NHS Lothian (15.4%) were significantly less likely to use online health services in the last year compared to those living in NHS GGC (61.1%) and the RoS (62.5%) (see Table 12.2).

Table 12.2. Use of Online Health Services In The Past 12 months: by Key Sociodemographics

Sociodemographic variable	No Use of online health services		Use of online health services		Total
	n	%	n	%	N
Total	24	**51.1**	23	**48.8**	47
NHS Region					
GGC	7	**38.9**	11	**61.1**	18
Lothian	11	**84.6**	2	**15.4**	13
RoS	6	**37.5**	10	**62.5**	16

12.2.2 Use Of Online Health Services In The Last 12 Months: By Age

Chi^2 analysis (x^2=5.21, df=3, p=0.16) suggested that the use of online health services in the last 12 months was not associated to age.

12.2.3 Use Of Online Health Services In The Last 12 Months: By Relationship Status

Chi^2 analysis (x^2=0.11 df=1, p=0.73) suggested that the use of online health services was not patterned by relationship status.

12.2.4 Use Of Online Health Services In The Last 12 Months: By Financial Worries

Chi^2 analysis (x^2=0.34, df=1, p=0.56) suggested that the use of online health services was not patterned by financial worries.

12.2.5 Use Of Online Health Services In The Last 12 Months: By HIV status

Chi^2 analysis (x^2=0.921, df=1, p=0.34) suggested that the use of online health services was not patterned by HIV status.

12.3 Using Online Information In Order To Access Health Services

We examined the type of health information that men had searched online in order to access health services. 45 men had in total addressed this questionnaire section. As Table 12.3 shows, in the last 12 months, 35.6% of all survey respondents who completed this section searched the internet for symptoms they had experienced while 37.8% looked up the medication they were using on the internet in order to access health services. One in eight men (13.3%) used the internet to access information about their sexual behaviour and 15.6% searched online for side effects of medicines taking to access health services.

As such, as Table 12.4 shows, overall, 53.3% (n=24) of all 45 men said that they had not used the internet to retrieve information about any of the four issues listed in Table 12.3 in order to access health services whilst 46.7% (n=21) had done so. Next, we examine use of online health information by the five key sociodemographic variables.

Table 12.3. In the past 12 months, which of the following have you provided information about online in order to access health services?

	n	%
Your sexual behaviour	6	**13.3**
Symptoms you have experienced	16	**35.6**
Medications you are taking	17	**37.8**
Side effects of medicines	7	**15.6**
None of the above	24	**53.3**
Total	**45**	

12.3.1 Searching Online Health Information In The Last 12 Months: By NHS Region

Chi^2 analysis (x^2=0.45, df=2, p<0.05) suggested that searching online health information in the last 12 months was patterned by NHS region. Men living in NHS Lothian (15.4%) were significantly less likely to search online health information in the past 12 months compared to men living in NHS GGC (61.1%) and the RoS (57.1%).

Table 12.4. Searching Online Health Information In The Last 12 Months: By Key Sociodemographics

Sociodemographic variable	Did not search for health Information		Searched for health Information		Total
	n	%	n	%	N
Total	24	**53.3**	21	**46.7**	45
NHS Region					
GGC	7	**38.9**	11	**61.1**	18
Lothian	11	**84.6**	2	**15.4**	13
RoS	6	**42.9**	8	**57.1**	14

12.3.2 Searching Online Health Information In The Last 12 Months: By Age

Chi^2 analysis (x^2=5.78, df=3, p=0.12) suggested that searching online health information in the last 12 months was not associated to age.

12.3.3 Searching Online Health Information In The Last 12 Months: By Relationship Status

Chi^2 analysis (x^2=0.15, df=2, p=0.69) suggested that searching online health information was not patterned by relationship status.

12.3.4 Searching Online Health Information In The Last 12 Months: By Financial Worries

Chi^2 analysis (x^2=0.24, df=1, p=0.62) suggested that searching online health information was not patterned by financial worries.

12.3.4 Searching Online Health Information In The Last 12 Months: By HIV status

Chi^2 analysis (x^2=0.56, df=1, p=0.81) suggested that searching online health information was not patterned by HIV status.

12.4 Views Around Using Online Sexual Health Services

We examined men's views around using online sexual health services, with the use of two case scenarios: 1) men were asked to address whether they would prefer to arrange a routine STI screening online, face-to-face, or by phone, when they experienced no symptoms and 2) men were asked to

address when they would prefer to arrange an STI screening online, face-to-face, or by phone, when they were worried about a new symptom or they concerned they had been at risk of STI infection.

As Table 12.5 shows, when men were not experiencing any symptoms, most participants preferred the internet over face-to face and telephone to access most of the services around STI testing we assessed. However, in each case, between one quarter and one third of participants said they did not have a preference for the method of service provision. Face-to-face was generally most valued to provide information (about sexual behaviour, medication and particularly symptoms) whereas the phone was really only preferred to book appointments and received results.

In a situation where they were experiencing symptoms, or felt they were at risk of infection, (see Table 12.6) men's preferences around accessing services were largely the same. Again, between one quarter and one third had no preference around the method of accessing each of the service issues, and between one quarter and one third preferred to use the internet. Face-to-face was generally eschewed except for providing information about sexual behaviour, symptoms or medication, and the phone only really acceptable for booking an appointment. However, twice as many men said they would rather receive STI (other than HIV) results face-to-face when they thought they were likely to be infected, compared to a routine screening situation; and the opposite was observed for the phone.

In concert, we see that HIV+ men either have no preference or prefer the internet to manage their sexual health although a face-to-face interaction is valued when expecting positive STI diagnoses.

Table 12.5. Men's Preferences Around The Provision Of Routine STI Screening Related Services

STI screening related service	Online	Face-to-face	Phone	No Preference	Would never do this	Total
	% (n)	% (n)	% (n)	% (n)	% (n)	N
Booking a clinical appointment	39.1 (18)	4.3 (2)	28.3 (13)	28.3 (13)	0.0 (0)	46
Providing information about their sexual behaviour	30.4 (14)	30.4 (14)	6.5 (3)	23.9 (11)	8.7 (4)	46
Providing information about any symptoms you have experienced	26.1 (12)	39.1 (18)	8.7 (4)	26.1 (12)	0.0 (0)	46
Providing any information about medicines they are taking	25 (11)	22.7 (10)	15.9 (7)	36.4 (16)	0.4 (3)	44
Receiving results for STIs other than HIV (e.g. gonorrhoea)	28.9 (13)	11.1 (5)	24.4 (11)	35.6 (16)	0.0 (0)	45
Ordering a repeat prescription	51.1 (23)	4.4 (2)	8.9 (4)	35.6 (16)	0.0 (0)	45
Receive HIV viral load results	40 (18)	15.6 (7)	8.9 (4)	35.6 (16)	0.0 (0)	45

Table 12.6. Men's Preferences Around The Provision Of STI Screening Related Services When Experiencing Symptoms/At Risk For Infection

STI screening related service	Online	Face-to-face	Phone	No Preference	Would never do this	Total
	% (n)	% (n)	% (n)	% (n)	% (n)	N
Booking a clinical appointment	37 (17)	6.5 (3)	23.9 (11)	32.6 (15)	0.0 (0)	46
Providing information about their sexual behaviour	26.7 (12)	31.1 (14)	6.7 (3)	31.1 (14)	4.4 (2)	45
Providing information about any symptoms you have experienced	26.1 (12)	32.6 (15)	4.3(2)	37 (17)	0.0 (0)	45
Providing any information about medicines they are taking	26.7(12)	26.7 (12)	8.9 (4)	37.8 (17)	0.0(0)	45
Receiving results for STIs other than HIV (e.g. gonorrhoea)	26.7 (12)	22.2 (10)	13.3 (6)	37.8 (17)	0.0 (0)	45
Ordering a repeat prescription	41.3 (19)	10.9 (5)	15.2 (7)	32.6 (15)	0.0 (0)	46
Receive HIV viral load results	37.8 (17)	15.6 (7)	11.1 (5)	35.6 (16)	0.0 (0)	45

12.5 Summary

- SMMASH3 examined the use of online health services such as seeking online health information and booking online clinical appointments in the last 12 months.
- 49% of all men had used any online health services in the last 12 months whilst 51% had not done so. Men living in NHS Lothian were significantly less likely to use online health services in the 12 months compared to those living in NHS GGC and the RoS. However, use of online

health services in the last 12 months was not patterned by any other key sociodemographic variables.

- Although most participants (53%) had not used the internet to retrieve health information in order to access a health service, a sizeable proportion of men had searched the internet for symptoms they had experienced (36%) and looked up the medication they were using on the internet (38%). Fewer men had used the internet to access information about their sexual behaviour (13%) and searched online for side effects of medicines (16%) they are taking.
- We examined men's views around using online sexual health services, with the use of two case scenarios: 1) men were asked to address whether they would prefer to arrange a routine STI screening online, face-to-face, or by phone, when they experienced no symptoms 2) men were asked to address when they would prefer to arrange an STI screening online, face-to-face, or by phone, when they were worried about a new symptom or they concerned they had been at risk of STI infection.
- Regarding routine STI screening, when men were not experiencing any symptoms, most participants preferred the internet over face-to face and telephone to access various services around routine STI testing. However, between one quarter and one third of men had no preference for the method involved in each of the service provision issues examined.
- When our participants were worried about a new symptom, or felt at risk of infection, about one quarter to one third preferred to use the internet and one quarter to one third had no preference over the method to access each of the service issues examined.
- In concert, we see that HIV+ men either have no preference or prefer the internet to manage their sexual health although a face-to-face interaction is valued when expecting a positive STI diagnosis.

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End of Report