MRC/CSO Social and Public Health Sciences Unit

Social Media, Men who have sex with men,

Sexual and Holistic Health Study (SMMASH2)

A report commissioned by NHS Greater Glasgow and Clyde

and NHS Lothian Health Boards

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Electronic copies of this report, as well as the SMMASH2 Executive Summary and related Factsheets (see p.5), are available from www.sandyford.org/smmash2 or the first author via email: j.frankis@gcu.ac.uk

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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 (SMMASH2), which was developed in collaboration with NHS Greater Glasgow and Clyde and NHS Lothian 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 in Greater Glasgow and Clyde Health Board, Lothian Health Board and the rest of Scotland. To these ends, we present a summary of the data for all 'men who have sex with men' (MSM) 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).

Specifically, we address the following research aims in relation to each of these populations;

- To describe participants' sociodemographic characteristics.
- To describe their sexual and sexual health behaviours.
- To explore their HIV and other sexually transmitted infection testing behaviours.
- To examine their experiences of sexual pleasure and sexual abuse.
- To describe their mental health.
- To explore their alcohol and recreational drug use.
- To describe their social media use.
- To examine their experiences of stigma and psychological functioning.

This initial chapter provides a background to the overall report. It describes the methodology underpinning the SMMASH2 survey and the measures used therein. After this initial context setting, subsequent chapters address each of the research aims listed above in turn.

In addition, a series of factsheets about key populations will be produced separately from this report, considering;

1. Men who report 'chemsex'
2. Men with multiple overlapping vulnerabilities
3. Men who test infrequently for HIV
4. Younger MSM (aged (≤ 22)
5. Men who have sex with men and women
6. Men in a primary relationship with a man
7. Men living with HIV
8. Men who report 'high risk' sexual behaviours (i.e. condomless anal intercourse with multiple partners)

These factsheets are available from www.sandyford.org/smmash2 or the first author via email: j.frankis@gcu.ac.uk

1.2 SMMASH2 Methodology

1.2.1 Funding

Data collection was funded by a grant from NHS Greater Glasgow and Clyde and NHS Lothian. Gaydar, Grindr, Squirt, Hornet and provided survey advertising at a reduced cost due to the community health focus and 'not-for-profit' nature of the work. In addition, the School of Health and Life Sciences at Glasgow Caledonian University donated additional time and resources to this project.

1.2.2 Ethical Approval

Prior to data collection, this survey was granted ethical approval by the Nursing and Community Health Sciences ethics committee, Glasgow Caledonian: HLS/NCH/15/26.

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 MSMs Sexual Health. Detailed information was sought regarding participant sociodemographics (age, ethnicity, sexual orientation, partnership status, gender, living situation, disabilities, employment, financial worries, 'outness' and commercial gay scene use). Men were asked about their sexual behaviours with men and with women, HIV and STI testing history. Existing measures were employed to survey participants' sexual wellbeing, sexual confidence and experiences of sexual 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 their 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 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). This meant that the methods used in this study had effectively already been previously piloted in the earlier work and were successfully redeployed herein.

1.2.5 Questionnaire Administration And Participant Recruitment

Cross-sectional surveys were administered online via RedCap between April and June 2016. Men using gay specific social media websites (Gaydar, Recon and Squirt) and gay specific social media apps (Gaydar, Recon, Grindr, Growlr and Hornet) were invited to participate using two different approaches. Firstly, all users were sent two message blasts' (either as a pop-up message (Gaydar, Recon, Grindr, Growlr, Squirt) or an inbox message (Hornet)) asking them to participate in our survey. Secondly, banner advertisements were employed to advertise the survey on

Gaydar, Recon, Grindr, Growlr, Hornet, Squirt). Banner ads were designed to fit the character of each website/app. As these sociosexual media are clearly marked as sites for MSM, and have a minimum users age of 16, we targeted all users whose 1) profile location was set to Scotland, 2) whose PC IP address was based in Scotland or 3) whose smartphone GPS co-ordinates were located in Scotland. Whilst efforts to recruit men on Facebook were initially made, very small numbers of completed questionnaires were obtained after an initial advertising campaign, so this recruitment drive was stopped.

Clicking on the banner advert or message took men to the online questionnaire information sheet. This provided participants with the details of the survey, explained the nature of the questions involved and the organisation behind the survey. It also emphasises 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 to complete the survey or decline participation, by clicking the relevant option. After survey completion, participants were taken to an exit page which provided links to various MSM specific sexual and mental health services and providers within Scotland, 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=1547 participants were recruited, similar to the previous SMMASH study (n=1326) (Frankis et al., 2013) and the MRC Scottish Gay Men's Sexual Health Survey (n=1515) (McDaid et al., 2016). As participants were sampled from gay specific sociosexual media, the results of this study are

only generalizable to MSM 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 23.0 for Mac. 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. Where data did not meet the assumptions of parametric statistics, non-parametric tests were used instead since in most cases they are almost equally powerful. Variables with two levels were assessed with either Chi^2 or Mann-Whitney U tests. Variables with three levels were assessed with Chi^2 or 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). This study was funded by NHS GGC and NHS Lothian Health Boards so the analytical focus of this report was to compare men living in NHS GGC, with men living in NHS Lothian and the RoS.

1.4 Summary

The SMMASH2 survey recruited 1547 MSM aged 16 and over in Scotland from online sociosexual media between April and June 2016. 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, 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 men within the SMMASH2 study. Herein we examine the whole of the dataset 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).

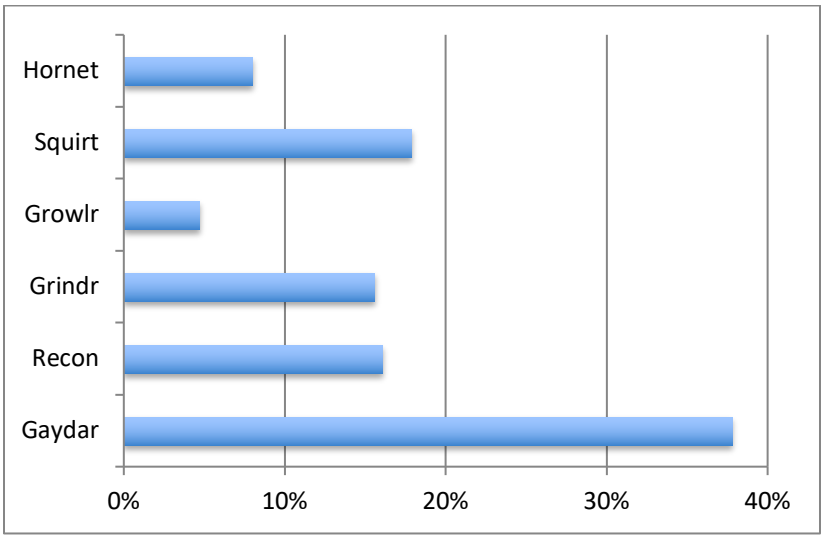
2.2 Sample Size

Participants recruited to this study were MSM aged 16 years and over using gay sociosexual media in Scotland. Of the 1547 participants who completed the online survey, responses from men living within NHS GGC accounted for 29.5% (n=457), NHS Lothian 22.5% (n=345) and the NHS Board areas comprising the RoS 48% (n=743).

2.3 Recruitment Via Sociosexual Media Networks

Figure 2.1 outlines the pattern of recruitment via the sociosexual media. The most prevalent group of responders were those using Gaydar (37.8%, n=584), followed by Squirt (17.9%, n=277), Recon (16.1%, n=249) and Grindr (15.6%, n=241). Proportionally fewer participants were recruited from Hornet (8.0%, n=124) and Growlr (4.7%, n=72). This order in part reflected the chronological order in which each social media deployed recruitment invitations (Gaydar was first, with Hornet last).

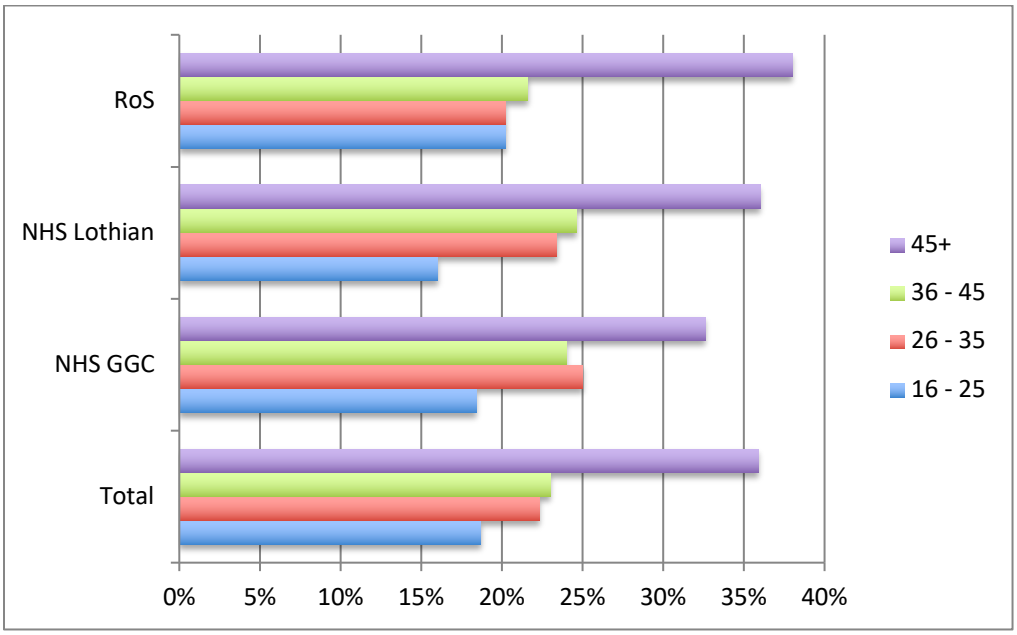
Figure 2.1 Recruitment By Sociosexual Media



2.4 Participants' Age Groupings: Whole Sample And By NHS Health Region

Participants were asked to provide their age, which was then translated into one of 4 age groupings. The majority of participants were aged 46+ years category (36%, n=555) (see Figure 2.2). By contrast, those in the youngest age group, 16-25 years, represented the lowest number of responders (18.7%, n=289). Those in the 26-35 and 36-45 age ranges were roughly equally represented as 23% of the cohort respectively.

Figure 2.2 Age: By Whole Sample And NHS Health Board Regions



Participant responses by age groupings across the three Health Board regions of NHS GGC, NHS Lothian and the RoS replicates the pattern as demonstrated in the whole sample. Table 2.1 offers a detailed comparison by NHS Health Boards regions, however further analysis confirmed there was no significant difference in age related responses between the three NHS regions.

Table 2.1 Age Ranges: Whole Sample And By NHS Health Board Region

Age Range	**Whole Sample**		**NHS GGC**		**NHS Lothian**		**RoS**	
	N	%	n	%	n	%	n	%
16-25 years	289	18.7	84	18.4	55	16.0	150	20.2
26-35 years	345	22.3	114	25.0	81	23.4	150	20.2
36-45 years	356	23.0	110	24.0	85	24.6	161	21.6
46+	555	36.0	149	32.6	124	36.0	282	38.0
Total	**1545**		**457**		**345**		**743**	

Notes: n=*number*; % = percentage responses

2.5 Highest Educational Qualification

Respondents in our study were highly educated (see Table 2.2), with over half (51%, n=769) holding a degree, 14% (n=211) a postgraduate qualification, 33% (n=492) educated up to SQA Highers level and only 2% (n=32) having no academic qualifications. This was marginally higher than the Frankis et al. (2013) SMMASH survey, where just under half of the cohort (49%, n=650) held a degree and 12.9% (n=171) a postgraduate qualification, but nevertheless replicates the same overall pattern in terms of highly educated respondents.

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	32	2.2	9	2.0	8	2.3	15	2.0
Up to Highers	492	32.7	136	30.5	93	27.2	263	36.7
Degree	769	51.1	243	54.5	178	52.0	348	48.6
Postgrad. Qualification	211	14.0	58	13.0	63	18.5	90	12.7
Total	**1504**		**446**		**342**		**716**	

There was a trend towards a significant difference in the educational profiles of participants across NHS GGC, NHS Lothian and the RoS (χ^2 =15.55, df=6, p< 0.05). Men in the RoS were less likely to have a degree or postgraduate qualification. By contrast, men in NHS GGC were more likely to hold a degree and men in NHS Lothian more likely to hold postgraduate qualifications. Correspondingly, men in the RoS were more likely to be educated only up to Highers level. Given that Glasgow and Edinburgh have a concentration of universities, and are the location for several other degree awarding institutions, these findings regarding academic attainment are unsurprising.

2.6 Ethnicity

As noted in Table 2.3, the vast majority of respondents identified themselves as White Scottish (72.5%, n=1113), the remaining White British Non-Scottish participants represented 19.7% (n=303) of the cohort and White Other participants represented 4.9% (n=76). Only 2.9% (n=44) of responses represented non-white ethnicities.

Table 2.3 Ethnicity: Whole Sample And By NHS Health Board Region

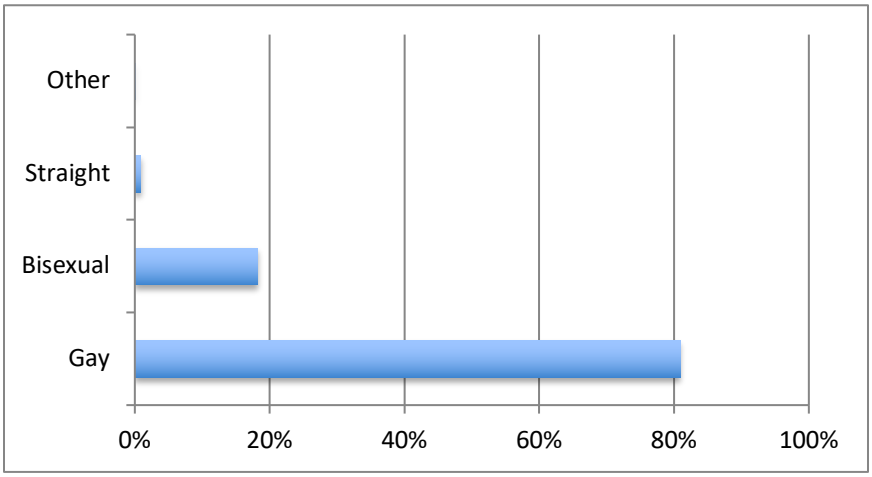
Ethnicity	Whole Sample		NHS GGC		NHS Lothian		RoS	
	n	%	n	%	n	%	n	%
White Scottish	1113	72.5	338	74.0	207	60.6	568	77.1
White Welsh	8	0.5	4	0.9	1	0.2	3	0.4
White British	268	17.4	76	16.6	79	23.1	113	15.3
White Irish	27	1.8	5	1.1	14	4.1	8	1.1
White Other	76	4.9	20	4.3	24	7.0	32	4.3
Other	44	2.9	14	3.1	17	5.0	13	1.8
Total	**1536**		**457**		**342**		**737**	

In our study, participants' ethnicity was significantly different in terms of its distribution across the 3 NHS regions. In NHS GGC and the RoS there were significantly more White Scottish respondents and fewer White British Non-Scottish and White Other participants. A contrasting picture emerged in NHS Lothian with a difference in the number of White Scottish being significantly fewer and White British Non-Scottish and White Other participants comparatively higher than would have been expected by chance (χ^2 =44.91, df=10, p<0.05). The wider ethnic profile of Edinburgh could reflect the typical cosmopolitan nature of most capital cities in relation to the wider country.

2.7 Sexual Identity

Participants were asked to describe their sexual identity as gay, bisexual, straight or other. As noted below in Figure 2.3 most identified as gay (80.9%, n=1242), a substantial cohort of men identified as bisexual (18.2%, n=279), and few identified as straight (0.9%, n=13) or other (0.1%, n=2).

Figure 2.3 Sexual Identity



Men in NHS GGC and NHS Lothian were significantly more likely to report a gay identity (see Table 2.4**)**, and men in the RoS were significantly more likely to report a bisexual/straight identity than expected by chance (χ^2 =10.52, df=2, p< 0.05).

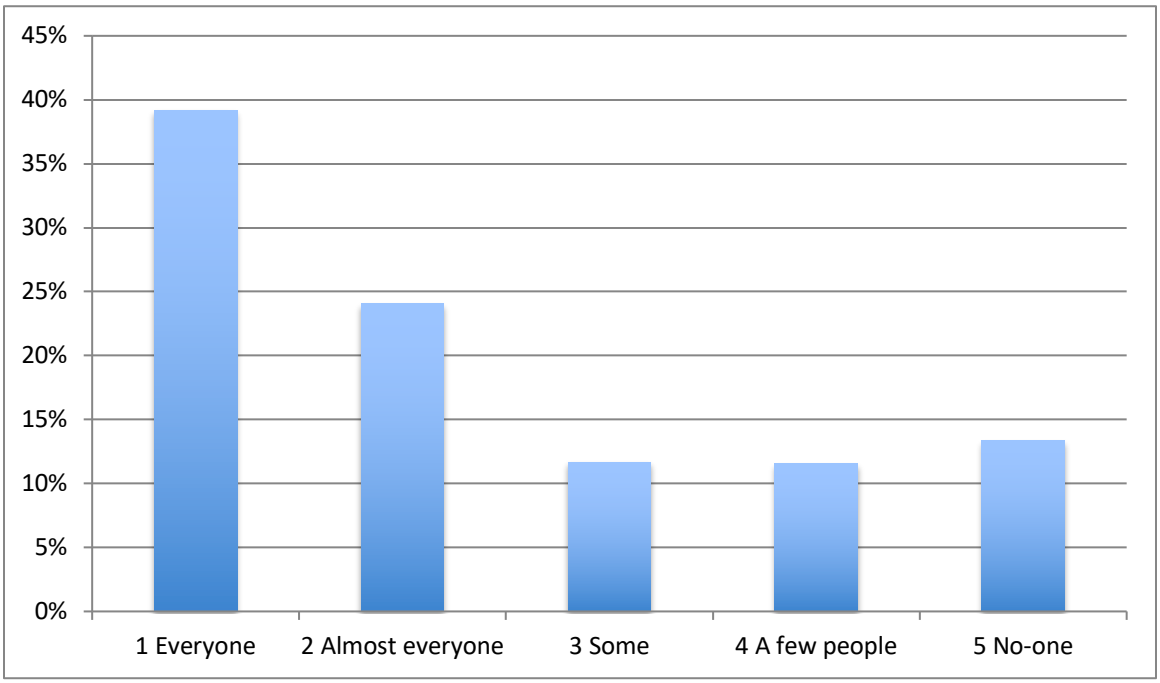
Table 2.4 Sexual Identity: Whole Sample And By NHS Region

Sexual Identity	**Whole Sample**		**NHS GGC**		**NHS Lothian**		**RoS**	
	n	%	n	%	n	%	n	%
Gay	1242	80.2	384	84.0	286	83.6	572	71.5
Bisexual/Straight	292	18.8	70	16.0	57	16.4	165	22.5
Total	**1534**		**454**		**343**		**737**	

2.8 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 2.4, most men were out to everyone (score = 1; 39.2%, n=577) or almost everyone (score = 2; 24.1%, n=354) and notably fewer were out to some (score = 3; 11.7%, n=172), a few people (score = 4; 11.6%, n=171) or no-one (score = 5; 13.4%, n=197). These findings are similar to those identified in the EMIS Internet study (Reid et al., 2011), where 39% of men were out to 'all or almost those all who knew them' and similarly a much lower percentage (10%) were out to no-one.

Figure 2.4 Level Of 'Outness'



Mean levels of 'outness' (see Table 2.5) were significantly different (Welch=6.57 df(2, 581), p<0.005) between the 3 NHS regions. Specifically, men in NHS GGC reported significantly higher levels of 'outness' than men in the RoS (p<0.005), and there was a trend towards men in NHS Lothian reporting higher levels of 'outness' than men in the RoS (p=0.057). This is an unsurprising result, given that same-sex attracted men are known to move to large cities.

Table 2.5 'Outness': Mean Scores And By NHS Health Board Region

Region	N	Mean	SD[1]
NHS GGC	458	2.20	1.42
NHS Lothian	343	2.28	1.35
RoS	670	2.50	1.46
Total	**1471**	**2.36**	**1.43**

[1] Standard Deviation

2.8.1 Level Of Outness: By Age

Mean levels of outness (see Table 2.6) were also significantly patterned by age (Welch=12.9, df=4,749.5, p<0.001). Post hoc analyses suggested that men aged 46+ were significantly less out than men in each of the 3 younger age groups.

Table 2.6 'Outness': Mean Scores And By Age Group

Age group	N	Mean	SD
16-25	270	2.20	1.237
26-35	321	2.10	1.332
36-45	342	2.23	1.434
≥46	534	2.66	1.525
Total	**1467**	**2.36**	**1.431**

2.8.2 Level Of Outness: By Sexual Identity

Mean levels of outness (see Table 2.7) were also significantly patterned by sexual identity ($F=606.6$, $df=1, 1458$, $p<0.001$). Gay identified men (mean=1.99, SD=1.19) were significantly more out than bisexual/straight identified men (mean=4, SD=1.24).

Table 2.7 'Outness': Mean Scores And By Sexual Identity

Sexual Identity	N	Mean	SD
Gay	1194	1.99	1.194
MSMW	266	4.00	1.244
Total	**1460**	**2.36**	**1.431**

2.9 Gender

Participants were asked if they considered themselves to be transgender. Overall, 6.4% (n=97) considered themselves transgender with the majority (93.6%, n=1430) stating they were not. Gender was not patterned by NHS region.

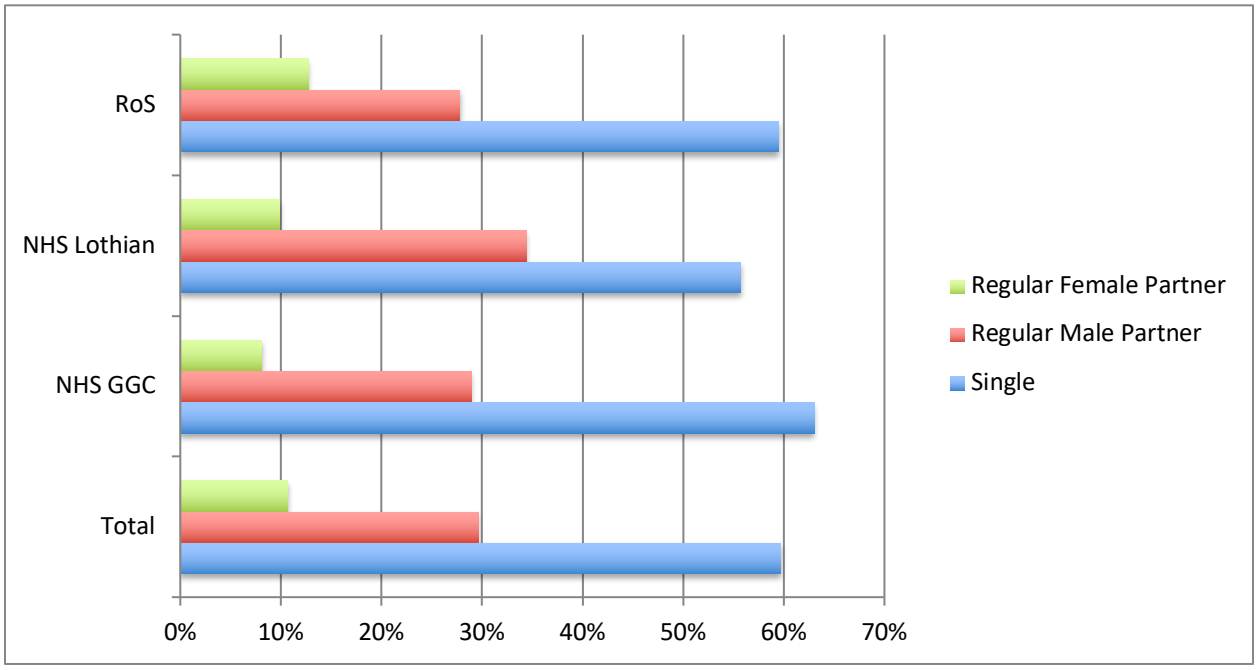
2.10 Relationship Status

Participants were asked to describe their relationship type(s). Although multiple relationship types were identified (including polyamory, triads and open relationships), most participants could be categorised as either being single, having a regular male, or a regular female partner. Most participants (59.7%, n=919) were single, 29.6% (n=456) had a regular male partner and 10.7% (n=165) reported a regular female partner. Seven men (0.5%) said they were widowed,

two reported polyamorous male and female partners and 1 man reported multiple male partners as his relationship status.

Relationship status was patterned against each of the Health Board regions (see Figure 2.5). Men in NHS GGC were significantly more likely to be single and less likely to have a regular female partner, men in NHS Lothian were significantly less likely to be single and more likely to have a regular male partner and men in the RoS were significantly more likely to have a regular female partner than expected by chance (χ^2 =11.16, df=4, p< 0.05).

Figure 2.5 Relationship Status: By NHS Region



2.11 Living Situation

Men were asked about their current living situation (see

Table 2.8). Almost 41% (n=603) of participants confirmed they lived alone and just under one third reported living with a partner (30.4%, n=447). Those living in shared accommodation constituted 15.4% (n=227) of the cohort with a similar number residing with their parents (13.1%, n=191). Much smaller percentages said they were living in student accommodation (1.0%, n=16), retirement housing (0.1%, n=1), temporary shelter (0.1%, n=2), or staying with their children (0.5%, n=7) or carer (0.3%, n=4).

Table 2.8 Living Situation: Whole Sample And By NHS Health Board Region

Living Situation	**Whole Sample**		**NHS GGC**		**NHS Lothian**		**RoS**	
	n	%	n	%	n	%	n	%
Alone	603	41.1	196	42.8	129	37.6	278	41.7
With Partner	447	30.4	128	30.0	116	33.8	203	30.4
Shared Accommodation	227	15.4	78	17.0	77	22.4	72	10.8
With Parents	191	13.1	56	12.2	21	6.2	114	17.1
Total	**1468**		**458**		**343**		**667**	

There were significant differences in living situation across the 3 NHS Health Board regions (see Table 2.8). NHS GGC participants were less likely to be living with a partner or their parents but more likely to live alone or in shared accommodation than would be expected by chance. Participants in NHS Lothian were less likely to live alone or with parents but more likely to live with a partner or in shared accommodation. Participants in the RoS were more likely to live with their parents and less likely to reside within shared accommodation than expected by chance (χ^2=45.82, df=6, p<0.00).

2.12 Disability And Long Term Conditions

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 2.9), taken from the UK census. 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 2.9; we did not ask participants whether they considered themselves to be disabled, nor whether they considered this issue to be a disability. Overall, two thirds of participants indicated they had no disabilities (66.4%, n=922), however, one third reported one or more disability (33.6%, n=467). The most common disability reported was a Mental Health condition, which affected 15.5% (n=215) of the cohort, followed by those suffering from a long-term condition (non-HIV) (9.1%. n=126).

There were no significant differences in reporting either 'any disability' or each of the individual disabilities across the 3 NHS Board areas (see Table 2.9). The number of men reporting a visual impairment or a learning disability was too small for Chi^2 analysis to be performed by NHS region.

Table 2.9 Declared Disability: Whole Sample And By NHS Health Board Region

Declared Disability	Whole Sample		NHS GGC		NHS Lothian		RoS		
	n=1390		n=441		n=318		n=631		
	n	%	n	%	n	%	n	%	Chi^2
Mental Health condition	215	15.5	80	18.1	41	12.9	94	14.9	4.18
Long term condition other than HIV	126	9.1	33	7.5	32	10.1	61	9.7	2.01
Learning difficulty (e.g. Dyslexia)	82	5.9	26	5.9	18	5.7	38	6.0	0.50
Diabetes	51	3.7	13	2.9	8	2.5	30	4.8	1.84
Deafness or hearing loss	45	3.2	12	2.7	7	2.2	26	4.1	3.04
Physical Disability	45	3.2	13	2.9	12	3.8	20	3.2	0.42
Developmental (e.g. Autism or Asperger's Syndrome)	26	1.9	8	1.8	9	2.8	9	1.4	2.28
Visual impairment	10	0.7	3	0.7	4	1.3	3	0.5	
Learning disability (e.g. Down's Syndrome)	3	0.2	0	0	1	0.3	2	0.3	
Other	72	5.2	24	5.4	14	4.4	34	5.4	0.51
No disability	923	66.4	294	66.7	215	67.6	414	65.6	0.40

2.13 Employment Status

Participants' employment status were categorised as either a student, unemployed, employed/self employed or retired (see Table 2.10). The vast majority of the sample were in current employment (74.8%, n=1092) slightly above the Scottish rate of 73.1% in 2016 (Scottish_Government, 2016). Only one in 20 were unemployed (5.2%, n=76), and about 1 in 10 participants were students (9.7%, n=142) or retirees/carers (10.2%, n=149) respectively. These results are similar to those identified by Frankis et al (2013) in their online study, and the 2011

Scottish Gay Men's Sexual Health survey (McDaid et al., 2012), where 20.4% were students/retired/unemployed and 79.7% were employed/self-employed.

Table 2.10 provides a detailed comparison of employment status by NHS Health Boards. Chi^2 analysis suggested there were no significant differences in employment status across these regions.

Table 2.10 Employment: Whole Sample And By NHS Health Board Region

Employment Status	Whole Sample		NHS GGC		NHS Lothian		RoS	
	n	%	n	%	n	%	n	%
Employed/Self Employed	1092	74.8	331	73.0	255	74.6	506	76.2
Unemployed	76	5.2	26	5.8	17	5.0	33	5.0
Retired/Carer	149	10.2	41	9.0	41	12.0	67	10.0
Student	142	9.8	55	12.2	29	8.4	58	8.8
Total	**1459**		**453**		**342**		**664**	

2.14 Financial Worries

Participants were asked 2 separate questions regarding their financial status;

i) Do you currently have any financial worries?

ii) Over the past year, how often have you found it difficult to meet the cost of your rent/mortgage and other household bills (like gas, electricity, phone, loans, clothing or food)?

Participants indicated where they perceived their financial status lay on scales shown in Table 2.11. Overall, almost 60% of the sample reported no (27.9%) or only occasional (29.4%) financial worries, whilst just over 40% said they had financial worries sometimes (25.9%), most of the time (10.4%) or all of the time (6.3%). In contrast, almost 90% of participants said they had little

difficulty meeting their basic financial needs in the past year. Over two-thirds of men (64.8%) said they had never and a further quarter (23.2%) only occasionally had difficulty meeting their basic financial needs, whilst a small group reported that they quite often (7.5%) or very often (4.6%) found this difficult in the past year.

One-way ANOVAs suggested that there were no significant differences in either perceived financial worries or difficulties in meeting basic bills across the NHS Health Board locations.

Table 2.11 Financial Worries: Whole Sample

Financial Worries			**Difficulty Meeting Basic Bills**		
	n	**%**		**n**	**%**
All of the time	93	6.3	-		
Most of the time	152	10.4	Very often	60	4.6
Sometimes	380	25.9	Quite Often	98	7.5
Occasionally	432	29.4	Occasionally	304	23.2
Never	410	27.9	Never	849	64.8
Total	**1467**			**1311**	

2.15 Commercial Gay Scene: Use And Proximity

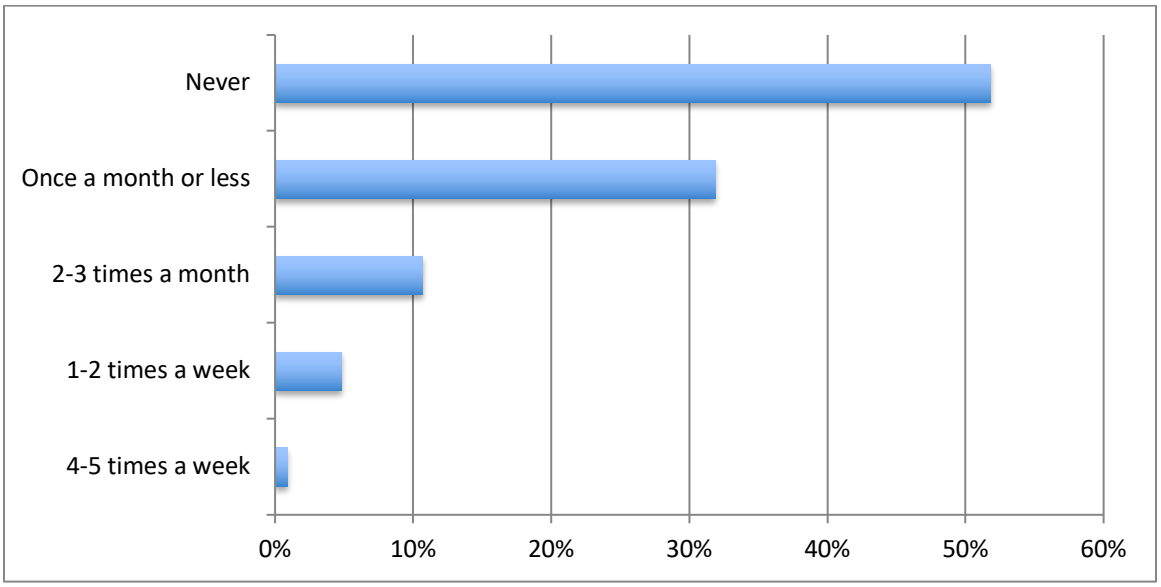
Participants were asked about their use of the commercial gay scene and how near to it they live.

2.15.1 How Often Do You Go Out On The Gay Scene?

Just over half of participants reported that they never (51.8%, n=759) accessed the commercial gay scene (see Figure 2.6) and almost one third did so once a month or less (31.9%, n=467). About 15% reported around weekly use and a small proportion of the sample stated more frequent usage (0.9%, n=13). In concert, the majority of men in this study (83.7%) use the

commercial gay scene once a month or less, similar to the original SMMASH study (Frankis et al.,2013). This is important because prior to the SMMASH studies, our population-level knowledge of the sexual health and behaviours of gay and other MSM in Scotland was based on the Scottish Gay Men's Sexual Health Surveys (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 MSM 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 MSM in Scotland.

Figure 2.6 Commercial Gay Scene Use



One-way ANOVA suggested that frequency of use of the commercial gay scene (see Table 2.12) was significantly different across the 3 NHS regions (Welch=16.20 df(2, 812), p<0.005). Specifically men in NHS GGC (p<0.001) and NHS Lothian (p<0.001) reported significantly more frequent use of the commercial gay scene than men in the RoS (p<0.001). However, in all

groups, the mean level of commercial gay scene use was between 'never' and 'once a month or less', demonstrating that SMMASH participants are primarily a non-scene-going population overall.

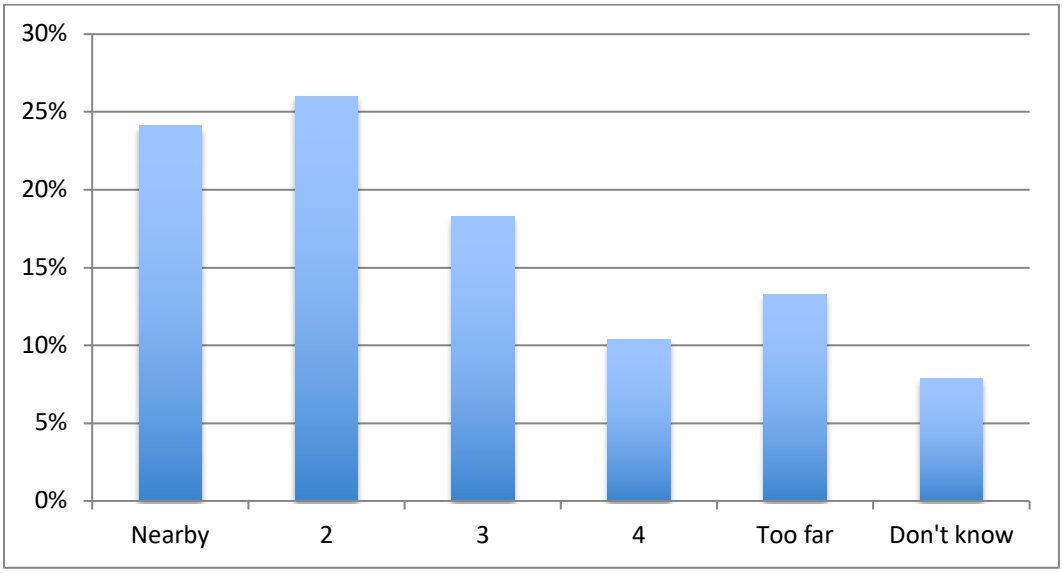
Table 2.12 Commercial Gay Scene Use: Mean Scores And By NHS Health Board Region

Region	N	Mean	SD
NHS GGC	456	4.15	.04
NHS Lothian	344	4.19	.04
RoS	666	4.43	.03
Total	**1466**	**4.29**	**.02**

2.15.2 Proximity To The Commercial Gay Scene

Respondents' residential proximity to the commercial gay scene (see Figure 2.7) was assessed on a scale of 1-5, where 1 = nearby and 5 = too far (n=1463). Half the sample (50.1%, n=733) indicated that commercial gay venues were nearby or relatively nearby, almost one quarter (23.7%, n=347) said they were far away and 7.9% (n=116) were unsure of where venues were proximally located.

Figure 2.7 Proximity To The Commercial Gay Scene



One-way ANOVA suggested that participants' perceived proximity to the commercial gay scene was significantly different across the 3 NHS regions (W=144.01, df(2,838.78), p<0.001). Men living in NHS GGC (p<0.001) and those in NHS Lothian (p<0.001) felt they lived significantly nearer to the commercial gay scene than men in the RoS (see Table 2.13).

Table 2.13 Proximity To The Commercial Gay Scene: Mean Scores By NHS Health Board Region

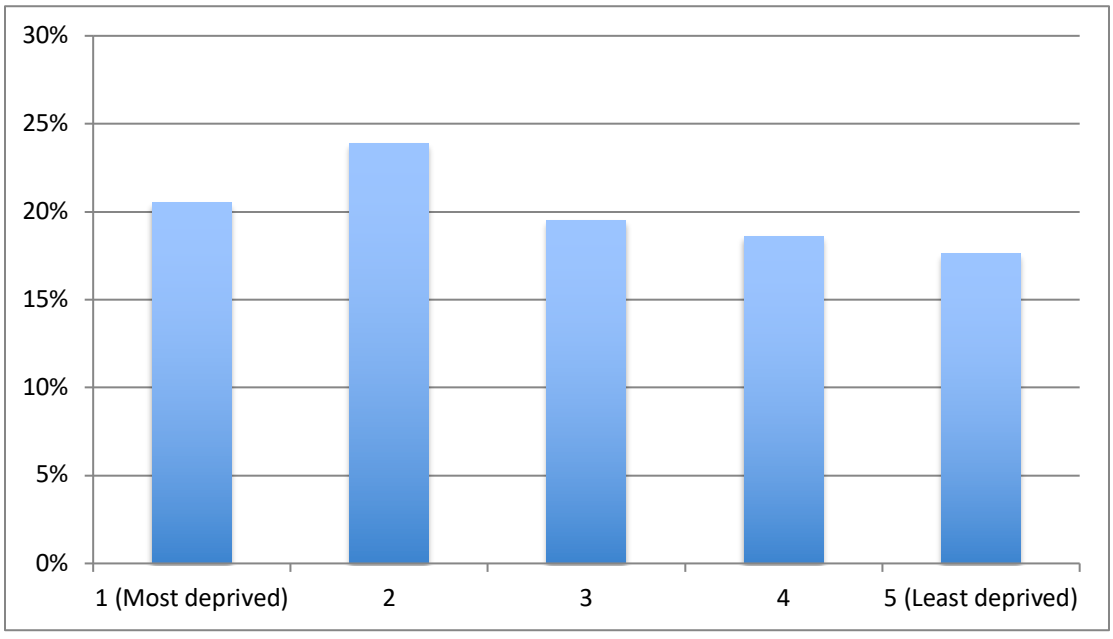
Region	N	Mean	SD
NHS GGC	434	2.16	1.137
NHS Lothian	326	1.99	1.066
RoS	587	3.26	1.381
Total	**1347**	**2.60**	**1.364**

2.16 Scottish Index Of Multiple Deprivation

The Scottish Index of Multiple Deprivation (SIMD) provides the mechanism to identify those geographical regions across Scotland by level of deprivation. Its key function is to measure deprivation based on key variables to enable targeted public health interventions to address health and social inequalities. In our study participants were asked to supply their postcode to enable mapping against the current SIMD (2014 configuration). This is based on a population weighted quintile, whereby 1 = most deprived and 5 = least deprived. This effectively means that 20% of the Scottish population will fall into each of these five groups. Since participants' full post code (i.e. G4 0BA) is required to calculate the SIMD, and this information would locate participants to within 2 or 3 residential addresses, it is unsurprising that many participants were unwilling (or potentially unable) to provide this information, resulting in a high level of missing data.

Overall only one quarter (26%, n=416) of participants provided their full postcode information from which an SIMD score could be calculated. Results, shown in Figure 2.8, indicated that fairly similar proportions of participants were represented across the 1-5 groups of the SIMD, ranging from 17.6% to 23.9%, although the SIMD 2 score was slightly over-represented, and the two least deprived categories under-represented. Although there is an assumption that MSM are generally more wealthy than the wider population (due to reports of higher educational qualifications and higher disposable income [in part due to fewer childcare responsibilities, and lack of exposure to the inequality of female earnings]), these data show that men in the SMMASH2 study were drawn from all levels of affluence/deprivation, and provide evidence against this assumption.

Figure 2.8 Scottish Index Of Multiple Deprivation



Further analysis (see Table 2.14) confirmed there was no significant difference in the level of deprivation in men recruited across the 3 NHS Health Board regions.

Table 2.14 SIMD Mean Scores: Whole Sample And By NHS Health Board Region

Region	N	Mean	SD
NHS GGC	167	2.90	1.35
NHS Lothian	97	3.08	1.35
RoS	151	2.72	1.45
Total	**415**	**2.89**	**1.39**

2.17 Summary

- Overall 1547 MSM in Scotland completed the SMMASH2 Internet survey, recruited across gay sociosexual media websites and apps, distributed across NHS Lothian (22.5%), NHS GGC (29.5%) and the RoS (48%).
- They were recruited from Gaydar (37.8%, n=584), Squirt (17.9%, n=277), Recon (16.1%, n=249), Grindr (15.6%, n=241), Hornet (8.0%, n=124) and Growlr (4.7%, n=72), which partially reflects the chronological order deployed in recruitment invitations (Gaydar was first, Hornet was last).
- Men were roughly equally represented across different age categories of 16-25 (18.7%), 26-35 (22.3%), 36-45 (23.0%) and 46+ years (36.0%), although the most predominant age range of participants were those aged 46+ years, suggesting that we have an older cohort of men.
- Participants were highly educated with 65% (n=891) possessing a university degree level qualification (undergraduate/postgraduate) and only 2% (n=32) indicating they did not possess any academic qualifications. Men in the RoS reported significantly lower education levels than men in NHS GGC and NHS Lothian.
- Most participants identified themselves as either White Scottish (72.5%, n=1113) or White British Non-Scottish (26.4%, n=379) with very few non-white ethnicities (2.9%, n=44). NHS

Lothian was more ethnically diverse than NHS GGC and the RoS, having fewer White Scottish and more White British Non-Scottish and White Other participants.

- Most participants identified as gay (80.9%, n=1242), but almost 1 in 5 identified as bisexual (18.2%, n=279), and a few said they were straight (0.9%, n=13). Men in NHS GGC and NHS Lothian were significantly more likely to report being gay, and men in the RoS more likely to report being bisexual/straight.
- Almost two thirds of men were 'out' about their sexual orientation to most others (63.3%, n=911), but 25.0% were out to few people or no-one. Men in NHS GGC and NHS Lothian reported significantly higher levels of 'outness' compared to men in the RoS. Older men (≥46 years) were significantly less out than younger men (16-25 years, 26-35 years and 36-45 years). Furthermore, gay identified men were significantly more out than bisexual/straight identified men.
- Overall, 6.4% (n=97) of participants considered themselves transgender with the majority (93.6%, n=1430) stating they were not.
- Most participants were single (59.7%, n=919), but almost one third (29.6%, n=456) reported a regular male partner, and 1 in 10 reported a regular female partner (10.7%, n=165). Men in NHS GGC were more likely to be single and less likely to have a regular female partner; men in NHS Lothian were less likely to be single and more likely to have a regular male partner; and men in the RoS were more likely to have a regular female partner. These differences were all statistically significant.
- Most participants lived alone (41%, n=603) and 30.4% (n=447) said they lived with a partner. Smaller proportions lived in shared accommodation (15.4%, n=227) or with their parents (13.1%, n=191).

- One third (33.6%, n=467) of participants reported at least one disability, which is almost double the national average of 19% for those of working age in Scotland (Scottish Gov., 2016). Mental Health condition(s) were the most commonly reported (15.5%, n=215) followed by long-term condition(s) other than HIV (9.1%. n=126).
- Most participants were in employment (74.8%, n=1092), around 1 in 10 was either a student (9.7%, n=142), or a retiree/carer (10.2%, n=149) respectively. 5.2% (n=76) of participants were unemployed which is marginally lower than the Scottish national average of 5.5% (ONS 2016).
- Overall, almost 60% of the sample reported no (27.9%) or only occasional (29.4%) financial worries in the past year, whilst just under 40% said they had financial worries sometimes (25.9%), most of the time (10.4%) or all of the time (6.3%).
- In contrast, almost 90% of participants said they had little difficulty meeting their basic financial needs in the past year. Over two-thirds of men (64.8%) said they had never and a further quarter (23.2%) only occasionally had difficulty meeting their basic financial needs, whilst a small group quite often (7.5%) or very often (4.6%) found this difficult.
- Most participants never (51.8%, n=759) or infrequently (31.9%, n=467) used the commercial gay scene. Only a very small proportion indicated regular gay scene use (15.9%) of more than once a month. Men in NHS GGC and NHS Lothian reported significantly more frequent levels of commercial gay scene use than men in the RoS.
- Half the cohort (50.1%, n=733) indicated that commercial gay venues were nearby or relatively nearby, almost one quarter (23.7%, n=347) said they were far away and 7.9% (n=116) were unsure of where commercial gay venues were proximally located. Men in NHS GGC and NHS Lothian felt they lived significantly nearer to the commercial gay scene compared to men in the RoS.

- Only 26% (n=415) of participants provided their full postcode, which is necessary to generate the Scottish Index of Multiple Deprivation (SIMD, 2014 configuration) score, which measures levels of deprivation in Scotland. The proportion of participants across each level of the SIMD scale (1-5) were roughly equal, suggesting that MSM recruited online are not a particularly affluent group within society, and there was no difference in the level of deprivation between the 3 NHS Health Board regions.

Chapter 3 Sexual Behaviours

3.1 Introduction

This chapter describes the sexual behaviours of MSM in the SMMASH2 study. A total of 1374 men completed the question about sexual behaviours. We present the basic descriptive statistics (mean values, standard deviation (sd), modal values, frequency and percentages) for each of these variables and subsequently 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 sexual identity, either gay or bisexual/straight.
4. By relationship status, either single, regular male partner or regular female partner.
5. By financial status, reporting financial worries either 'occasionally/never' or 'sometimes/all of the time'.

3.2 Number Of Male Sex Partners

Men were asked to report the number of **men** with whom they report 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 male sexual partners, multiple male anal sex partners and multiple male CAI partners in the last 12 months (see Table

3.1). However there was wide variation in the number of any sexual contact (0 – 500), anal sex (0 – 500) and CAI (0 – 150) male partners reported in the last 12 months.

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

	Total			NHS GGC		NHS Lothian		RoS	
	n	Mean (sd)	Mode	N	Mean (sd)	N	Mean (sd)	n	Mean (sd)
Any sexual contact	1374	12.7 (30.9)	6	427	13.0 (35.6)	318	14.1 (33.6)	629	11.7 (25.4)
Anal sex	1371	6.5 (9.9)	2	425	6.7 (19.1)	319	8.0 (30.7)	627	5.7 (12.0)
CAI	1365	2.6 (9.4)	1	422	3.0 (10.3)	319	2.7 (11.2)	624	2.3 (7.5)

3.2.1 Number Of Sex Partners In The Last 12 Months: By NHS Region

Number of 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 regions in the number of any sex partners ($F=0.64$, $df(2,1371)$, $p>0.05$), anal sex partners (Welch=1.17, df(604), $p>0.05$) and CAI partners ($F=0.86$, $df(2,1362)$, $p>0.05$) reported in the last 12 months.

3.2.2 Number Of Sex Partners In The Last 12 Months: By Other Sociodemographic Factors

One-way ANOVA suggested that there were no significant differences by age, sexual identity, relationships status or financial worries in the number of any sex partners, anal sex partners and CAI partners reported in the last 12 months.

3.3 CAI In The Last 12 Months And 3 Months

Overall, a total of 722 (52.9%) participants reported CAI with at least 1 male partner in the last 12 months, stratified across NHS Glasgow (51.7%, n=218), NHS Lothian (51.4%, n=164) and the RoS (54.5%, n=340). Men who reported any CAI partners in the last 12 months (n=722) were

asked how many CAI partners they had in the previous 3 months. Of this subgroup of men, 77.6% (n=267) reported CAI with at least 1 male partner in the last 3 months. Therefore, a total of 19.4% of the whole sample reported CAI in the previous 3 months (n=267).

3.3.1 CAI In The Last 3 Months: By NHS Region

Men in the RoS reported fewer CAI partners on average in the last 3 months than men in NHS GGC and NHS Lothian (See Table 3.2). However, one-way ANOVA suggested that these were not significant differences (Welch=2.7, df(2,120), >0.05).

Table 3.2 Number Of CAI Partners In The Last 3 Months: By NHS Region

	NHS GGC		NHS Lothian		RoS	
	n	Mean (sd)	n	Mean (sd)	n	Mean (sd)
CAI: 3 months	97	2.3 (5.2)	73	2.8 (6.2)	174	1.5 (1.9)

3.3.2 CAI In The Previous 3 Months: By Other Sociodemographic Factors

One-way ANOVA suggested that there were no significant differences by age, sexual identity, relationships status or financial worries in the number of CAI partners reported in the previous 3 months.

3.4 Fisting And Group Sex

Men were asked about their experiences of fisting and group sex, and how recently these had occurred (see Table 3.3). Whilst only 12% (n=112) of participants had engaged in fisting, 7.1% (n=98) had done so in the past year. Group sex was relatively common, over half (58.5%, n=809) reported lifetime group sex, and almost one third (29.8%, n=412) had done this in the last 12 months.

Table 3.3 Fisting And Group Sex

	Total	Never		Yes (ever)		Yes, in the last 12 months	
	n	n	%	n	%	n	%
Fisting	1383	1217	88.0	112	12.0	98	7.1
Group sex/sex party	1384	575	41.5	809	58.5	412	29.8

3.4.1 Fisting And Group Sex: By NHS Region

Chi^2 analyses suggested that there were no significant differences in the frequency of reporting either fisting or group sex across the 3 NHS regions. Therefore, these practices are equally common in each NHS region.

3.4.2 Fisting And Group Sex: By Other Sociodemographic Variables

Chi^2 analysis suggested that men aged 16-25 (9.8%) and 36-45 (8.9%) were significantly more likely, and men aged 26-35 (5.0%) and 46+ years (5.6%) significantly less likely to report fisting in the last 12 months than expected by chance. No other sociodemographic variables were significantly related to reporting either fisting or group sex in the last 12 months.

3.5 High Risk CAI

Herein we define High Risk CAI as reporting

- CAI with at least 2 partners or
- CAI with a casual partner or
- at least 1 CAI partner whose HIV status was unknown or serodiscordant to themselves

in the last 12 months. As such, seroconcordant CAI with <u>one</u> regular partner in the last 12 months is defined as lower risk.

As shown in

Table 3.4, just over two-thirds of MSM reported no High Risk CAI partners, with the remaining third reporting High Risk CAI.

Table 3.4 High Risk CAI: Whole Sample And By NHS Region

	Whole Sample		NHS GGC		NHS Lothian		RoS	
	n	**%**	**n**	**%**	**n**	**%**	**n**	**%**
Yes	498	36.5	155	36.7	102	32.0	241	38.6
No	867	63.5	267	63.3	217	68.0	383	61.4
Total	**1365**	**100**	**422**		**319**		**624**	

3.5.1 High Risk CAI: By NHS Region

Chi^2 analysis (χ^2= 4.01,df=2, p>0.05) suggested that there were no significant differences in the proportion of MSM who report High Risk CAI across the 3 NHS Regions (see Table 3.4).

3.5.2 High Risk CAI: By Age

Chi^2 analysis (χ^2=11.35,df=3, p>0.05) suggested that younger men (16-25, 41.2%; 26-35, 41.1%) were significantly more likely, and men aged 46+ (31.1%) were significantly less likely, to report High Risk CAI than expected by chance (see Table 3.5).

Table 3.5 High Risk CAI: By Age

Age Range		No High Risk CAI		High Risk CAI in last year	
	Total	**n**	**%**	**n**	**%**
16-25 years	257	151	58.8	106	41.2
26-35 years	292	172	58.9	120	41.1
36-45 years	319	202	63.3	117	36.7
46+ years	495	341	68.9	154	31.1
Total	**1363**	**866**	**63.5**	**497**	**36.5**

3.5.3 High Risk CAI: By Sexual Identity

Chi^2 analysis (χ^2 =18.2, df=2, p< 0.001) suggested that gay identified men (39.0%, *n*=433) were significantly more likely to report high risk CAI and bisexual/straight identified men (24.5%, *n*=60) significantly less likely to report high risk CAI than would be expected by chance (see Table 3.6).

Table 3.6 High Risk CAI: By Sexual Identity

Sexual Identity		No High Risk CAI		High Risk CAI in last year	
	Total	**n**	**%**	**n**	**%**
Gay	1111	678	61.0	433	39.0
Bisexual/Straight	245	185	75.5	60	24.5
Total	**1356**	**866**	**63.5**	**497**	**36.5**

3.5.4 High Risk CAI: By Relationship Status

Chi^2 analysis (χ^2 =19.16, df=2, p< 0.001) suggested that single men were significantly more likely to report high risk CAI (39.4%, n=318), and MSM with a regular female partner (20.3%, n=29) were significantly less likely to report high risk CAI than would be expected by chance (see Table 3.7).

Table 3.7 High Risk CAI: By Relationship Status

Relationship Status		No High Risk CAI		High Risk CAI in last year	
	Total	**n**	**%**	**n**	**%**
Single	807	489	60.6	318	39.4
Regular Male Partner	409	259	63.3	150	36.7
Regular Female Partner	143	114	79.7	29	20.3
Total	**1359**	**866**	**63.5**	**497**	**36.5**

3.5.5 High Risk CAI: By Financial Worries

Chi^2 analysis (χ^2 =12.07, df=1, p < 0.005) suggested that men who had financial worries 'sometimes/all of the time' (41.7%, n=241) were significantly more likely to report high risk CAI, than men who 'occasionally/never' had financial worries (32.5%, n=254) (see Table 3.8).

Table 3.8 High Risk CAI: By Financial Worries

Financial Worries		No High Risk CAI		High Risk CAI in last year	
	Total	n	%	n	%
Occasionally/Never	781	527	67.5	254	32.5
Sometimes/all of the time	578	337	58.3	241	41.7
Total	**1359**	**866**	**63.5**	**497**	**36.5**

3.6 Sex With Women

Participants in this study were asked when they had last had sex with a woman (see Table 3.9). Although over half of men (53.3%, n=733) had ever had sex with a woman, only 13.2% (n=181) reported sex with a woman in the last 12 months.

Table 3.9 When Did You Last Have Any Kind Of Sex With A Woman?

	n	%
Never	642	46.7
Within the last 24 hours	20	1.5
Within the last 7 days	45	3.3
Within the last 4 weeks	35	2.5
Within the last 6 months	41	3.0
Within the last 12 months	40	2.9
Within the last 5 years	98	7.1
More than 5 years ago	454	33.0
Total	**1375**	

3.6.1 Sex With Women In The Last 12 Months: By NHS Region

Chi^2 analysis ($\chi^{2=}$1.67,df=2, p>0.05) suggested that there were no significant differences in the proportion of participants who report sex with women in the last 12 months across the 3 NHS regions (see Table 3.10).

Table 3.10 Sex With Women In The Last 12 Months: Whole Sample And By NHS Region

	Total		NHS GGC		NHS Lothian		RoS	
	n	**%**	**n**	**%**	**n**	**%**	**n**	**%**
Yes	181	13.2	52	12.1	38	12.0	91	14.4
No	1194	86.8	376	87.9	279	88.0	539	85.6
Total	**1375**		**428**		**317**		**630**	

3.6.2 Sex With Women In The Last 12 Months: By Age

Chi^2 analysis ($\chi^{2=}$1.83,df=3, p>0.05) suggested that there were no significant differences in the proportion of participants who report sex with women in the last 12 months across the 4 different age groups.

3.6.3 Sex With Women In The Last 12 Months: By Sexual Identity

Unsurprisingly, chi^2 analysis (χ^2 =674.74, df=1, p< 0.001) suggested that gay identified men (7.5%, n=89) were significantly less likely to report sex with women in the last 12 months and bisexual/straight identified men (87.3%, n=158) were significantly more likely to report sex with women in the last 12 months (see Table 3.11) than expected by chance.

Table 3.11 Sex With Women In The Last 12 Months: By Sexual Identity

Sexual Identity		Report sex with women in the last 12 months		Report no female sex partners in the last 12 months	
	Total	**n**	**%**	**n**	**%**
Gay	1119	23	2.1	1096	97.9
Bisexual/Straight	247	158	87.3	89	7.5
Total	**1366**	**181**		**1185**	

3.6.4 Sex With Women In The Last 12 Months: By Relationship Status

Unsurprisingly, chi^2 analysis (χ^2 =538.74, df=2, p< 0.001) suggested that single men (7.5%, n=61), and men with a regular male partner (2.9%, n=12) were significantly less likely to report sex with women in the last 12 months and men with a regular female partner (74.1%, n=106) were significantly more likely to report sex with women in the last 12 months (see Table 3.12) than expected by chance. However, these data also suggest that one quarter of men in Scotland (25.9%, n=37) who have a regular female partner were not sexually active with that partner in the previous year.

Table 3.12 Sex With Women In The Last 12 Months: By Relationship Status

Relationship Status		Report sex with women in the last 12 months		Report no female sex partners in the last 12 months	
	Total	n	%	n	%
Single	813	61	7.5	752	92.5
Regular Male Partner	413	12	2.9	401	97.1
Regular Female Partner	143	106	74.1	37	25.9
Total	**1366**	**179**		**1190**	

3.6.5 Sex With Women In The Last 12 Months: By Financial Worries

Chi^2 analysis (χ^2 =1.31, df=1, p>0.05) suggested that men who had financial worries 'sometimes/all of the time' (14.1%, *n*=111) were no more likely to report sex with women, than men who 'occasionally/never' had financial worries (12.0%, n=70).

3.7 Number Of Female Sexual Partners

We asked the 181 men who reported at least one female sex partner in the last 12 months to report the number of **women** with whom they report i) any sexual contact, ii) vaginal or anal sex and iii) vaginal or anal sex without a condom (here forth defined as *condomless vaginal or anal intercourse* or CVAI), in the last 12 months. On average, participants reported just over two female sexual partners, multiple female vaginal or anal sex partners and just under two female CVAI partners in the last 12 months (see Table 3.13). However there was wide variation in the number of any sexual contact (0 – 30), vaginal or anal sex (0 – 30) and CVAI (0 – 18) female partners reported in the last 12 months.

Table 3.13 Number Of Female Sex Partners: Whole Sample And By NHS Region

	Total			NHS GGC		NHS Lothian		RoS	
	n	Mean (sd)	Mode	n	Mean (sd)	n	Mean (sd)	n	Mean (sd)
Any sexual contact	173	2.3 (3.8)	1	51	2.1 (1.8)	37	2.2 (2.7)	85	2.5 (5.0)
Anal sex	173	2.1 (3.3)	1	51	2.0 (1.8)	37	1.9 (2.8)	85	2.2 (4.1)
CVAI	173	1.1 (1.1)	1	51	1.5 (1.7)	37	0.6 (0.8)	85	1 (2.0)

3.8 High Risk Sex With Women In The Last 12 Months

We calculated a measure of high risk CVAI with women in the last 12 months, defined as

- CVAI with at least 2 female partners

- or reporting CVAI with a casual female partner

- or at least 1 CVAI female partner whose HIV status was unknown or serodiscordant to themselves

in the last 12 months. As such, seroconcordant CVAI with one regular partner in the last 12 months is defined as lower risk.

Of those men who reported sex with women in the last 12 months, one quarter (26%, n=45) reported high risk CVAI and three-quarters (74%, n=128) reported no high risk CVAI in the last 12 months (see Table 3.14).

Table 3.14 High Risk Sex With Women In The Last 12 Months: By NHS Region

	Total		NHS GGC		NHS Lothian		RoS	
	n	%	n	%	n	%	n	%
High risk CVAI	45	26.0	23	45.1	7	18.9	15	17.6
Low risk sex with women	128	74.0	28	54.9	30	81.1	70	82.4
Total	**173**		**51**		**37**		**85**	

3.8.1 High Risk Sex With Women In The Last 12 Months: By NHS Region

Chi^2 analysis (χ^2=13.71,df=2, p<0.001) suggested that men in NHS GGC (45.1%, n=23) were significantly more likely to report high risk sex with women in the last 12 months and men in both NHS Lothian (18.9%, n=7) and the RoS (17.6%, n=15%) were less likely to report high risk sex with women then expected by chance (see Table 3.14).

3.8.2 High Risk Sex With Women In The Last 12 Months: By Age

Chi^2 analysis (χ^2= 7.11,df=3, p>0.05) suggested that there were no significant differences in the proportion of men who report high risk sex with women across the 4 age categories .

3.8.3 High Risk Sex With Women In The Last 12 Months: By Sexual Identity

Chi^2 analysis (χ^2 =0.70, df=1, p>0.05) suggested that gay identified men (22.2%, n=4) were no more likely to report high risk sex with women than and bisexual/straight identified men (26.5%, n=41). However, it is important to remember that this subset of men only contains men who reported sex with women in the last 12 months, of whom the large majority identify as bisexual/straight.

3.8.4 High Risk Sex With Women In The Last 12 Months: By Relationship Status

Chi^2 analysis (χ^2 =1.97, df=1, p>0.05) suggested that single men (31.6%, n=18) were no more likely to report high risk sex with women than men with a regular male partner (18.2%, n=2) or men with a regular female partner (22.3%, n=23). However, it is important to remember that this subset of men only contains men who reported sex with women in the last 12 months, of whom very few had a regular male partner.

3.8.5 High Risk Sex With Women In The Last 12 Months: By Financial Worries

Chi^2 analysis (χ^2 =0.258, df=1, p>0.05) suggested that men who had financial worries 'sometimes/all of the time' (23.9%, n=16) were no more likely to report high risk sex with women, than men who 'occasionally/never' had financial worries (27.4%, n=29).

3.9 High Risk Sex With Both Men *And* Women In The Last 12 Months

We examined the data to understand the characteristics of men who reported high risk sex with at least 1 man *and* at least 1 woman in the last 12 months. Overall, just 15 men (1.1%) fell into this high risk group. The small numbers involved here mean it is not possible to analyse these data statistically and it could be misleading to report the relevant proportion of men in different categories. However, we do provide a brief summary as follows. The 15 men who reported high risk sex with at least 1 man and 1 woman were equally spread across Glasgow (n=7), Lothian (n=3) and RoS (n=5) and the 4 age groups (16-25, n=4; 26-35, n=3; 36-45, n=3; 46+, n=5). Most were bisexual (n=13), just 2 were gay and none identified as straight. Most were single (n=7) or had a regular female partner (n=6), although 1 reported a regular male partner. Most were HIV- or untested (n=14) and 1 was HIV+. Overall we can see that only a very small proportion of men in Scotland report high risk sex with men and women and these small numbers caution us against drawing any further conclusions about this subgroup of MSMW.

3.10 Selling Or Exchanging Sex

Men were asked three questions about their experiences of selling or exchanging sex and how recently these had occurred (see Table 3.15).

Table 3.15 Experiences Of Sex Work: By Type Of Sexual Exchange

	Total	Never		Yes (ever)		Yes, in the last 12 months	
	n	n	%	n	%	n	%
Received money for sex	1366	1225	89.7	141	10.3	37	2.7
Had sex to make sure had a place to sleep	1383	1252	90.5	131	9.5	33	2.4
Sex in exchange for cigarettes, drugs, food, etc.	1379	1306	94.7	73	5.3	26	1.9

3.10.1 Selling Or Exchanging Sex: By NHS Region

Chi^2 analyses suggested that there were no significant differences in the frequency of these 3 measures of selling or exchanging Sex in the last 12 months across the 3 NHS regions. Therefore, these practices are equally common in each NHS region.

3.10.2 Selling Or Exchanging Sex: By Age

Chi^2 analyses suggested that reporting sex in exchange for money, (χ^2=55.18, df=3, p<0.001) or place to stay (χ^2=10.42, df=3, p<0.05) in the last 12 months, but not sex in exchange for something else (like cigarettes, drugs, food etc.), were significantly related to age. Younger men (16-25 years, 7.3%) were significantly more likely, and older men (26-35 years, 1.7%; 36-45 years, 1.9%; 46+ years, 0.4%) were significantly less likely to report sex in exchange for money in the last 12 months. Similarly, younger men (16-25 years, 3.9%; 26-35 years, 3.7%) were significantly more likely than older men (46+ years, 0.8%) to report having sex to ensure they had a place to sleep, in the last 12 months.

3.10.3 Selling Or Exchanging Sex: By Sexual Identity

Chi^2 analyses suggested that a trend towards significance was observed in reporting sex in exchange for money by sexual identity (χ^2=3.67, df=1, p=0.055) such that bisexual/straight identified men (4.5%) were more likely than gay identified men (2.3%) to report sex in exchange for money in the last 12 months. Reporting exchanging sex for a place to stay or something else (like cigarettes, drugs, food etc.) in the last 12 months were not significantly related to sexual identity.

3.10.4 Selling Or Exchanging Sex: By Relationship Status

Chi^2 analyses suggested that relationship status was not related to reporting sex in exchange for money, for a place to stay or for something else in the last 12 months.

3.10.5 Selling Or Exchanging Sex: By Financial Worries

Chi^2 analyses suggested that reporting financial worries was not related to reporting sex in exchange for money, for a place to stay or for something else in the last 12 months.

Overall, a small proportion of men (around 3%) in Scotland who use sociosexual media, report exchanging either for direct financial recompense or in exchange for other goods/resources in the last 12 months.

3.11 Summary

- Overall, men in Scotland reported high number of sex partners in the last 12 months; this did not differ across the 3 NHS regions or other sociodemographic factors.
- Just over half reported CAI in the last 12 months and one in 5 reported CAI in the past 3 months; this did not differ across the 3 NHS regions or other sociodemographic factors.
- Almost one third of participants reported group sex in the last 12 months, but fisting was less common, reported by around 1 in 14 (7.1%) men annually.
- One third of men reported high risk CAI in the last 12 months, in line with most other surveys of MSM in European countries. This did not differ by NHS region or age, but gay identified men, single men and men with the financial worries were significantly more likely to report high risk CAI.

- Over 1 in 8 men (13.2%) reported sex with a woman in the previous 12 months, which did not differ by NHS region, age or financial worries, but unsurprisingly, bisexual/straight identified men and men reporting a regular female partner were significantly (far) more likely to report sex with women.
- For men in this study, the average number of female partners (2.3) in the last 12 months (amongst men who reported any sex with a woman) was far lower than the average number of male partners (12.7) for the whole sample, in the last 12 months.
- One quarter of those men who had sex with women in the last 12 months reported high risk with CVAI women; this did not differ by age, sexual identity, relationship status or financial worries. However among men who had sex with women in the last 12 months, men in NHS GGC were significantly more likely to report high risk sex with women than participants in both NHS Lothian and the RoS.
- Only 15 men (1.1%) reported high risk sex with at least 1 man and 1 woman in the last 12 months.
- Lifetime experience of selling or exchanging sex (10.3%) was relatively common amongst this sample, but only around 2-3% of men reported sexual exchange for money, a place to sleep or goods in the last 12 months.
- Age was related to exchanging sex for a place to sleep or goods in the last 12 months. Younger men were significantly more likely to report sex in exchange for money or a place to stay. Similarly, older men were significantly less likely to report having sex in exchange for money or a place to stay. There was also some evidence that bisexual/straight identified men were more likely to report selling or exchanging sex than gay identified men.

Chapter 4 HIV Testing

4.1 Introduction

This chapter describes the HIV testing behaviours of MSM in the SMMASH2 study. We present the basic descriptive statistics (frequency and percentages) for these items and subsequently 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 sexual identity, either gay or bisexual/straight.
4. By relationship status, either single, regular male partner or regular female partner.
5. By financial status, reporting financial worries either 'occasionally/never' or 'sometimes/all of the time'.

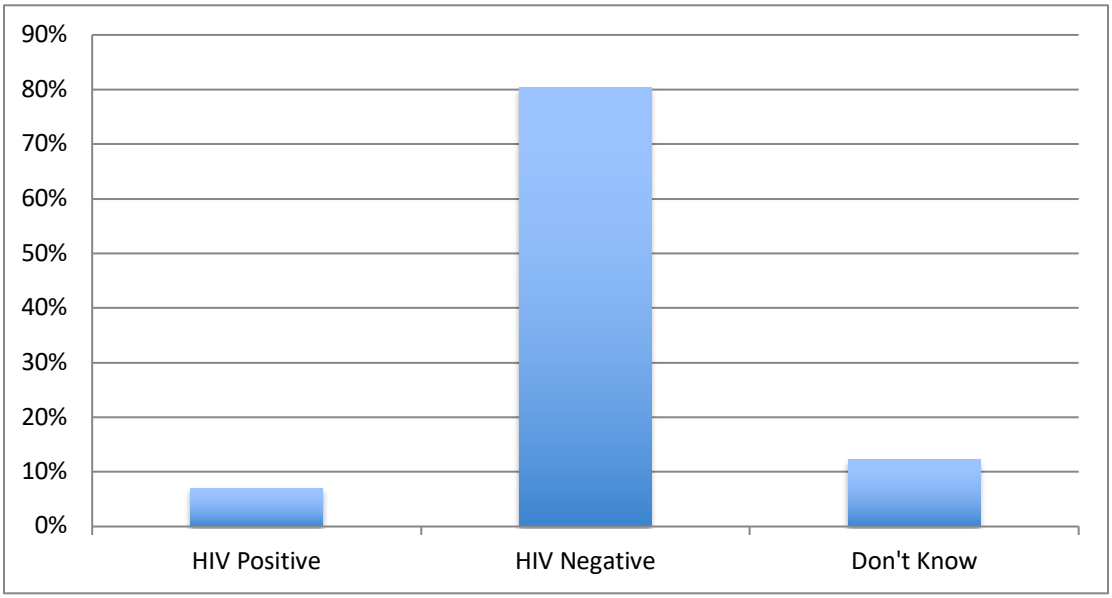
A total of 1547 MSM completed the online survey, of which 29.5% (n=457) lived within NHS GGC, 22.5% (n=345) within NHS Lothian and 48% (n=743) within the RoS.

4.2 MSM's Belief Of Their HIV Status

Men were asked '*What do you believe your current HIV status is?*' Of the 1353 participants who responded to this question (87.5% of the total sample), most (80.3%, n=1087) said they were

HIV negative, 7.2% (n=98) said they were HIV positive and 12.4% (n=168) said they did not know (see Figure 4.1).

Figure 4.1 MSMs' Belief Of Their HIV Status



4.3 HIV Testing And Recency

Men were asked whether they had ever had an HIV test (n=1348). Most (79.3%, n=1069) said they had ever had an HIV test and the remaining 20.7% (n=279) reported that they had not.

Men were asked when their most recent HIV test was (see Table 4.1 below). Almost one quarter of men (22.3%) tested in the last 3 months, 37.1% (cumulatively) in the last 6 months and 52.5% in the last year. Another 18.2% of men tested over one year ago and 8.7% more than 5 years ago.

Table 4.1 Most Recent HIV Test Date (Tested And Untested Men)

Most recent HIV test date	Whole Sample	
	n	%
In the last 3 months	300	22.3
Between 3 and 6 months	199	14.8
Between 6 months and 1 year ago	207	15.4
Between 1 and 5 years ago	246	18.2
Over 5 years ago	117	8.7
Never had an HIV test	279	20.7
Total	**1348**	

4.4 Reason For Last HIV Test

We asked men who reported an HIV test (n=1069) why they had their last test (see Table 4.2), with men able to provide as many reasons as they wished.

Table 4.2 Why Did You Have Your Last HIV Test?

	Whole Sample	
Reason for last HIV test	**n**	**%**
It's just part of my regular sexual health check	614	57.4
I'd had risky sex that I was worried about	178	16.7
I'd just not had a test for a long time	166	15.5
Offered one at a clinic when I went for an STI test	114	10.7
I regularly have anal sex without a condom	57	5.3
Sexual health information from the Internet got me thinking about my status	36	3.4
A partner told me he/she was HIV positive	27	2.5
I had a condom accident/break	23	2.2
Written sexual health information got me thinking about my status	22	2.1
A magazine/TV article got me thinking about my status	19	1.8
My regular partner is HIV positive	18	1.7
One of my friends/family tested positive	13	1.2
Received message from clinic that a sexual contact had tested positive	2	0.2
Other	101	9.4

Over half (57.4%, *n*= 614) indicated they were tested as part of their regular sexual health check. This was followed with smaller, but still noticeable percentages of MSM, indicating risk-taking sexual behaviours (16.7%, n=178) and similar proportions because it had been some time since their last test (15.5%, n=166). Evidence that the 'Opt in' clinic testing policy increases testing was apparent, since over 1 in 10 had tested because they were offered an HIV test at an STI clinic (10.7%, n=114). Moreover, around 1 in 20 negative men were testing because of 'regular CAI' (5.3%, *n*=57). Other variables for participants' last test were less commonly reported, including condom accidents, friends/family testing positive, online, written and TV/Magazine sexual health information. Finally, almost 1 in 10 participants cited a range of 'other' reasons behind their most recent HIV testing (9.4%, n=101), which were not repeated by multiple participants, including; requirement of mortgage, work-related requirement, to rule out HIV when had unexplained illness, testing positive for other STIs, starting a new relationship, decided to stop using condoms with current partner, needle stick injury, indicating the multifactorial and personal agenda behind HIV testing amongst this population.

4.5 HIV Test Result

We asked those men who had ever had an HIV test (n=1058) what the result of their last test was (see Table 4.3). Most (90.6%, n=959) reported their last test was HIV negative, 8.9% (n=94) said it was HIV positive and a few said they 'didn't know'. Overall, only 4 men from our sample said they thought they were HIV positive even though their last HIV test was negative.

Table 4.3 What Was The Result Of Your Last HIV Test?

	n	%
HIV positive	94	8.9
HIV negative	959	90.6
Don't know	5	.5
Total	**1058**	

4.6 Testing Behaviours: Sexually Active HIV Negative/Untested MSM Only

Only sexually active men who have not previously tested HIV positive logically need to test for HIV[1]. For brevity we refer to these men herein as sexually active HIV negative/untested men[2]. Overall, 94 men reported they had tested HIV positive and a further 55 men in the sample reported that they were not sexually active with another person in the last year. Therefore, a total of 1194 men in our sample were sexually active HIV negative/untested men. Overall, for HIV negative/untested men most (78.8%, n=941) had ever had an HIV test, whilst 21.2% (*n*=253) had never had an HIV test.

4.6.1 Recency Of Testing: Sexually Active HIV Negative/Untested MSM Only

BASHH guidelines (Ross et al., 2014) suggest that sexually active MSM should test at least annually for HIV. Therefore, we analysed recency of HIV testing for sexually active HIV negative/untested men (n=1194, see Table 4.4). Overall, we see that just over half of men (53.7%, n=641) had tested for HIV in the previous year, meaning that in our sample of men in Scotland, almost half (46.3%) of MSM are not testing sufficiently frequently for HIV.

[1]Although other, non sexual risk factors, such as injecting drug use should be taken into account, only 1.8% (n=21) of men in this study reported this risk behaviour in the last year..

[2]More accurately these men are actually 'last HIV test result negative or untested for HIV'.

Table 4.4 Most Recent HIV Test Date: Sexually Active HIV Negative/Untested MSM Only

	n	%	Cumulative %
In the last 3 months	256	21.4	21.4
Between 3 and 6 months	187	15.7	37.1
Between 6 months and 1 year ago	198	16.6	53.7
Between 1 and 5 years ago	218	18.3	71.9
Over 5 years ago	82	6.9	78.8
Never had an HIV test	253	21.2	100.0
Total	**1194**		

4.6.2 Recent Testing: Sexually Active HIV Negative/Untested MSM: By NHS Region

In line with BASHH HIV testing guidelines for MSM, we define 'recent' HIV testing as reporting an HIV test within the last year. HIV testing recency of sexually active HIV negative/untested men across the three NHS regions (see Table 4.5) was similar. Just over half of men in NHS GGC, NHS Lothian and the RoS had tested within the last year, whilst just under half had never tested or most recently tested over 1 year ago. Chi^2 analysis indicated that there was no significant difference in HIV testing recency across the three NHS regions.

Table 4.5 Recent Testing Behaviours: Sexually Active HIV Negative/Untested MSM: By NHS Region

HIV Testing	Whole Sample		NHS GGC		NHS Lothian		RoS	
	n	%	n	%	n	%	n	%
Never tested or > 12 months	553	46.3	177	48.4	115	42.0	261	47.1
Recent testing < 12 months	641	53.7	189	51.6	159	58.0	293	52.8
Total	**1194**		**366**		**274**		**554**	

4.6.3 Recent Testing: Sexually Active HIV Negative/Untested Sexually Active MSM: By Demographics

Data on patterns of HIV testing recency were analysed across 4 key demographic variables of age, sexual identify, relationship status and financial status (as detailed in Chapter 1).

4.6.4 Recent Testing: Sexually Active HIV Negative/Untested MSM By Age

Chi^2 analysis (χ^2 =16.51, df=3, p< 0.05) suggested that younger men, aged 16-25 years and 26-35 years, were significantly more likely to report recent HIV testing, and older men aged 46+ years were significantly less likely to report recent HIV testing than expected by chance (see Table 4.6).

Table 4.6 Recent Testing: Sexually Active HIV Negative/Untested MSM: Age Range

Age Range	Whole Sample	Never Tested or > 12 months		Recent Testing ≤ 12 months	
	n	n	%	n	%
16-25 years	235	97	41.3	138	58.7
26-35 years	269	108	40.1	161	59.9
36-45 years	265	119	44.9	146	55.1
46+ years	423	228	53.9	195	46.1
Total	**1192**	**552**	**46.3**	**640**	**53.7**

4.6.5 Recent Testing: Sexually Active HIV Negative/Untested MSM: By Sexual Identity

Chi^2 analysis (χ^2 =15.64, df=1, p< 0.05) suggested that gay identified men (56.4%, n=542) were significantly more likely to report recent testing, and bisexual/straight identified men (41.8%, n=94) significantly less likely to report recent testing than would be expected by chance (see Table 4.7).

Table 4.7 Recent Testing: Sexually Active HIV Negative/Untested MSM: By Sexual Identity

Sexual Identity	Whole Sample	Never Tested or > 12 months		Recent Testing ≤ 12 months	
	n	n	%	N	%
Gay	961	419	43.6	542	56.4
Bisexual/Straight	225	131	58.2	94	41.8
Total	**1186**	**550**	**46.4**	**636**	**53.6**

4.6.6 Recent Testing: Sexually Active HIV Negative/Untested MSM: By Relationship Status

Chi^2 analysis (χ^2 =23.45, df=2, p< 0.05) suggested that single men were significantly more likely to report recent testing (57.6%, n=401), and MSM with a regular female partner (34.6%, n=45) were significantly less likely to report recent testing than would be expected by chance (see Table 4.8).

Table 4.8 Recent Testing: Sexually Active HIV Negative/Untested MSM: Relationship Status

Relationship Status	Whole Sample	Never Tested or > 12 months		Recent Testing ≤ 12 months	
	n	n	%	n	%
Single	696	295	42.4	401	57.6
Regular Male Partner	362	171	47.2	191	52.8
Regular Female Partner	130	85	65.4	45	34.6
Total	**1188**	**551**	**46.3**	**637**	**53.6**

4.6.7 Recent Testing: Sexually Active HIV Negative/Untested MSM: By Financial Worries

Chi^2 analysis (χ^2 =15.49, df=1, p< 0.05) suggested that men who had financial worries 'sometimes/all of the time' (60.3%, n=298) were significantly more likely to report testing in the last year, than men who 'occasionally/never' had financial worries (48.8%, n=339) than would be expected by chance (see Table 4.9).

Table 4.9 Recent Testing: Sexually Active HIV Negative/Untested MSM: By Financial Worries

Financial Worries	Whole Sample	Never Tested or > 12 months		Recent Testing ≤ 12 months	
	n	n	%	n	%
Occasionally/Never	695	356	51.2	339	48.8
Sometimes/all of the time	494	196	39.7	298	60.3
Total	**1189**	**552**	**46.4**	**637**	**53.6**

4.7 HIV Testing Amongst High Risk HIV Negative/Untested MSM

Current BASHH guidelines suggest that MSM who report *higher risk sex* should test for HIV every 3 months, although 'higher risk sex' is not specifically defined. Herein we define 'high risk sex' as reporting condomless vaginal or anal intercourse (CVAI) with two or more partners in the previous year or CVAI with a casual partner or a partner whose status was unknown or serodiscordant to themselves. Overall, 38.8% (n=463) of the 1194 sexually active, HIV negative/untested men in our sample report high risk CVAI. Of these men, 82.1% (n=380) have ever had an HIV test but 36.3% (n=168) have never tested for HIV.

Table 4.10 presents these data for HIV negative/untested men who report high risk CVAI, broken down into discrete testing periods. It is clear that less than one third (30%, n=139) of high risk MSM report an HIV test in the previous 3 months, and cumulatively only two thirds (63.7%, n=295) were tested in the previous year. Consequently, over one third (36.3%, n=168) were tested over one year ago or never. As such, a clear imperative for health improvement is to increase lifetime and recent HIV testing amongst MSM who report high risk CVAI.

Table 4.10 Most Recent HIV Test: High Risk HIV Negative/Untested MSM

	n	%	Cumulative %
In the last 3 months	139	30.0	30.0
Between 3 and 6 months	86	18.6	48.6
Between 6 months and 1 year ago	70	15.1	63.7
Between 1 and 5 years ago	68	14.7	78.4
Over 5 years ago	17	3.7	82.1
Never had an HIV test	83	17.9	100.0
Total	**463**		

4.8 Appropriate HIV Testing: According To Sexual Behaviours

We explored 'appropriate' HIV testing behaviours by MSM who were sexually active and HIV negative or untested (n=1188). We defined 'appropriate testing' as 3 monthly testing for high risk CAI/CVAI and at least annual testing for low risk CAI/CVAI, partially based on the current BASHH guidelines. According to these criteria, only 40.3% (n=479) of men in Scotland appear to be testing appropriately, with the majority (59.7%, n=709) testing inappropriately, that is, insufficiently frequently. Again, this highlights the importance of increasing HIV testing frequency overall amongst MSM in Scotland.

4.8.1 Appropriate HIV Testing: By NHS Region

Data on testing across the three NHS regions (see Table 4.11) were generally comparable, that is, over half of the men sampled in NHS GGC (62.2%, n=228), NHS Lothian (53.6%, n=147), and the RoS (60.7%, n=334) indicated testing ***inappropriately***. Those testing appropriately were noticeably fewer in comparison (NHS GGC: 37.4%, n=136; NHS Lothian: 46.4%, n=127, RoS: 39.9%, n=216). Chi^2 analysis indicated the findings were not statistically significant across the three NHS regions.

Table 4.11 Appropriate HIV Testing: By NHS Region

HIV Testing	Whole Sample		NHS GGC		NHS Lothian		RoS	
	n	%	n	%	n	%	n	%
Testing Inappropriately	709	59.7	228	62.6	147	53.6	334	60.7
Testing Appropriately	479	40.3	136	37.4	127	46.4	216	39.3
Total	**1188**		**364**		**274**		**550**	

4.8.2 Appropriate HIV Testing: By Key Demographics

As before key demographic variables associated with age, sexual identity, relationship status and financial worries were explored in the context of appropriate HIV testing according to sexual behaviour to establish the existence of statistically significant relationships.

4.8.3 Appropriate HIV Testing: By Age

Table 4.12 shows that about 40% of men, in each age category, reported appropriate HIV testing, with about 60% reporting inappropriate testing. Chi^2 analysis suggested that there were no significant differences in appropriate HIV testing by age.

Table 4.12 Appropriate HIV Testing: By Age Range

Age Range	Whole Sample	Testing Inappropriately		Testing Appropriately	
	n	n	%	n	%
16-25 years	235	135	57.4	100	42.6
26-35 years	266	150	56.4	116	43.6
36-45 years	263	155	58.9	108	41.1
46+ years	422	267	63.6	155	36.7
Total	**1186**	**707**	**59.6**	**479**	**40.4**

4.8.4 Appropriate HIV Testing: By Sexual Identity

Chi^2 analysis (χ^2 =3.99, df=3, p< 0.05) suggested that gay identified men (42.1%, n=403) were significantly more likely to test appropriately and bisexual/straight identified men (32.3%, n=72) significantly less likely to test appropriately than would be expected by chance (see Table 4.13).

Table 4.13 Appropriate HIV Testing: By Sexual Identity

Sexual Identity	Whole Sample	Testing Inappropriately		Testing Appropriately	
	n	n	%	n	%
Gay	957	554	57.9	403	42.1
Bisexual/Straight	223	151	67.7	72	32.3
Total	**1180**	**705**	**59.7**	**475**	**40.3**

4.8.5 Appropriate HIV Testing: By Relationship Status

Chi^2 analysis (χ^2 =10.61, df=2, p<0.05) suggested that single men (42.9%, n=297) were significantly more likely to test appropriately, and men with a regular female partner were significantly less likely to test appropriately (27.7%, n=36) than would be expected by chance (see Table 4.14).

Table 4.14 Appropriate HIV Testing: By Relationship Status

Relationship Status	Whole Sample	Testing Inappropriately		Testing Appropriately	
	n	n	%	n	%
Single	692	395	57.1	297	42.9
Regular Male Partner	360	217	60.3	143	39.7
Regular Female Partner	130	94	72.3	36	27.7
Total	**1182**	**706**	**59.7**	**476**	**40.3**

4.8.6 Appropriate HIV Testing: By Financial Worries

Table 4.15 shows that a similar proportion of men who had financial worries 'sometimes/all of the time' (43.1%, n=211) tested appropriately in comparison to men who 'occasionally/never' had financial worries (38.2%, n=265). Chi^2 analysis suggested that this small difference was not statistically significant.

Table 4.15 Appropriate HIV Testing: By Financial Worries

Financial Worries	Whole Sample	Testing Inappropriately		Testing Appropriately	
	n	n	%	n	%
Occasionally/Never	693	428	61.8	265	38.2
Sometimes/all of the time	490	279	56.9	211	43.1
Total	**1183**	**707**	**59.8**	**746**	**40.2**

4.9 Appropriate HIV Testing: High Risk HIV Negative/Untested MSM

Next, we explored the data to look at appropriate testing amongst those sexually active MSM who were HIV negative/untested and reported high risk CAI/CVAI in the last year (n=476). According to the BASHH guidelines, all of these men should be testing for HIV every 3 months. Of those eligible (n=463), only 30.0% (n=139) tested appropriately, with the remaining 70.0% (n=324) testing inappropriately, indicating a substantial deficit in reaching the BASHH recommendation.

4.9.1 Appropriate HIV Testing: High Risk HIV Negative/Untested MSM: By NHS Region

Data on appropriate testing showed some differences across the three NHS regions (see Table 4.16) such that appropriate testing amongst high risk HIV negative/untested men was lower in NHS GGC (24.1%, n=35) and higher in NHS Lothian (37.1%, n=33) than in the RoS (31%, n=71).

However, Chi^2 analysis suggested that these differences were **not** statistically significant across the three NHS regions.

Table 4.16 Appropriate HIV Testing: High Risk HIV Negative/Untested MSM: By NHS Region

HIV Test in Last 3 Months	Whole Sample		NHS GGC		NHS Lothian		RoS	
	n	%	n	%	n	%	n	%
No	324	70.0	110	75.9	56	62.9	158	69.0
Yes	139	30.0	35	24.1	33	37.1	71	31.0
Total	**463**		**145**		**89**		**229**	

4.9.2 Appropriate HIV Testing: High Risk HIV Negative/Untested MSM: Key Demographics

As before, key demographic variables associated with age, sexual identity, relationship status and financial worries were explored in the context of appropriate HIV testing amongst HIV negative/untested men who report high risk sexual behaviour to establish the existence of statistically significant relationships.

4.9.3 Appropriate HIV Testing: High Risk HIV Negative/Untested MSM: By Age

Table 4.17 shows that amongst high risk HIV negative/untested men, about 30% of men in each age category, reported appropriate HIV testing. Chi^2 analysis suggested that there were no significant differences in appropriate HIV testing by age.

Table 4.17 Appropriate HIV Testing: High Risk HIV Negative/Untested MSM: By Age

Age Range	Whole Sample		Not Tested in last 3 months		Tested in last 3 months	
	n	%	n	%	n	%
16-25 years	104	21.6	71	68.3	33	31.7
26-35 years	118	25.5	85	72.0	33	28.0
36-45 years	103	22.2	70	68.0	33	32.0
46+ years	137	29.7	97	70.8	40	29.2
Total	**462**		**323**	**69.9**	**139**	**30.1**

4.9.4 Appropriate HIV Testing: High Risk HIV Negative/Untested MSM: By Sexual Identity

Chi^2 analysis (χ^2 =10.02, df=1, p< 0.05) suggested that amongst high risk HIV negative/untested men, gay identified men (32.8%, n=124) were significantly more likely to test appropriately and bisexual/straight identified men (15.0%, n=12) significantly less likely to test appropriately than would be expected by chance (see Table 4.18).

Table 4.18 Appropriate HIV Testing: High Risk HIV Negative/Untested MSM: By Sexual Identity

Sexual Identity	Whole Sample		Not Tested in last 3 months		Tested in last 3 months	
	n	%	n	%	n	%
Gay	378	82.5	254	67.2	124	32.8
Bisexual/Straight	80	17.5	68	85.0	12	15.0
Total	**458**		**322**	**70.3**	**136**	**29.7**

4.9.5 Appropriate HIV Testing: High Risk HIV Negative/Untested MSM: By Relationship Status

Chi^2 analysis (χ^2=8.07, df=2, p< 0.05) suggested that amongst high risk HIV negative/untested men, single men (33.6%, n=96) were significantly more likely to test appropriately, and men with a regular female partner were significantly less likely to test appropriately (12.2%, n=5) than

would be expected by chance (see Table 4.19. (Note these data capture responses from men who reported high risk CAI, which may include sex with their regular partner if this partner's status was unknown status or serodiscordant).

Table 4.19 Appropriate HIV Testing: High Risk HIV Negative/Untested MSM: By Relationship Status

Relationship Status	Whole Sample		Not Tested in last 3 months		Tested in last 3 months	
	n	%	n	%	n	%
Single	286	62.0	190	66.4	96	33.6
Regular Male Partner	134	29.0	96	71.6	38	28.4
Regular Female Partner	41	9.0	36	87.8	5	12.2
Total	**461**		**322**	**69.8**	**139**	**30.2**

4.9.6 Appropriate HIV Testing: High Risk HIV Negative/Untested MSM: By Financial Worries

Table 4.20 indicates that amongst high risk HIV negative/untested men, a greater percentage of men who 'occasionally/never' worried about their financial status (32.1%, n=81) tested appropriately, in comparison to those who 'sometimes/all of the time' worried about their financial status (26.9%, n=56). However, Chi^2 analysis indicated that these differences were not statistically significant.

Table 4.20 Appropriate HIV Testing: High Risk HIV Negative/Untested MSM: By Financial Worries

Financial Worries	Whole Sample		Not Tested in last 3 months		Tested in last 3 months	
	n	%	n	%	n	%
Occasionally/Never	252	54.8	171	67.9	81	32.1
Sometimes/all of the time	208	45.2	152	73.1	56	26.9
Total	**460**		**323**	**70.2**	**137**	**29.8**

4.10 High Risk HIV Negative/Untested MSM: Tested In The Last 6 Months

Given that BASHH guidelines do not define high risk, and that few high risk men tested in the last 3 months, we re-explored HIV testing amongst HIV negative and untested men who reported high risk CAI/CVAI (n=476), re-defining appropriate HIV testing as 'in the last 6 months'. Of those eligible (n=463), 48.6% (n=225) reported appropriate testing and 51.6% (n=238) had not tested within this time frame, respectively.

4.10.1 High Risk HIV Negative/Untested MSM: Tested In The Last 6 Months: By NHS Region

Data showed some differences across the three NHS regions (see Table 4.21) such that 6 month testing amongst high risk HIV negative/untested men was lower in NHS GGC (42.8%, n=62) and higher in NHS Lothian (56.2%, n=50) than in the RoS (49.3%, n=113). However, Chi^2 analysis suggested that these differences were **not** statistically significant across the three NHS regions.

Table 4.21 High Risk HIV Negative/Untested MSM: Tested In The Last 6 Months: By NHS Region

HIV Test in Last 6 Months	Whole Sample		NHS GGC		NHS Lothian		RoS	
	n	%	n	%	n	%	n	%
No	238	51.4	83	57.2	39	43.8	116	50.7
Yes	225	48.6	62	42.8	50	56.2	113	49.3
Total	**463**		**145**		**89**		**229**	

4.10.2 High Risk HIV Negative/Untested MSM: Tested In The Last 6 Months: By Key Demographics

As before key demographic variables associated with age, sexual identity, relationship status and financial worries were explored in the context of appropriate HIV testing amongst HIV

negative/untested men who report high risk sexual behaviour to establish the existence of statistically significant relationships.

4.10.3 High Risk HIV Negative/Untested MSM: Tested In The Last 6 Months: By Age

Table 4.22 shows that amongst high risk HIV negative/untested men, about 50% of men in each age category reported HIV testing in the last 6 months, though the frequency of 6 month testing reduced in each age group (53.8% for 16-25 years to 43.8% of 46+ years). However, Chi^2 analysis indicated that there was no significant difference in 6 month HIV testing by age.

Table 4.22 High Risk HIV Negative/Untested MSM: Tested In The Last 6 Months: By Age

Age Range	Whole Sample		Not Tested in last 6 months		Tested in last 6 months	
	n	%	n	%	n	%
16-25 years	104	21.6	48	46.2	56	53.8
26-35 years	118	25.5	60	50.8	58	49.2
36-45 years	103	22.2	53	51.5	50	48.5
46+ years	137	29.7	77	56.2	60	43.8
Total	**462**		**238**	**51.5**	**224**	**45.8**

4.10.4 High Risk HIV Negative/Untested MSM: Tested In The Last 6 Months: By Sexual Identity

Chi^2 analysis (χ^2 =23.30, df=1, p< 0.05) suggested that amongst high risk HIV negative/untested men, gay identified men (53.4%, n=202) were significantly more likely to test in the last 6 months and bisexual/straight identified men (23.8%, n=19) significantly less likely to do so than would be expected by chance (see Table 4.23).

Table 4.23 High Risk HIV Negative/Untested MSM: Tested In The Last 6 Months: By Sexual Identity

Sexual Identity	Whole Sample		Not Tested in last 6 months		Tested in last 6 months	
	n	%	n	%	n	%
Gay	378	82.5	176	46.6	202	53.4
Bisexual/Straight	80	17.5	61	76.3	19	23.8
Total	**458**		**237**	**51.7**	**221**	**48.3**

4.10.5 High Risk HIV Negative/Untested MSM: Tested In The Last 6 Months: By Relationship Status

Chi^2 analysis (χ^2 =20.19, df=2, p< 0.05) indicated that amongst high risk HIV negative/untested men, single men (54.2%, n=155) were significantly more likely to test within the last 6 months and men with a regular female partner (17.1%, n=7) were significantly less likely to do so than would be expected by chance (see Table 4.24). (Note these data capture responses from men who reported high risk CAI, which may include sex with their regular partner if this partner's status was unknown status or serodiscordant).

Table 4.24 High Risk HIV Negative/Untested MSM: Tested In The Last 6 Months: By Relationship Status

Relationship Status	Whole Sample		Not Tested in last 6 months		Tested in last 6 months	
	n	%	n	%	n	%
Single	286	62.0	131	45.8	155	54.2
Regular Male Partner	134	29.0	72	53.7	62	46.3
Regular Female Partner	41	9.0	34	82.9	7	17.1
Total	**461**		**237**	**51.4**	**224**	**48.6**

4.10.6 High Risk HIV Negative/Untested MSM: Tested In The Last 6 Months: By Financial Worries

Table 4.25 suggests that, amongst high risk HIV negative/untested men, similar percentages of men who 'occasionally/never' worried about their financial status (47.2%, n=119) and those who 'sometimes/all of the time' worried about their financial status (49.5%, n=103) reported an HIV test in the last 6 months. Chi^2 analysis indicated that these differences were not statistically significant.

Table 4.25 High Risk HIV Negative/Untested MSM: Tested In The Last 6 Months: By Financial Worries

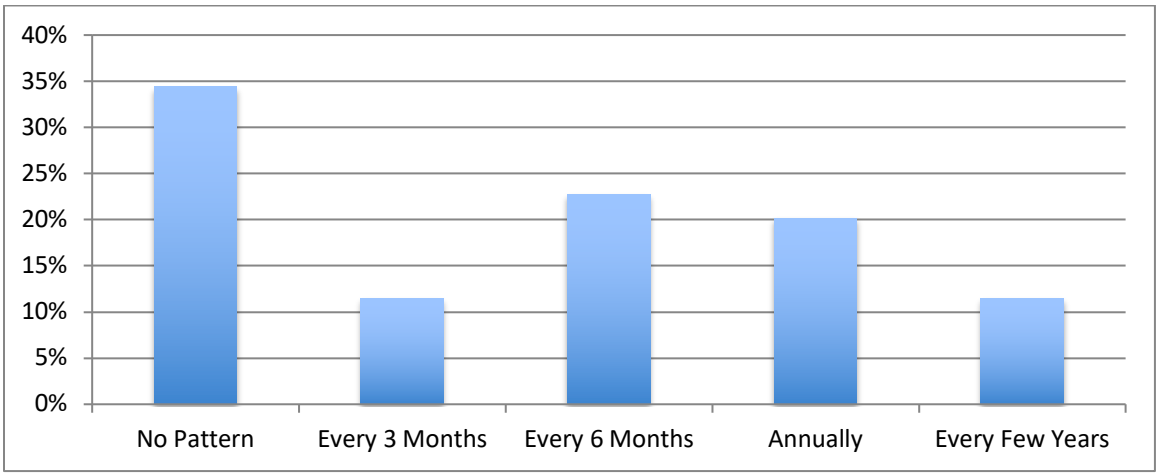
Financial Worries	Whole Sample		Not Tested in last 6 months		Tested in last 6 months	
	n	%	n	%	n	%
Occasionally/Never	252	54.8	133	52.8	119	47.2
Sometimes/all of the time	208	45.2	105	50.5	103	49.5
Total	**460**		**238**	**51.7**	**222**	**48.3**

4.11 Regularity And Frequency Of HIV Testing Amongst Sexually Active HIV Negative/Untested MSM

4.11.1 Regular HIV Testing Pattern

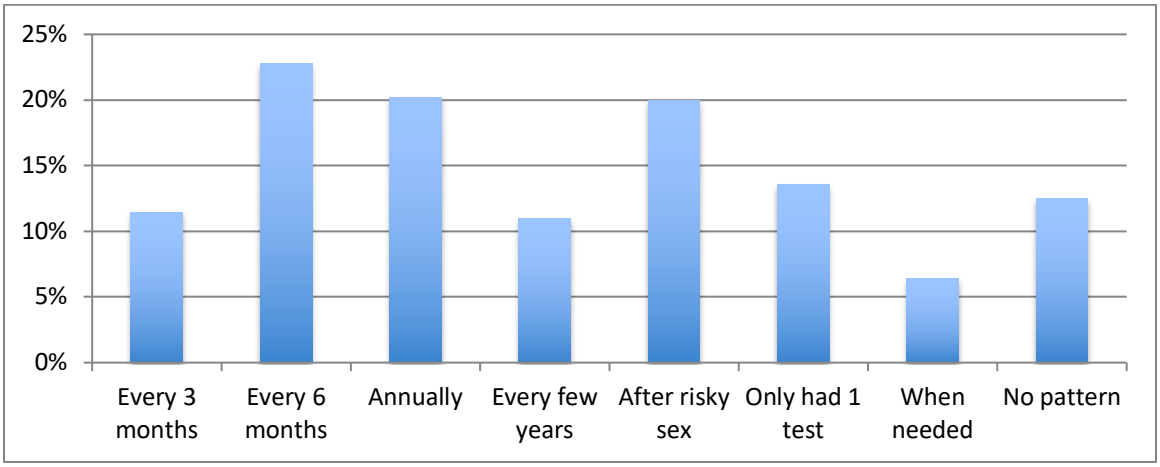
In this study, 1194 MSM identified as HIV negative/untested and sexually active, of which 78.8% (n=941) reported a prior HIV test. We asked these men whether there was a regular pattern to their HIV testing. Of the 928 HIV negative/untested men who answered this question, approximately two thirds (65.5%, n=608) reported a regular pattern of testing with the remaining one third (34.5%, n=320) testing intermittently (see Figure 4.2).

Figure 4.2 Regular HIV Testing Pattern: Sexually Active HIV Negative/Untested MSM



Data analysis (see Figure 4.3) indicates that only 54.5% (n=506) of MSM test regularly and at least annually and in accordance with BASHH guidelines. By default, 45.5% (n=422) of MSM in this study adopt variable and intermittent approaches, some triggered by high risk sexual behaviour.

Figure 4.3 HIV Testing Patterns: Including All Reasons For Testing

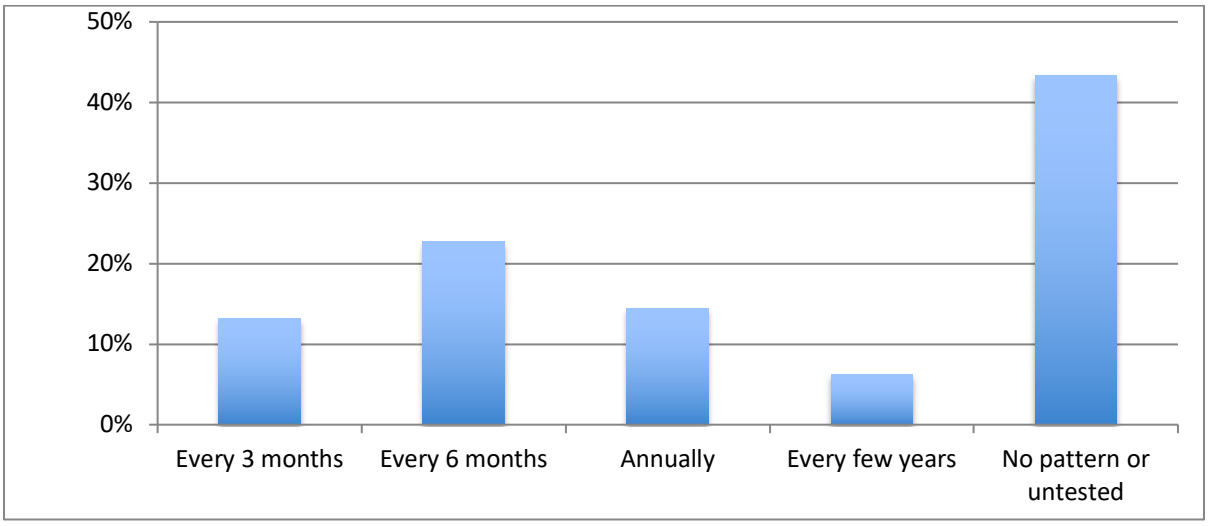


4.11.2 Regular HIV Testing Pattern: High Risk HIV Negative/Untested MSM

Of the 476 HIV negative/untested MSM who report high risk sexual activity, 79.2% (n=377) reported ever having an HIV test. However, as shown in

Figure 4.4**,** only 13.2% (n=63) reported meeting the recommended BASHH guidelines of regular testing every 3 months. Whilst, cumulatively, a higher percentage of high risk negative/untested men are testing regularly at least every 6 months (35.9%, n=171), and yearly 50.4% (n=240), and a small (group of men 6.3%; n=30) test less than yearly, almost half (43.3%, n=206) have **no regular pattern of testing or are untested**.

Figure 4.4 Regular HIV Testing : High Risk HIV Negative/Untested MSM

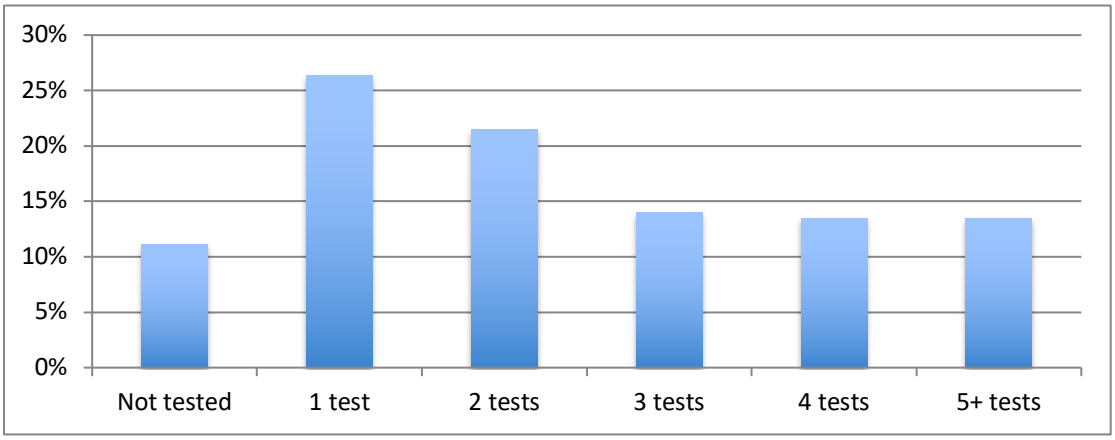


4.11.3 Frequency Of HIV Testing In Previous 2 Years

We asked sexually active HIV negative/untested MSM about the frequency of testing within the previous 2 years, acknowleging these responses omit reference to regular testing and may be indicative testing activity prompted by high risk behaviour or STI partner notifications. Of the n=838 MSM who responded,

Figure 4.5 shows participants' testing frequency, which ranged from zero to 5+ tests undertaken in the last 2 years.

Figure 4.5 Frequency Of HIV Testing In Previous 2 Years: Sexually Active HIV Negative/Untested Men



4.11.4 Frequency Of HIV Testing In Previous 2 Years: High Risk HIV Negative/Untested Men

According to BASHH guidelines, the expected frequency of testing for high risk sexual behavour is every 3 months, which equates to 8 tests over a 2 year period. We explored the frequency of testing for sexually active HIV negative/untested men who report high risk sex. Of the n=356 men who told us their frequency of HIV testing in the previous 2 years, 14.3% (n=51) of high risk HIV negative/untested MSM reported 6 or more tests within the 2 year time frame.

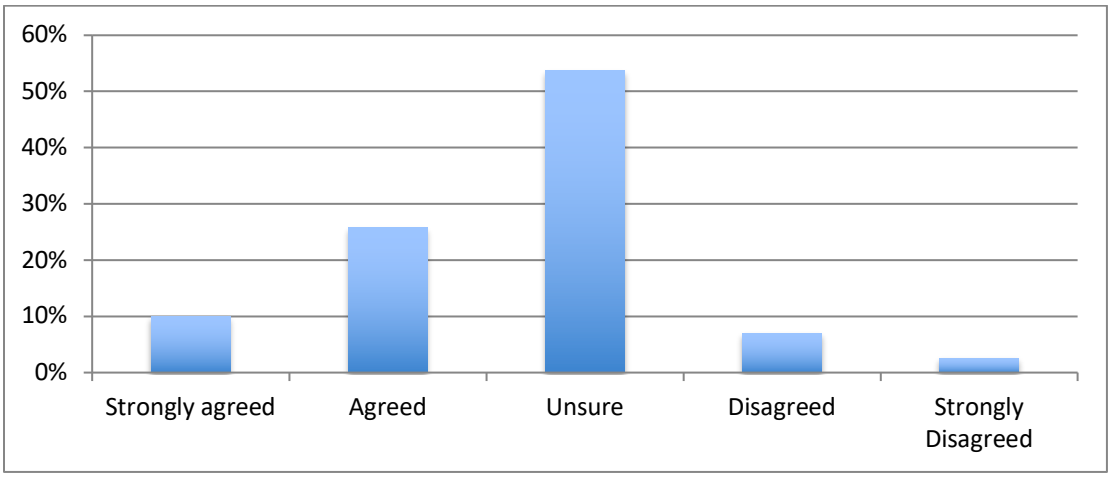
4.11.5 Frequency Of HIV Testing In Previous 2 Years: Low Risk HIV Negative/Untested Men

Next, we explored the frequency of testing for sexually active HIV negative/untested men who report only low risk sexual behaviour, where annual testing would result in the expectation of 2 screening tests. Of the n=475 men who responded, 56.6% (n=269) confimed meeting this recommendation, however, 43.4% (n=206) reported testing only once or not at all within this time frame.

4.12 Perceived Norms For HIV Testing

We asked participants (n=1201) about their assumptions regarding the behavioural norms for HIV testing amongst their peers, using the the trigger statement *'Most of my Gay friends have had a HIV test'*. Responses were gathered using a 5-item scale: 1 (Strongly agree) to 5 (Strongly Disagree). Overall, 10.1% (n=121) Strongly Agreed, 26.4% (n=317) Agreed, 53.7% (n=645) were Unsure, 7.1% (n=85) Disagreed and 2.7% (n=33) Strongly Disagreed (see Figure 4.6).

Figure 4.6 Perceived Norms For HIV Testing



4.12.1 Perceived Norms For HIV Testing: By NHS Region

Table 4.26 details the mean responses to the statement *'Most of my Gay friends have had a HIV test'* within and across the three NHS regions. The average score of 2.61-2.71 indicated slightly greater 'agreement' than 'disagreement' that HIV testing was regarded a normative behaviour amongst their peers. Further analysis (one-way ANOVA) to explore the variance in mean scores across the three regions did **not** demonstrate statistical significance.

Table 4.26 MSM Perceived Norms For HIV Testing: By NHS Region

NHS Region	n	Mean	SD
NHS GGC	368	2.61	.863
NHS Lothian	276	2.61	.835
RoS	557	2.71	.860
Total	**1201**	**2.66**	**.856**

4.12.2 Perceived Norms For HIV Testing: By Age

Examining social norms for HIV Testing by participant age resulted in mean scores indicating stronger 'agreement' versus 'disagreement' for each age group (see Table 4.27). Further analysis (one-way ANOVA) to explore the variance in mean scores across the age ranges, taking account of the difference in the sample sizes within these ranges, did not exhibit statistical significance.

Table 4.27 Perceived Norms For HIV Testing: By Age

Age Range	n	Mean	SD
16-25 years	235	2.70	.941
26-35 years	271	2.54	.926
36-45 years	267	2.66	.823
46+ years	426	2.72	.770
Total	**1199**	**2.66**	**.855**

4.12.3 Perceived Norms For HIV Testing: By Sexual Identity

Exploring HIV testing norm and its relationship with sexual identity (see Table 4.28) again resulted in participants demonstrating mean scores indicating stronger 'agreement'. Further analysis (one-way ANOVA) to explore the variance in scores aligned with sexual identity, taking

account of the difference in the sample sizes across the groupings, did not reach statistical significance.

Table 4.28 Perceived Norms For HIV Testing: By Sexual Identity

Sexual Identity	n	Mean	SD
Gay	964	2.64	.862
Bisexual/Straight	229	2.75	.831
Total	**1193**	**2.66**	**.857**

4.12.4 Perceived Norms For HIV Testing: By Relationship Status

Social norms associated with HIV testing and relationship status are presented in Table 4.29 and once again, mean scores reflect stronger 'agreement' overall. Further analysis (one-way ANOVA) exploring variance across these scores, which took account of the difference in the sample sizes across the groupings, was not statistically significant.

Table 4.29 Perceived Norms For HIV Testing: By Relationship Status

Relationship Status	n	Mean	SD
Single	700	2.65	.883
Regular Male Partner	364	2.63	.838
Regular Female Partner	131	2.79	.762
Total	**1195**	**2.66**	**.858**

4.12.5 Perceived Norms For HIV Testing: By Financial Worries

Exploring the relationship between norms for HIV testing and financial worries are presented in

Table 4.30, again reflecting within the mean scores participants' stronger 'agreement' with the statement's premise. Further analysis (one-way ANOVA) to explore the variance in scores aligned with participants' responses to financial worries did not reach statistical significance.

Table 4.30 Perceived Norms For HIV Testing: By Financial Worries

Financial Worries	n	Mean	SD
Occasionally/Never	698	2.66	.824
Sometimes/all of the time	498	2.65	.901
Total	**1196**	**2.66**	**.857**

4.12.6 Perceived Norms For HIV Testing: High Risk HIV Negative/Untested MSM

Table 4.31 presents mean scores exploring the relationship between norms for HIV testing and high risk sexual behaviour. One-way ANOVA indicates that MSM who reported low risk CAI were significantly more likely to agree that HIV testing was normative amongst their peers than men who reported high risk CAI (F =5.941, df=1, $p< 0.05$).

Table 4.31 Perceived Norms For HIV Testing By High Or Low Risk CAI

	n	Mean	SD
Low risk CAI	752	2.71	.839
High risk CAI	437	2.85	.884
Total	**1198**	**2.66**	**.857**

4.12.7 Perceived Norms For HIV Testing And Testing Appropriately

The relationship between 'inappropriate' and 'appropriate' HIV testing and norms for HIV testing found that MSM who test appropriately (for their behavioural risk), had greater

agreement with HIV testing norms compared to those who tested inappropriately (see Table 4.32). One-way ANOVA suggested that MSM who test appropriately were significantly more likely to agree that HIV testing was normative amongst their peers than men who tested inappropriately (*F* =54.108, df=1, p< 0.05).

Table 4.32 Perceived Norms For HIV Testing: By Appropriate/Inappropriate Testing Behaviour

Testing Behaviour	n	Mean	SD
Testing Inappropriately	707	2.81	.798
Testing Appropriately	479	2.44	.694
Total	**1186**	**2.66**	**.857**

4.13 Summary

- Most of the men in this sample (80.3%) thought they were HIV negative, 7.2% said they were HIV positive and 12.4% said they did not know.
- Overall, 79.3% of men said they had ever had an HIV test and the remaining 20.7% reported that they had not.
- Participants' primary reason to undergo their last HIV test was as part of an annual health check (57.4%). Other important reasons were testing because of 'risky sex that I was worried about' (16.7%), not having had a test for a long time (15.5%) and being offered a test at a clinic (10.7%).
- Concerning their last HIV test, most (90.6%) men said it was HIV negative, 8.9% said it was HIV positive and a few men said they 'didn't know'.
- Only sexually active, HIV-/untested MSM need to test for HIV (at least in terms of sexual risk factors). Considering this subgroup of men, 78.8% had ever had an HIV test with the remaining 21.2% reporting they had never been tested

- BASHH guidelines recommend that MSM should test at least annually for HIV. However in this study, just under one quarter of sexually active, HIV-/untested men (21.4%) had tested in the last 3 months, cumulatively just over one third (37.1%) in the last 6 months and cumulatively just over half (53.7%) in the last year. This means that in Scotland, almost half (46.3%) of MSM are not testing sufficiently frequently for HIV.
- Recent (in the last year) HIV testing was patterned by age, sexual identity, relationship status and financial worries, as follows; younger men (16-25 years, 58.7%; 26-35 years, 59.9%) were significantly more likely, and men aged 46+ years (46.1%) significantly less likely, to report recent testing; gay identified men (56.4%) were significantly more likely to report recent testing than bisexual/straight identified men (41.8%); single men (57.6%) were significantly more likely, and men with a regular female partner (34.6%) significantly less likely, to report recent testing; men who reported financial worries 'sometimes/all of the time' (60.3%) were significantly more likely to report recent testing than men who 'occasionally/never' had financial concerns (48.8%).
- Sexually active HIV negative/untested men in this study also report suboptimal *regular* testing strategies. Only 54.5% reported regular, at least annually testing. This means that almost half (45.5%) adopt variable, intermittent or spontaneous approaches, for example, triggered by high risk sexual behaviour.
- BASHH guidelines suggest that MSM engaging in high risk sexual activity should regularly test for HIV every 3 months. Again, a suboptimal testing picture prevails for high risk men in Scotland. Overall, 38.8% of sexually active, HIV negative/untested men in our sample report high risk sex. Of these men, 82.1% (n=380) have <u>ever</u> had an HIV test but 36.3% have never tested for HIV.
- Less than one third (30.0%) of high risk MSM report an HIV test in the previous 3 months, and cumulatively only two thirds (63.7%) were tested in the previous year.

Consequently, over one third (36.3%) of high risk men were last tested over one year ago or never. In addition, only 13.2% of high risk men reported *regularly* testing every 3 months, although cumulatively 35.9% reported regularly testing at least every 6 months and 50.4% yearly. However it is problematic that almost half (49.6%) of high risk men have either no regular pattern of HIV testing, a less than annual testing pattern or are untested. As such, a clear imperative for health improvement is to increase lifetime, recent HIV and regular testing amongst MSM who report high risk sex.

- We defined 'appropriate testing' as reporting regular 3 monthly testing for high risk men and at least annual testing for low risk men, partially based on the current BASHH guidelines. According to these criteria, only 40.3% of men in Scotland appear to be testing appropriately, with the majority (59.7%, n=709) testing inappropriately, that is, insufficiently frequently. Analysis suggested that gay identified men (42.1%) were significantly more likely to test appropriately than bisexual/straight identified men (32.3%) and single men (42.9%) were significantly more likely, and men with a regular female partner significantly less likely, to test appropriately (27.7%). Again, this highlights the importance of increasing HIV testing frequency overall amongst MSM in Scotland.
- We asked MSM about their assumptions regarding the behavioural norms for HIV testing, using the trigger statement, 'Most of my Gay friends have had an HIV test'. Overall, one third agreed (10.1% Strongly Agreed; 26.4% Agreed), just over half (53.7%) were Unsure and just under 1 in 10 disagreed (7.1% Disagreed; 2.7% Strongly Disagreed). Although behavioural norms for HIV testing did not differ with any of our demographic variables, those MSM who reported 'testing appropriately' and men who identified as engaging in 'low risk CAI' were significantly more likely to agree that HIV testing was normative amongst their peer group.

- Participating in HIV testing remains a critical component of public health initiatives at both a population and individual level. However, these findings raise major concerns about the relationship between engaging in testing for HIV and doing so with sufficient regularity to meet current recommendations for optimising health protection. The overall lack of engagement by MSM in HIV testing activities requires immediate attention to offset the potential for poor health outcomes for this group.

Chapter 5 Sexually Transmitted Infection Testing Behaviours

5.1 Introduction

This chapter describes the sexually transmitted infection (STI) testing behaviours, excluding HIV, of MSM in the SMMASH2 study. **Herein, we focus on the 1189 men in the sample who are sexually active and HIV- or untested.** The STI testing behaviour of HIV+ men will be considered in a separate HIV+ MSM Fact Sheet report. We present the basic descriptive statistics (mean values, standard deviation (sd), modal values, frequency and percentages) for STI testing variables and subsequently 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 sexual identity, either gay or bisexual/straight.
4. By relationship status, either single, regular male partner or regular female partner.
5. By financial status, reporting financial worries either 'occasionally/never' or 'sometimes/all of the time'.

5.2 When Was Your Most Recent STI Test?

According to BASHH guidelines, all sexually active MSM should test for STIs at least once every 12 months. In this sample (see Table 5.1**)**, almost one quarter of participants had <u>never</u> had an STI test, whilst almost a further third had most recently tested either over 5 years ago (11.1%) or

between 1 and 5 years ago (20%). This means that only 45.1% of this sample of sexually active, HIV-/untested MSM had an STI test in the previous year. Next, we investigate whether STI testing in the last year was related to any of our key sociodemographic variables.

Table 5.1 When Was Your Most Recent STI Test?

	n	%
In the last 3 months	209	17.6
Between 3 and 6 months	167	14.0
Between 6 months and 1 year ago	160	13.5
Between 1 and 5 years ago	238	20.0
Over 5 years ago	132	11.1
Never	283	23.8
Total	**1189**	

5.2.1 STI Testing In The Last Year: By NHS Region

Chi^2 analysis (χ^2= 2.72,df=2, p>0.05) suggested that there were no significant differences in the proportion of participants who report an STI test in the last year across the 3 NHS regions (see Table 5.2).

Table 5.2 STI Testing In The Last Year: By NHS Region

	Whole Sample		NHS GGC		NHS Lothian		RoS	
	n	%	n	%	n	%	n	%
Yes	536	45.1	160	44.1	134	49.4	242	43.6
No	653	54.9	203	55.9	137	50.6	313	56.4
Total	**1189**		**363**		**271**		**555**	

5.2.2 STI Testing In The Last Year: By Age

Chi^2 analysis (χ^2= 8.11,df=3, p<0.05) suggested that younger men (16-25 and 26-36 years) were significantly more likely, and older men (46+ years) significantly less likely, to report an STI test in the last year than expected by chance (see Table 5.3).

Table 5.3 STI Testing In The Last Year: By Age

		STI Test in the last year		No STI Test in the last year	
Age Range	**Total**	**n**	**%**	**n**	**%**
16-25 years	231	116	50.2	115	49.8
26-35 years	267	128	47.9	139	52.1
36-45 years	265	122	46.0	143	54.0
46+ years	424	169	39.9	255	60.1
Total	**1187**	**535**		**652**	

5.2.3 STI Testing In The Last Year: By Sexual Identity

Chi^2 analysis (χ^2 =4.69, df=1, p< 0.05) suggested that gay identified men (46.7%, n=446) were significantly more likely to report an STI test in the last year and bisexual/straight identified men (38.7%, n=87) significantly less likely to, than would be expected by chance (see Table 5.4).

Table 5.4 STI Testing In The Last Year: By Sexual Identity

		STI Test in the last year		No STI Test in the last year	
Sexual Identity	**Total**	**n**	**%**	**n**	**%**
Gay	956	446	46.7	510	53.3
Bisexual/Straight	225	87	38.7	138	61.3
Total	**1181**	**533**		**648**	

5.2.4 STI Testing In The Last Year: By Relationship Status

Chi^2 analysis (χ^2 =15.12, df=2, p< 0.005) suggested that single men (48.8%, n=339) were significantly more likely to report an STI test in the last year and men with a regular male (42.3%, n=152) or female (31.3%, n=41) partner were significantly less likely to report an STI test in the last year than would be expected by chance (see Table 5.5).

Table 5.5 STI Testing In The Last Year: By Relationship Status

		STI Test in the last year		No STI Test in the last year	
Relationship Status	**Total**	**n**	**%**	**n**	**%**
Single	694	339	48.8	355	51.2
Regular Male Partner	359	152	42.3	207	57.6
Regular Female Partner	131	41	31.3	90	68.7
Total	**1184**	**532**		**652**	

5.2.5 STI Testing In The Last Year: By Financial Worries

Chi^2 analysis (χ^2=4.80, df=1, p < 0.05) suggested that men who had financial worries 'sometimes/all of the time' (48.7%) were significantly more likely to report an STI test in the last year than men who 'occasionally/never' had financial worries (42.3%) (see Table 5.6).

Table 5.6 STI Testing In The Last Year: By Financial Worries

		STI Test in the last year		No STI Test in the last year	
Financial Worries	**Total**	**n**	**%**	**n**	**%**
Occasionally/Never	691	292	42.3	399	57.7
Sometimes/all of the time	493	240	48.7	253	51.3
Total	**1184**	**532**		**652**	

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

We asked those men who had had an STI test in the last year (n=533) whether they had been diagnosed with an STI in the last year. One fifth of men (n=104, 19.5%) said they had received a positive diagnosis in the last year, whilst the remainder (n=429, 80.5%) had not.

Next, for those men who reported an STI test in the last year (n=533), 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

Chi^2 analysis (χ^2= 1.66,df=2, p>0.05) suggested that there were no significant differences in the proportion of participants who reported a positive STI test in the last year across the 3 NHS regions (see Table 5.7).

Table 5.7 Result Of Your Last STI Test: By NHS Region

	Whole Sample		NHS GGC		NHS Lothian		RoS	
	n	%	n	%	n	%	n	%
Positive	104	19.5	32	20.0	21	15.8	51	21.3
None	429	79.5	128	80.0	112	84.2	189	78.8
Total	**533**		**160**		**133**		**240**	

5.3.2 Result Of Your Last STI Test: By Age

Chi^2 analysis (χ^2= 1.92,df=3, p>0.05) suggested that there were no significant differences in the result of men's last STI test, by age (see

Table 5.8).

Table 5.8 Result Of Your Last STI Test: By Age

		Positive STI Diagnosis in the last year		No STI Diagnosis in the last year	
Age Range	**Total**	**n**	**%**	**n**	**%**
16-25 years	116	21	18.1	95	81.9
26-35 years	126	30	23.8	96	76.2
36-45 years	122	22	18.0	100	82.0
46+ years	168	31	18.5	137	81.5
Total	**532**	**104**		**428**	

5.3.3 Result Of Your Last STI Test: By Sexual Identity

Chi^2 analysis (χ^2 =4.36, df=1, p< 0.05) suggested that gay identified men (21.2%, n=94) were significantly more likely to report a positive STI diagnosis in the last year than bisexual/straight identified men (10.3%, n=10) (see Table 5.9).

Table 5.9 Result Of Your Last STI Test: By Sexual Identity

		Positive STI Diagnosis in the last year		No STI Diagnosis in the last year	
Sexual Identity	**Total**	**n**	**%**	**n**	**%**
Gay	443	94	21.2	349	78.8
Bisexual/Straight	87	10	10.3	77	89.7
Total	**530**	**104**		**426**	

5.3.4 Result Of Your Last STI Test: By Relationship Status

Chi^2 analysis (χ^2 =9.35, df=2, p<0.01) suggested that single men (22.3%, n=75) were significantly more likely to report a positive STI diagnosis in the last year and men with a regular female

partner (2.4%, n=1) were significantly less likely to report a positive STI diagnosis in the last year than would be expected by chance (see Table 5.10).

Table 5.10 Result Of Your Last STI Test: By Relationship Status

		Positive STI Diagnosis in the last year		No STI Diagnosis in the last year	
Relationship Status	**Total**	**n**	**%**	**n**	**%**
Single	336	75	22.3	261	77.6
Regular Male Partner	152	28	18.4	124	81.6
Regular Female Partner	41	1	2.4	40	97.6
Total	**529**	**104**		**425**	

5.3.5 Result Of Your Last STI Test: By Financial Worries

Chi^2 analysis (χ^2=0.001, df=1, p > 0.05) suggested that the result of MSM's last STI test was not patterned by financial worries (see Table 5.11).

Table 5.11 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	291	56	19.2	235	80.8
Sometimes/all of the time	238	46	19.3	192	80.7
Total	**529**	**102**		**427**	

5.4 STI Diagnosis In The Past Year: Partner Notification

Considering just those n=104 men who were diagnosed with an STI test in the past year, most (41.7%, n=43) said they had informed all of their sex partners, around a third had informed some (14.6%, n=15) or a few (20.4%, n=21) of them, whilst almost one quarter (23.3%, n=24)

had not told any of their sex partners about their diagnosis (see Table 5.12). It is important to note that in Scotland, all people diagnosed with an STI are offered partner notification support by the clinic, which includes the clinic offering to provide anonymous partner notification where possible. Where men reported that they had not told their partners, this may include anonymous sex partners who they were unable to identify for notification purposes.

Table 5.12 Did You Tell Your Sex Partners About Your Positive STI Diagnosis?

	n	%
None	24	23.3
A few	21	20.4
Some	15	14.6
All	43	41.7
Total	**103**	

5.5 STI Diagnosis In The Last Year: All Sexually Active HIV-/Untested Men

Considering **all** sexually active HIV-/untested men in this study, in the previous year 8.8% (n=104) had been diagnosed with an STI, a further 36.2% (n=429) had tested negative for STIs whilst 55.1% (n=653) had **not** had an STI test.

5.6 Testing For HIV And/Or Other STIs In The Last Year.

We combined our data on HIV and STI testing in the previous year to understand the composite testing behaviours for sexually active HIV-/untested men in Scotland (see Table 5.13). Overall a total of n=675 (56.7%) sexually active, HIV-/untested men in this study reported either an HIV test, an STI test or both in the last year and as such may be considered to be in touch with

sexual health services in the widest sense. A further 43.2% reported no such tests in the last year.

Table 5.13 Testing For HIV And/Or Other STIs In The Last Year.

	n	%	% of Total
STI test only	34	5.0	2.9
HIV Test only	139	20.6	11.7
Both STI and HIV test	502	74.4	42.2
Total	**675**		**56.7**
Neither test	514		43.2
Total	**1189**		**100**

5.6.1 Where Did These Men Test In The Last Year?

We asked those men who reported either an HIV and/or an STI test in the last year (n=675) to tell us where they had been tested, giving them a choice of 14 options (see

Table 5.14). Men were asked to tick all options that applied. The most frequently stated testing location was a non-gay specific GUM (Genitourinary medicine) clinic (31%), although a similar proportion also reported gay specific services overall (Steve Reston Project, 19.1%; Chalmers, 15.7%, ROAM m-test, 3.9%; another gay specific service, 8.7%). Both GP (11.3%) and generic hospital services (5.8%) were fairly widely cited. The popularity of home testing HIV kits was apparent with 1 in 10 men citing they used them. Terrence Higgins Trust Fast Test (6.5%) was also frequently mentioned.

Table 5.14 Where Did You Test For HIV And/Or Other STIs In The Last Year?

	n	%
Sexual health/GUM clinic (not gay specific)	209	**31.0**
Steve Retson Project (Glasgow)	129	**19.1**
Chalmers Sexual Health Clinic (Edinburgh)	106	**15.7**
ROAM m-test (Edinburgh)	26	**3.9**
Another sexual health clinic for gay men	59	**8.7**
GP Practice/Surgery	76	**11.3**
At a hospital (not GUM or sexual health clinic)	39	**5.8**
I used a home testing kit	67	**9.9**
Terrence Higgins Trust Fast Test	44	**6.5**
A gay sauna	15	2.2
Another outreach or community clinic	8	1.2
An HIV clinic	7	1.0
A gay bar	3	0.4
Other	19	2.8

It is worth noting the accuracy of these data suffer from participants' accurate knowledge of the *type* of clinic they attended. For example, is interesting that such a large number of participants were tested at their GP practice, and may reflect the large rural areas covered by this online survey, where men may not have access to dedicated GUM services nearby. Similarly, amongst this HIV-/untested sample men it is unlikely that men were been tested at an HIV clinic, though since some do offer tests, primary prevention and partner testing. Overall, this reflects the inherent limitations of the survey method, since answers cannot be checked for accuracy and participant understanding.

5.7 Summary

- STI testing amongst sexually active, HIV-/untested MSM in this sample remains suboptimal. Under half (45.1%) of these men had taken an STI test in the last year, in line with current guidelines. This means that over half (54.9%) are potentially at risk of undiagnosed STI infection on an annual basis. Older men (46+ years; 39.9%), bisexual/straight identified men (38.7%) and men with financial worries (42.3%) were all significantly less likely to report an STI test in the previous year. Men with a regular male or female partner were significantly less likely to report an STI test, though further analysis is required to determine whether they were at risk of STIs based on reporting multiple sex partners.
- One fifth of sexually active, HIV-/untested MSM who reported an STI test in the previous year said they received a positive STI diagnosis, with gay men (21.1%) significantly more likely to report a positive STI diagnosis than bisexual identified men (10.3%). In addition, single men (22.3%) were significantly more likely to have received a positive STI diagnosis than men with a regular male (18.4%) or female (2.4%) partner, suggesting a protective effect of a regular relationship on STI diagnoses. Most (76.6%) men said they had informed at least some of their sex partners about their positive STI diagnosis, although only 41.7% had informed them all.
- Considering *all* sexually active HIV-/untested men in this study in the previous year, 8.8% had been diagnosed with an STI, a further 36.2% had tested negative for STIs whilst 55.1% had not had an STI test.
- Overall, over half (56.7%) of sexually active HIV-/untested men in this study report either an HIV test, an STI test or both in the last year and so may be considered to be in touch with services in the wider sense. The main locations of testing were gay specific GUM services, non gay-specific GUM services, GPs and home testing kits.

Chapter 6 Sexual Function

6.1 Introduction

This chapter describes the sexual function of men in SMMASH2 study **who were sexually active in the previous year** (n=1249). 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 subsequently 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 sexual identity, either gay or bisexual/straight.
4. By relationship status, either single, regular male partner or regular female partner.
5. By financial status, reporting financial worries either 'occasionally/never' or 'sometimes/all of the time'.

6.2 Sexual Function – Sexually Active MSM

A total of 8 items from the NATSAL *Sexual Function* scale (see Mitchell et al., 2013) were developed to be more appropriate to MSM participants (see Table 6.1). Key changes were made to item #4 (adding the word 'unwanted' to acknowledge that certain types of pain may be

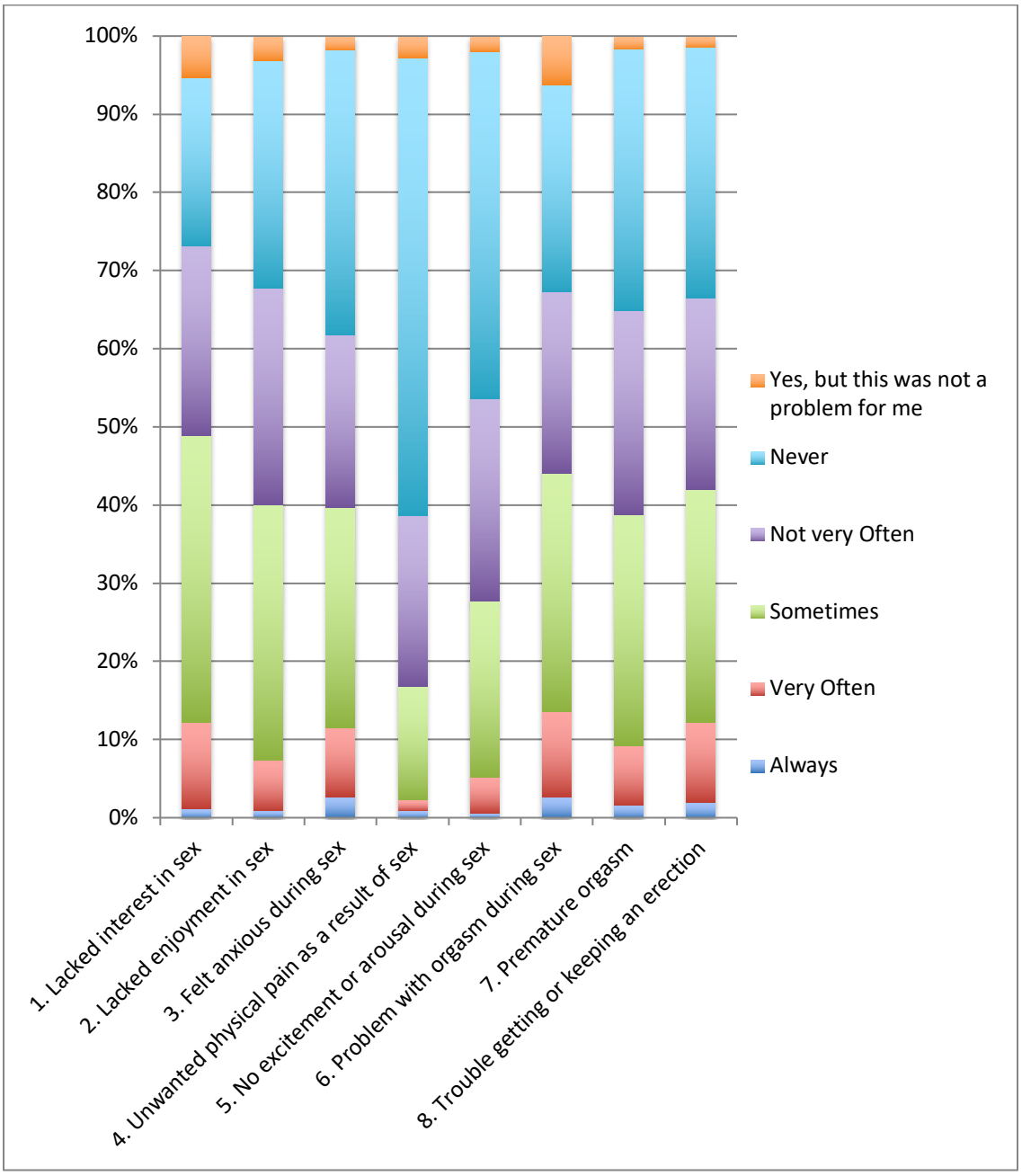
desirable during sex, e.g. BDSM etc.), items #6 and #7 (including the word 'cum' as a more familiar and contemporary term to express reaching orgasm amongst MSM) and an additional response category was added ('Yes, but this was not a problem for me') as suggested by the NATSAL author Dr C Mercer, following the team's research experience using the original scale.

Overall, few men (between 0.6%-2.7% per item) reported that they 'always' experienced each of the items respectively. Indeed, the proportion of responses across the 6 possible answers was remarkably similar for each of the items, except for #4 where markedly fewer men reported unwanted physical pain during sex to be a problem than the remaining answers. This can be understood more clearly by consulting the graphed information (see Figure 6.1).

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

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	14	**1.1**	137	**11.0**	457	**36.6**	302	**24.2**	269	**21.5**	70	**5.6**	1249
2. Lacked enjoyment in sex	11	**0.9**	80	**6.4**	408	**32.7**	345	**27.6**	364	**29.1**	41	**3.3**	1249
3. Felt anxious during sex	34	**2.7**	110	**8.8**	351	**28.1**	275	**22.1**	454	**36.4**	23	**1.8**	1247
4. Felt unwanted physical pain as a result of sex	11	**0.9**	17	**1.4**	180	**14.5**	272	**21.9**	727	**58.5**	35	**2.8**	1242
5. Felt no excitement or arousal during sex	8	**0.6**	57	**4.6**	280	**22.5**	323	**25.9**	553	**44.4**	25	**2.0**	1246
6. Did not ‘cum’ (experience an orgasm or climax) during sex, or too a long time to ‘cum’ despite feeling excited/aroused	33	**2.6**	137	**11.0**	380	**30.5**	289	**23.2**	329	**26.4**	79	**6.3**	1247
7. 'Cum' (had an orgasm or climax) more quickly than you would like	20	**1.6**	95	**7.6**	368	**29.6**	325	**26.1**	416	**33.4**	21	**1.7**	1245
8. Had trouble getting or keeping an erection	24	**1.9**	126	**10.1**	365	**29.2**	299	**24.0**	415	**33.3**	19	**1.5**	1248

Figure 6.1 Sexual Function Scale Items: All Sexually Active MSM[3]



[3] The full wording of the questions can be seen in **Table 6.1**.

6.3 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 6.2. We see that most of these issues were experienced by around 40% of participants in this study. Whilst 'unwanted physical pain' was experienced by the smallest proportion of men (16.7%) at least sometimes, almost half of participants said they 'lacked interest in having sex' (48.7%) at least some of the time. Lack of orgasm during sex/taking too long to orgasm (44.1%), orgasming more quickly than you would like (38.8%), lack of enjoyment during sex (40.0%) and erectile difficulties (41.3%) were experienced by just under half of participants.

Of note, almost 2 in 5 men said they 'felt anxious during sex' at least sometimes, which seems worthy of greater analysis within a qualitative study. Finally, over one quarter (27.7%) of men said they 'felt no excitement or arousal during sex' at least sometimes. In concert, these findings show that a large proportion of MSM experience various sexual function problems at least some of the time. It is important therefore to examine whether these sexual function problems are related to other demographic issues, which is examined in the next section.

Table 6.2 Proportion Of Men 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	641	**51.3**	608	**48.7**	1249
2. Lacked enjoyment in sex	750	**60.0**	499	**40.0**	1249
3. Felt anxious during sex	752	**60.3**	495	**39.7**	1247
4. Felt unwanted physical pain as a result of sex	1034	**83.3**	208	**16.7**	1242
5. Felt no excitement or arousal during sex	901	**72.3**	345	**27.7**	1246
6. Did not 'cum' (experience an orgasm or climax) during sex, or too a long time to 'cum' despite feeling excited/aroused.	697	**55.9**	550	**44.1**	1247
7. 'Cum' (had an orgasm or climax) more quickly than you would like	762	**61.2**	483	**38.8**	1245
8. Had trouble getting or keeping an erection	733	**58.7**	515	**41.3**	**1248**

6.4 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 23.2 (95% CI=22.9-23.5; sd=5.18) and scores ranged from a minimum of 2 to a maximum of 32. This equates to an average response for each question of 'not very often'. Below we analyse OSF scores for each of our sociodemographic variables. Although in most cases significant differences were found, the mean size of the

difference between groups was, in each case, rather small, between 1 – 1.8 points of the total scale.

6.4.1 Overall Sexual Function: By NHS Region

One-way ANOVA ($F=1.22$, $df(2,1215)$, $p>0.05$) suggested that there were no significant differences in men's overall sexual function scores across the 3 NHS Regions.

6.4.2 Overall Sexual Function: By Age

One-way ANOVA ($F=4.09$, $df(3,1213)$, $p<0.01$) suggested that age was significantly related to overall sexual function. Post hoc analyses (Hochberg's) suggested that older men (46+ years; mean OSF=23.9) had significantly better overall sexual function than younger men aged 16-25 (mean OSF=22.8, $p<0.05$) and 36-45 (mean OSF=22.8, $p<0.05$) years. Overall Sexual Function for men aged 26-35 years (OSF=23.1) was not significantly different from older or younger men.

6.4.3 Overall Sexual Function: By Sexual Identity

One-way ANOVA ($F=10.37$, $df(1,1208)$, $p<0.005$) suggested that sexual identity was significantly related to overall sexual function, such that gay identified men (mean OSF=23.0) had significantly poorer overall sexual function than bisexual/straight identified men (mean OSF=24.2).

6.4.4 Overall Sexual Function: By Relationship Status

One-way ANOVA ($F=13.9$, $df(2,1209)$, $p<0.001$) suggested that relationship status was significantly related to overall sexual function. Post hoc analyses (Hochberg's) suggested that single men (mean OSF=22.6) reported significantly poorer overall sexual function than men with

a regular male partner (mean OSF=23.9, p<0.005) and men with a regular female partner (mean OSF=24.8, p<0.001). Overall sexual function between men reporting a regular female or male partner was not significantly different.

6.4.5 Overall Sexual Function: By Financial Worries

One-way ANOVA (F=39.4, df(1, 1211), p<0.001) suggested that men who report financial worries (OSF=22.2) have significantly poorer overall sexual function than men who report no financial worries (OSF=24.0).

6.5 Summary

- Overall, around half of the sexually active participants 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 relatively rare (16.7%), experiencing problems such as lack of interest in sex (48.7%), lack of enjoyment in sex (40.0%), lack of orgasm/taking too long to orgasm (44.1%), premature ejaculation (38.8%) and feeling anxious during sex (39.7%) at least sometimes were rather common. Over one quarter (27.7%) of men felt no sexual arousal at least some of the time. In terms of overall sexual function, clear sociodemographic differences were observed herein, by age (younger men had significantly poorer OSF than older men), sexual identity (gay men had significantly poorer OSF than bisexual/straight identified men), relationship status (single men had significantly poorer OSF than men with a regular (male or female) partner) and financial worries (men with financial worries had significantly poorer OSF).
- In concert, that a large proportion of MSM experience various sexual function problems at least some of the time is worthy of further attention.

Chapter 7 Sexual Confidence

7.1 Introduction

This chapter describes the sexual confidence of men in the SMMASH2 study **who were sexually active in the previous year** (n=1207). 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 sexual function clinical use scale and subsequently 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 sexual identity, either gay or bisexual/straight.
4. By relationship status, either single, regular male partner or regular female partner.
5. By financial status, reporting financial worries either 'occasionally/never' or 'sometimes/all of the time'.

7.2 Sexual Confidence: All Sexually Active MSM

A total of 12 items were developed from the 'Sex Unzipped' *Sexual Confidence* scale to be more appropriate to MSM participants (see **Table 7.1**). Key changes were made as follows; Items #1 and #2 were added to the scale, as MSM 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 SMMASH2 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 7.1 shows the breakdown of answers to these 12 questions for all sexually active MSM in the SMMASH2 study. These data are also shown in graph form (see Figure 7.1 and Figure 7.2), which readers may find easier to interpret than Table 7.1.

Table 7.1 Response To Sexual Function Scale Items: All Sexually Active MSM

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?	79	**6.5**	321	**26.6**	480	**39.8**	246	**20.4**	81	**6.7**	1207
2. Ask about their viral load?	116	**9.7**	301	**25.1**	359	**29.9**	164	**13.7**	259	**21.6**	1199
3. Refuse to have sex if they won't use a condom?	25	**2.1**	115	**9.5**	406	**33.7**	528	**43.8**	132	**10.9**	1206
4. Make the first move with sex?	58	**4.8**	299	**24.9**	570	**47.5**	243	**20.3**	30	**2.5**	1200
5. Tell then that you like a specific sexual activity?	25	**2.1**	221	**18.3**	634	**52.6**	300	**24.9**	26	**2.2**	1206
6. Tell them that you do not want to have sex?	16	**1.3**	182	**15.2**	580	**48.3**	347	**28.9**	75	**6.3**	1200
7. Tell them if a certain sexual activity makes you uncomfortable?	13	**1.1**	132	**11.0**	642	**53.5**	378	**31.5**	36	**3.0**	1201
	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	518	**43.0**	417	**34.6**	139	**11.5**	81	**6.7**	51	**4.2**	1206
9. Put a condom on yourself without losing the erection?	497	**41.3**	371	**30.8**	168	**14.0**	103	**8.6**	64	**5.3**	1203
10. Put a condom on your partner without losing the erection?	473	**39.2**	524	**43.4**	93	**7.7**	45	**3.7**	71	**5.9**	1206
11. Suggest sex if you want it?	528	**43.9**	549	**45.6**	93	**7.7**	24	**2.0**	10	**0.8**	1204
12. Tell or show someone how they can give you sexual pleasure?	530	**43.9**	538	**44.6**	105	**8.7**	25	**2.1**	8	**0.7**	1206

Figure 7.1 Sexual Confidence Scale Items #1-7: Sexually Active MSM

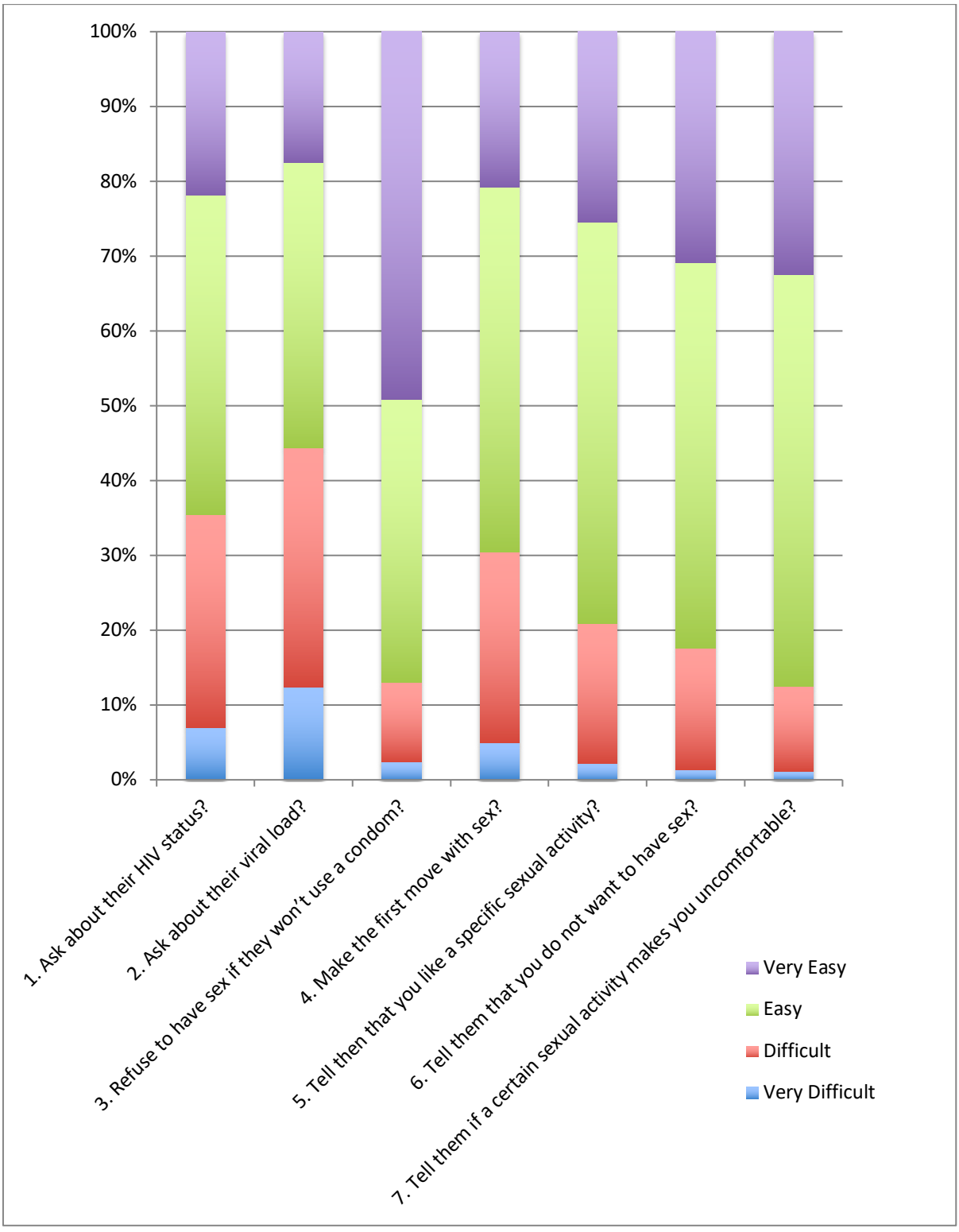
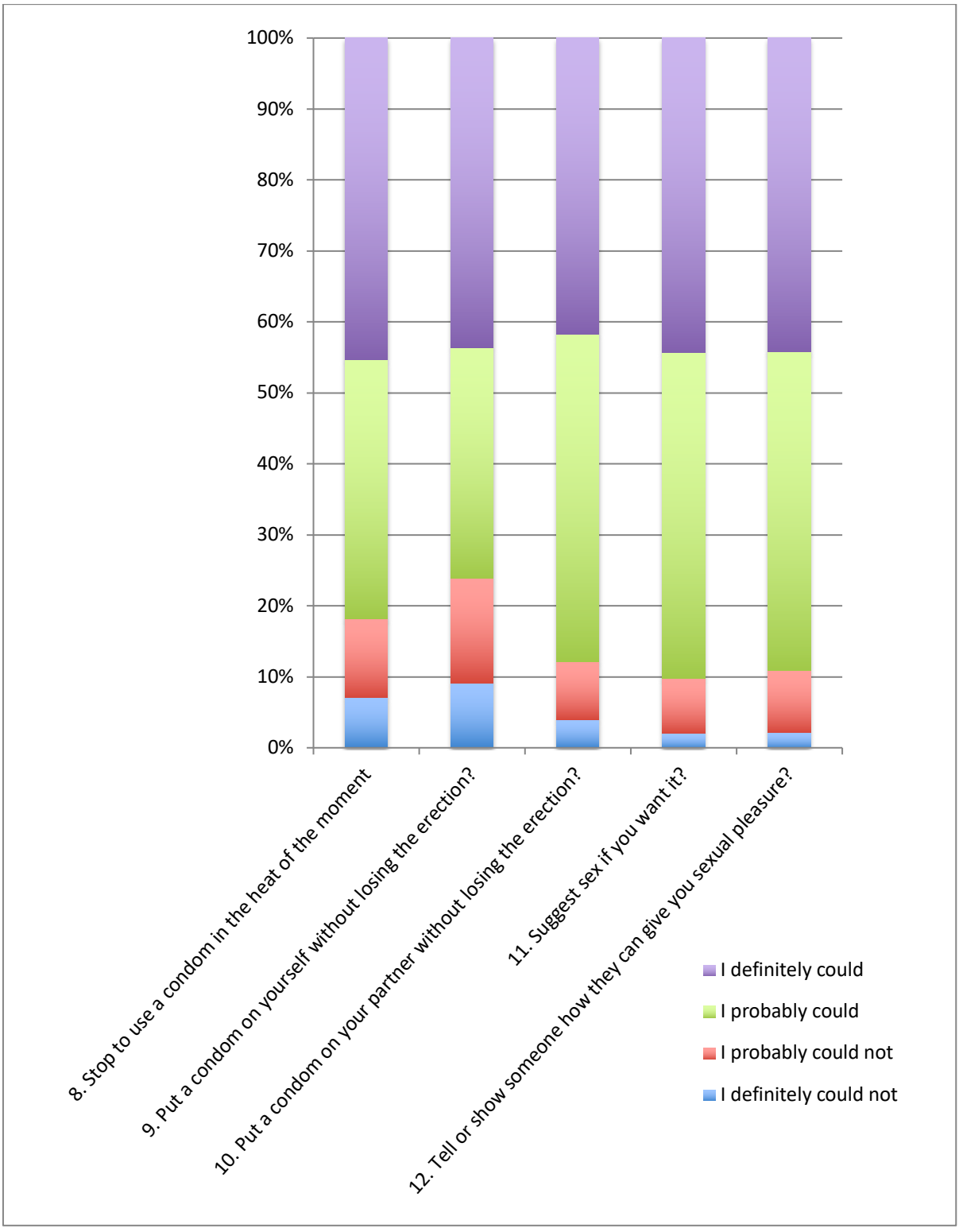


Figure 7.2 Sexual Confidence Scale Items #8-12: Sexually Active MSM



Overall, the proportions of men who found each issue very difficult or difficult differed for each of the 7 items quite markedly. One third of men said that asking partners about their viral load (34.8%) and HIV status (33.1%) were difficult or very difficult. In contrast, only 1 in 8 men said they would find if difficult or very difficult to refuse sex if their partner would not use a condom (11.6%) or tell their partner if a certain sexual activity makes them uncomfortable (12.0%). Most felt they could probably or definitely stop to use a condom in the heat of the moment (77.6%), or put a condom on themselves (72.1%) or their partner (82.6%) without losing the erection. Telling a partner that they like a particular activity (20.4%) or do not want to have sex (16.5%) was problematic for about 1 in 5 men. Only 1 in 10 men said that they probably or definitely could not show someone how to give them sexual pleasure (10.8%) or could not suggest sex if they wanted it (9.7%).

7.3 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 7.2. Men who answered *not applicable* to these questions were removed from this analysis and, consequently, the sample size changed quite markedly 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 won't use a condom (87%), stop to use a condom in the heat of the moment (81%). Most were confident they could put a condom on themselves (76.2%) or their partner (87.8%) without losing the erection. Most were able to tell a partner that a certain activity makes them uncomfortable (87.6%), that they do not want to have sex (82.4%) or that they like a certain activity (79.2%) or how to give them sexual pleasure (89.1%). Almost three-quarters were

confident to make the first move with sex (69.5%) and almost all could suggest sex if they wanted it (90.2%). Overall, asking a partner about their HIV status (64.5%) or viral load (55.6%) were the most difficult issues examined. In concert, these findings show that most MSM are sexually confident across a wide range of issues, though each issue was problematic for between 10% and 45% of sexually active men in this study. 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 7.2 Overall Proportion Of Men 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?	726	**64.5**	400	**35.5**	1126
2. Ask about their viral load?	523	**55.6**	417	**44.4**	940
3. Refuse to have sex if they won't use a condom?	934	**87**	140	**13**	1074
4. Make the first move with sex?	813	**69.5**	357	**30.5**	1170
5. Tell then that you like a specific sexual activity?	934	**79.2**	246	**20.8**	1180
6. Tell them that you do not want to have sex?	927	**82.4**	198	**17.6**	1125
7. Tell them if a certain sexual activity makes you uncomfortable?	1020	**87.6**	145	**12.4**	1165
8. Stop to use a condom in the heat of the moment	935	**81**	220	**19**	1155
9. Put a condom on yourself without losing the erection?	868	**76.2**	271	**23.8**	1139
10. Put a condom on your partner without losing the erection?	997	**87.8**	138	**12.2**	1135
11. Suggest sex if you want it	1077	**90.2**	117	**9.8**	1194
12. Tell or show someone how they can give you sexual pleasure?	1068	**89.1**	130	**10.9**	1198

7.4 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 7.1) to 0, indicating low sexual confidence (i.e. answered 'very difficult' or 'I definitely could not' to all 12 sexual confidence items – see Table 7.1). As such, ***higher*** values on the OSF scale represented ***higher*** sexual confidence. A total of 736 men answered all 12 questions and so were included in this analysis.

Overall the mean score on OSC for all sexually active participants in this study was 24.8 (95% CI=24.4-25.2; sd=5.55) and scores ranged from a minimum of 3 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.

7.4.1 Overall Sexual Confidence: By NHS Region

One-way ANOVA (F=0.57, df(2,733), p>0.05) suggested that there were no significant differences in men's overall sexual confidence scores across the 3 NHS regions (mean OSC was NHS GGC=24.8, NHS Lothian=24.4, RoS=25.0).

7.4.2 Overall Sexual Confidence: By Age

One-way ANOVA (F=1.02, df(3,731), p>0.05) suggested that age was not significantly related to overall sexual confidence (mean OSC was 16-25 years = 25.4, 26-35 years = 24.9, 36-45 years = 24.3, 46+ years = 24.7).

7.4.3 Overall Sexual Confidence: By Sexual Identity

One-way ANOVA (F=1.51, df(1,1730), p>0.05) suggested that sexual identity was not significantly related to overall sexual confidence (mean OSC was gay identified men = 24.7, bisexual/straight identified men = 25.3).

7.4.4 Overall Sexual Confidence: By Relationship Status

One-way ANOVA ($F=5.11$, $df(2,731)$, $p<0.01$) suggested that relationship status was significantly related to overall sexual confidence. Post hoc analyses (Hochberg's) suggested that single men (mean OSC=24.3) reported significantly poorer overall sexual confidence than men with a regular male partner (mean OSF=25.7, $p<0.005$). Overall sexual confidence between single men and men with a regular female partner (OSF=24.8) were not significantly different.

7.4.5 Overall Sexual Confidence: By Financial Worries

Welch's Test (Asympt. $F=13.04$, $df(1,584.4)$, $p<0.001$) suggested that men who report financial worries (OSF=23.9) have significantly poorer overall sexual confidence than men who report no financial worries (OSF=25.4).

It is important to note that, whilst significant differences were found for OSC by both Relationship Status and Financial Worries, the mean difference between groups was, in each case, rather small, (1.4 and 1.5 points of the total scale respectively), which means that whilst this was a real difference, men in each group only differed a little in their overall sexual confidence.

7.5 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 (e.g. asking about partner's HIV status (35.5%) or viral load (44.4%), making the first move with sex (30.5%)), most of the other issues were generally less problematic overall.
- In particular, most men had few problems suggesting sex (90.2%), refusing sex if a partner won't use a condom (87.0%), telling a partner they don't want sex (82.4%), telling a partner how to give them sexual pleasure (89.1%), telling a partner that they like a certain sexual activity (79.2%) or that a certain activity makes them uncomfortable (87.6%). Putting a condom on their partner

(87.8%) or themselves (76.2%) without losing the erection was unproblematic for most men but it is notable that almost a quarter of men (23.8%) said they probably or definitely could not do put a condom on themselves without losing their erection.

- Considering overall sexual confidence, this did not differ by NHS Region, age group or sexual identity. Men with a regular male partner had significantly greater sexual confidence than single men. This may be because being with a regular partner can increase sexual confidence, compared to new or intermittent sexual partners, although this cannot be assumed in all cases. Finally, men with financial worries also have significantly poorer overall sexual confidence; though the direction of this relationship, or whether it is mitigated by other variable(s) related to both issues (e.g. for example, mental health), cannot be ascertained from this analysis.

Chapter 8 Experiences Of Sexual, Physical And Emotional Abuse

8.1 Introduction

This chapter describes the experiences of sexual, physical and emotional abuse of men in the SMMASH2 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 subsequently 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 sexual identity, either gay or bisexual/straight.
4. By relationship status, either single, regular male partner or regular female partner.
5. By financial status, reporting financial worries either 'occasionally/never' or 'sometimes/all of the time'.

8.2 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 8.1) 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.

8.2.1 Experiences Of Abuse: Number Of Participants

Overall 91% (n=1124/1237) of the men who were asked this question agreed to view the experiences of abuse questions. As such, almost 1 in 10 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 MSM in Scotland.

8.3 Experiences Of Sexual, Physical And Emotional Abuse: Results

Table 8.1 shows the breakdown of answers to these 6 questions for the MSM who chose to view and answer them. Overall we see that between 4 – 12% 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; 10.5%; #6 Put down or told worthless, 12.0%) were the most commonly reported experiences of abuse, with the latter reported by slightly more men than the former. Controlling behaviour (#5 Told who you could see, where you could go) was experienced by 8.1% of men. Physical partner abuse (#4 Kicked, slapped or physically hurt) was reported by 6.0% of men and a similar proportion of men (5.9%) also said they had been afraid of a partner/ex-partner in the past year (#2). Finally, 4.4% of men said they have been forced to have sexual activity by a partner/ex-partner in the last year (#3).

Table 8.1 Response To Sexual, Physical And Emotional Abuse Items: All MSM

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?	118	**10.5**	995	**88.5**	11	**1.0**	1124
2. Afraid of a partner or ex-partner?	66	**5.9**	1047	**93.4**	8	**0.7**	1121
3. Forced to have any kind of sexual activity by a partner or ex-partner?	49	**4.4**	1065	**95.2**	5	**0.4**	1119
4. Kicked, hit, slapped or otherwise physically hurt by a partner or ex-partner without your consent?	67	**6.0**	1046	**93.2**	9	**0.8**	1122
5. Told by a partner who you could see and where you could go?	91	**8.1**	1022	**91.2**	8	**0.7**	1121
6. Been put down or told you are worthless by a partner or ex-partner?	135	**12.0**	980	**87.3**	8	**0.7**	1123

8.4 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 20.9% (n=234/1122) 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 9% of men declined to consider answering these questions, so the level of recent partner abuse amongst MSM may be even higher than these data suggest. We now analyse these data to see if experiences of abuse varied with any of our key sociodemographic variables. These data are shown in Table 8.2 on the next page.

8.4.1 Experience Of Abuse: By NHS Region

Chi^2 analysis (χ^2= 0.69, df=2, p>0.05) suggested that experience of abuse was not patterned by NHS Region (see Table 8.2).

8.4.2 Experience Of Abuse: By Age

Chi^2 analysis (χ^2= 24.7, df=3, p<0.001) suggested that experience of abuse was patterned by age, such that men in each of the younger age categories (16-25 years = 26.5%; 26-35 years = 24.6%; 36-45 years = 24.9%) were significantly more likely to report experience of abuse in the last year, and older men (46+ years = 12.8%) were significantly less likely to do so, than expected by chance (see Table 8.2).

8.4.3 Experience Of Abuse: By Sexual Identity

Chi^2 analysis (χ^2=5.72, df=3, p<0.05) suggested that experience of abuse was patterned by sexual identity, such that gay identified men (22.3%) were significantly more likely to report experience of abuse in the last year than bisexual/straight identified men (14.6%) (see Table 8.2).

Table 8.2 Any Experience Of Abuse: By Sociodemographic Variables

Sociodemographic variable	No		Yes		Total
	n	%	n	%	N
Total	888	**79.1**	234	**20.9**	1122
NHS Region					
GGC	276	**79.3**	72	**20.7**	348
Lothian	210	**80.8**	50	**19.2**	260
RoS	402	**78.2**	112	**21.8**	514
Age					
16-25 years	147	**73.5**	53	**26.5**	200
26-35 years	181	**75.4**	59	**24.6**	240
36-45 years	211	**75.1**	70	**24.9**	281
46+ years	349	**87.3**	51	**12.8**	400
Sexual Identity					
Gay	712	**77.7**	204	**22.3**	916
Bisexual/Straight	169	**85.4**	29	**14.6**	198
Relationship Status					
Single	520	**79.3**	136	**20.7**	656
Regular Male Partner	261	**75.7**	84	**24.3**	345
Regular Female Partner	102	**88.7**	13	**11.3**	115
Financial Worries					
No (Occasional/Never)	546	**84.9**	97	**15.1**	643
Yes (Sometimes/All of the time)	337	**71.1**	137	**28.9**	474

8.4.4 Experience Of Abuse: By Relationship Status

Chi^2 analysis (χ^2=8.9, df=2, p<0.05) suggested that experience of abuse was patterned by relationship status, such that men with a regular male partner (24.3%) were significantly more likely to report abuse in the previous year, and men with a regular female partner (11.3%) were significantly less likely to do so, than expected by chance (see Table 8.2).

8.4.5 Experience Of Abuse: By Financial Worries

Chi^2 analysis (χ^2=31.46, df=3, p<0.001) suggested that experience of abuse was patterned by financial worries, such that men who reported financial worries (28.9%) were significantly more likely to report experience of abuse in the last year than men who reported no financial worries (15.1%) (see Table 8.2).

8.5 Multiple Experiences Of Abuse

We also wanted to understand the proportion of men who had experienced multiple types of abuse in the last year. To these ends, we reanalysed the data to count the types of abuse that each man reported he experienced in the past year. These data are shown in Table 8.3. We see that whilst a small proportion of men (0.8%, n=9) reported experiencing all 6 types of abuse in the previous year, 1 in 8 (12.4%, n=139) had experienced at least 2 types of abuse and 1 in 14 (7.0%, n=79) had experienced at least 3 types of abuse.

Table 8.3 Cumulative Number Of Abuse Issues Men Reported To Have Experienced In The Previous Year

Types of abuse reported	n	%	Cumulative %
0	888	**79.3**	-
1	95	**8.5**	20.9
2	60	**5.4**	12.4
3	37	**3.3**	7.0
4	18	**1.6**	3.7
5	15	**1.3**	2.1
6	9	**0.8**	0.8
Total	**1122**	**100**	**-**

8.6 Summary

- Overall, just over 1 in 5 MSM in Scotland (20.9%) have experienced some form of abuse in the previous year from a partner or an ex-partner.
- About 1 in 8 (12.0%) reported emotional abuse, 1 in 12 (8.1%) reported controlling behaviour, 1 in 16 physical abuse (6.0%) or fear of a partner/ex-partner (5.9%) and 1 in 23 (4.4%) reported sexual abuse in the previous year.
- Experiences of abuse were also patterned by several of our key sociodemographic variables. Specifically, younger men (16-25 years, 26.5%; 26-35 years, 24.6%; 36-45 years, 24.9%), gay identified men (22.3%), men with a regular male partner (24.3%) and men with financial worries (28.9%) were all significantly more likely to report experience of abuse in the previous year.
- In addition, 1 in 8 men (12.4%) reported multiple (2 or more) types of abuse in the previous year.
- Finally, since almost 1 in 10 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 MSM in Scotland.

Chapter 9 Mental Health

9.1 Introduction

This chapter describes the mental health of men in the SMMASH2 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 subsequently 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 sexual identity, either gay or bisexual/straight.
4. By relationship status, either single, regular male partner or regular female partner.
5. By financial status, reporting financial worries either 'occasionally/never' or 'sometimes/all of the time'.

9.2 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 1237 participants who answered this question, almost one third of participants (n=400, 32.3%) said that they had, two thirds (n=837, 67.7%) said they had not (see Table 9.1).

9.2.1 Diagnosed Mental Health Problem: By NHS Region

Chi^2 analysis (χ^2=0.35, df=2, p>0.05) suggested that diagnosed mental health problems were not patterned by NHS Region (see Table 9.1).

Table 9.1 Diagnosed Mental Health Problem: By Sociodemographic Variables

Sociodemographic variable	No		Yes		Total
	n	%	n	%	N
Total	837	**67.7**	400	**32.3**	1237
NHS Region					
GGC	258	**67.9**	122	**32.1**	380
Lothian	199	**68.9**	90	**31.1**	289
RoS	380	**66.9**	188	**33.1**	568
Age					
16-25 years	164	**72.9**	61	**27.1**	225
26-35 years	167	**64.7**	91	**35.3**	258
36-45 years	193	**63.1**	113	**36.9**	306
46+ years	312	**69.8**	135	**30.2**	447
Sexual Identity					
Gay	670	**66.3**	341	**33.7**	1011
Bisexual/Straight	161	**73.9**	57	**26.1**	218
Relationship Status					
Single	477	**65.2**	255	**34.8**	732
Regular Male Partner	254	**67.4**	123	**32.6**	377
Regular Female Partner	101	**82.8**	21	**17.2**	122
Financial Worries					
No (Occasional/Never)	547	**78.1**	153	**21.9**	700
Yes (Sometimes/All of the time)	284	**53.5**	247	**46.5**	531

9.2.2 Diagnosed Mental Health Problem: By Age

Chi^2 analysis (χ^2=7.7, df=3, p=0.053) suggested that there was a trend towards significance that diagnosed mental health problems were patterned by age. Men in each of the older age categories (26-35 years = 35.3%; 36-45 years = 36.9%; 46+ years = 30.2%) were more likely to report a

diagnosed mental health problem in their lifetime, and the youngest group of men (16-25 years = 27.1%) were less likely to do so, than expected by chance (see Table 9.1). As this result did not quite reach significance, this result must be treated with caution.

9.2.3 Diagnosed Mental Health Problem: By Sexual Identity

Chi^2 analysis (χ^2=4.71, df=3, p<0.05) suggested that diagnosed mental health problems were patterned by sexual identity, such that gay identified men (33.7%) were significantly more likely to report a diagnosed mental health problem in their lifetime than bisexual/straight identified men (26.1%) (see Table 9.1).

9.2.4 Diagnosed Mental Health Problem: By Relationship Status

Chi^2 analysis (χ^2=14.8, df=2, p<0.005) suggested that diagnosed mental health problems were patterned by relationship status, such that single men (34.8%) and men with a regular male partner (32.6%) were significantly more likely to report a diagnosed mental health problem in their lifetime, and men with a regular female partner (17.2%) were significantly less likely to do so, than expected by chance (see Table 9.1).

9.2.5 Diagnosed Mental Health Problem: By Financial Worries

Chi^2 analysis (χ^2=83.7, df=3, p<0.001) suggested that diagnosed mental health problems were patterned by financial worries, such that men who reported financial worries (46.5%) were significantly more likely to report a diagnosed mental health problem in their lifetime than men who reported no financial worries (21.9%) (see Table 9.1).

9.3 Which Mental Health Problems Have You Been Diagnosed With?

We asked those 400 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 9.2; (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. Over two thirds of participants reported a depression diagnosis (68.8%) and almost half an anxiety (43.3%) and mixed anxiety/depression (45.0%) diagnosis respectively. The remaining psychiatric disorders were far less common, with between 0.5% - 6.3% of men reporting various each of these conditions (see Table 9.2).

Table 9.2 Reported Lifetime Diagnosed Mental Health Problems

Which of the following mental health problems have you been diagnosed with by a doctor?	Yes		No		% out of total sample (n= 1237)
	n	%	n	%	
Depression	275	**68.8**	125	**31.3**	**22.2**
Anxiety	173	**43.3**	227	**56.8**	**14.0**
Mixed Anxiety/Depression	180	**45.0**	220	**55.0**	**14.6**
Obsessive-Compulsive Disorder	21	**5.3**	379	**94.8**	**1.7**
A Phobia	5	**1.3**	395	**98.8**	**0.4**
An Eating Disorder	15	**3.8**	385	**96.3**	**1.2**
Post-traumatic Stress Disorder	25	**6.3**	375	**93.8**	**2.0**
Bipolar Disorder	21	**5.3**	379	**94.8**	**1.7**
Schizophrenia	2	**0.5**	398	**99.5**	**0.2**
Psychotic Illness	7	**1.8**	393	**98.3**	**0.6**
Other	18	**4.5**	382	**95.5**	**1.5**

Considering the whole sample of MSM who provided information about their mental health (n=1237, see final column, Table 9.2), we see that whilst 1 in 5 men have been diagnosed with Depression in their lifetime, and around 14% diagnosed with either Anxiety or Mixed Anxiety/Depression, the remaining psychiatric disorders are much rarer, having been diagnosed in 2% or fewer MSM, respectively. As such, levels of depression, anxiety and mixed anxiety/depression are higher amongst MSM than the wider population of Scotland, but levels of other mental health disorders are broadly similar (Nowell, 2014).

9.4 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 9.3 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 72.4% of all those diagnosed with the condition during the last year (n=199/275 diagnosed), compared to 71.1% for mixed anxiety/depression (n=128/180 diagnosed) and 80.9% for anxiety (n=140/173 diagnosed). Similar results were found with most other mental health disorders.

Table 9.3 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**		**No**	
		n	**%**	n	**%**
Depression	275	199	**72.4**	76	**27.6**
Anxiety	173	140	**80.9**	33	**19.1**
Mixed Anxiety/Depression	180	128	**71.1**	52	**28.9**
Obsessive-Compulsive Disorder	21	18	**85.7**	3	**14.3**
A Phobia	5	5	**100.0**	0	**0**
An Eating Disorder	15	9	**60.0**	6	**40.0**
Post-traumatic Stress Disorder	25	16	**64.0**	9	**36.0**
Bipolar Disorder	21	14	**66.7**	7	**33.3**
Schizophrenia	2	1	**50.0**	1	**50.0**
Psychotic Illness	7	4	**57.1**	3	**42.9**
Other	18	10	**55.6**	8	**44.4**

9.5 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 9.4) 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 9.4 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, we found that over half of participants (56.3%) were assessed as experiencing no anxiety (see

Table 9.5) according to their self-reported feelings during the previous 2 weeks. A further quarter of participants (23.3%) were assessed as having mild anxiety, with almost 1 in 8 (11.5%) assessed as having moderate and 1 in 12 (8.9%) with severe anxiety symptoms during the previous 2 weeks.

Table 9.5 GAD Diagnosis

GAD Diagnosis	n	%	Cumulative percentage
None	659	**56.3**	56.3
Mild	273	**23.3**	79.6
Moderate	135	**11.5**	91.1
Severe	104	**8.9**	100
Total	**1171**		**-**

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, 20.4% (n=239) of our sample of MSM would fall under that category. Of these, a total of 93 men (38.9% of men with moderate/severe anxiety, or 8.0% of the total sample) had not previously been diagnosed by a doctor with a mental health problem in their lifetime. We further examine those men who were assessed as having moderate/severe anxiety symptoms in the past 2 weeks by our 5 key sociodemographic variables.

9.5.1 GAD Assessment: By NHS Region

Chi^2 analysis (χ^2=5.79, df=2, p=0.055) suggested that men in NHS GGC (24.7%) were more likely and men in NHS Lothian (18.4%) and the RoS (18.6%) were less likely to be assessed with moderate/severe anxiety based on their GAD scores than would be expected by chance (see Table 9.6). As this result did not quite reach significance, this difference must be treated with caution.

9.5.2 GAD Assessment: By Age

Chi^2 analysis (χ^2=36.9, df=3, p<0.001) suggested generalized anxiety disorder was patterned by age, such that men in the two younger age categories (16-25 years = 28.2%; 26-35 years = 27.6%) were more significantly likely to be assessed with moderate/severe anxiety, and men in the oldest group (46+ years = 11.4%) were significantly less likely to be so assessed, than expected by chance (see Table 9.6).

9.5.3 GAD Assessment: By Sexual Identity

Chi^2 analysis (χ^2=7.23, df=3, p<0.01) suggested that generalized anxiety disorder was patterned by sexual identity, such that gay identified men (21.9%) were significantly more likely to be assessed with moderate/severe anxiety than bisexual/straight identified men (13.5%) (see Table 9.6).

Table 9.6 GAD Assessment: By Sociodemographic Variables

Sociodemographic variable	None/Mild		Moderate/Severe		Total
	n	%	n	%	N
Total	932	**79.6**	239	**20.4**	1171
NHS Region					
GGC	272	**75.3**	89	**24.7**	361
Lothian	222	**81.6**	50	**18.4**	272
RoS	438	**81.4**	100	**18.6**	538
Age					
16-25 years	153	**71.8**	60	**28.2**	213
26-35 years	176	**72.4**	67	**27.6**	243
36-45 years	230	**78.5**	63	**21.5**	293
46+ years	373	**88.6**	48	**11.4**	421
Sexual Identity					
Gay	751	**78.1**	211	**21.9**	962
Bisexual/Straight	173	**86.5**	27	**13.5**	200
Relationship Status					
Single	525	**76.2**	164	**23.8**	689
Regular Male Partner	296	**82.2**	64	**17.8**	360
Regular Female Partner	107	**91.5**	10	**8.5**	117
Financial Worries					
No (Occasional/Never)	592	**88.8**	75	**11.2**	667
Yes (Sometimes/All of the time)	335	**67.2**	163	**32.7**	498

9.5.4 GAD Assessment: By Relationship Status

Chi^2 analysis (χ^2=16.55, df=2, p<0.001) suggested that generalized anxiety disorder was patterned by relationship status, such that single men (23.8%) were significantly more likely to be assessed with moderate/severe anxiety, and men with a regular male (17.8%) or female (8.5%) partner were significantly less likely to be so assessed, than expected by chance (see Table 9.6).

9.5.5 GAD Assessment: By Financial Worries

Chi^2 analysis (χ^2=80.98, df=1, p<0.001) suggested that generalized anxiety disorder was patterned by financial worries, such that men who reported financial worries (32.7%) were significantly more likely to be assessed with moderate/severe anxiety than men who reported no financial worries (11.2%) (see Table 9.6).

9.6 Depression Amongst MSM 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 SMMASH2 study to assess potential levels of depression amongst MSM.

The PHQ-9 consists of 9 depression related problems (see Table 9.7) 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 9.7 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, 1187 men answered the PHQ-9 questions(see Table 9.8). Less than half of participants (46.8%) were assessed as experiencing no depression according to their self-reported feelings during the previous 2 weeks. A further quarter of participants (26.5%) were assessed as having mild depression, with 1 in 8 (12.4%) assessed as having moderate, 1 in 12 (8.3%) moderately severe and a further 6% severe depression symptoms during the previous 2 weeks.

Table 9.8 PHQ Depression Symptoms Assessment

PHQ Diagnosis	n	%	Cumulative %
None	556	**46.8**	46.8
Mild	314	**26.5**	73.3
Moderate	147	**12.4**	85.7
Moderately Severe	99	**8.3**	94.0
Severe	71	**6.0**	100
Total	1187	**100**	-

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 9.9, top row), we see that 46.8% (n=556) of MSM in this sample do not have depression, 38.8% (n=461) have mild-to-moderate depression and should be referred to their GPs regarding this issue whilst a further 14.3% (n=170) had moderately-severe-to-severe symptoms and as such warrant clinically lead treatment for their depression. Of the 459 men with mild-to-moderate depression, n=295 (64.3%) had not received a diagnosis for this from a doctor. Of the 168 men with moderately severe-to-severe depression, n=51 (30.4%) had not received a diagnosis for this from a doctor. As such, of the n=627 men in this study who had mild-to-severe depression, over half (n=346; 55.2%) had not had this diagnosed by a doctor and therefore were not receiving treatment for their mental health problems.

We further examine those men who were assessed as having mild/moderate and moderately severe/severe depression symptoms in the past 2 weeks by our 5 key sociodemographic variables.

9.6.1 Depression Assessment: By NHS Region

Chi^2 analysis (χ^2=3.04, df=4, p>0.05) suggested that depression levels were not patterned by NHS region (see Table 9.9).

9.6.2 Depression Assessment: By Age

Chi^2 analysis (χ^2=48.68, df=3, p<0.001) suggested depression levels were patterned by age (see Table 9.9). The youngest group of men (16-25 years) were less likely to report no depression and

more likely to report mild/moderate and moderately severe/severe depression symptoms than expected by chance. Men aged 26-35 years were also less likely to report no depression and more likely to report moderately severe/severe depression. Men aged 36-45 were less likely to report no depression than expected by chance. Finally the oldest group of men (46+ years) were more likely to report no depression and less likely to report mild/moderate and moderately severe/severe depression. In summary, depression levels tended to reduce as age increased.

Table 9.9 GAD Assessment: By Sociodemographic Variables

Sociodemographic variable	None		Mild/Moderate		Moderately Severe / Severe		Total
	n	%	n	%	n	%	N
Total	556	**46.8**	461	**38.8**	170	**14.3**	1187
NHS Region							
GGC	167	**45.1**	141	**38.1**	62	**16.8**	370
Lothian	135	**48.2**	111	**39.6**	34	**12.1**	280
RoS	254	**47.3**	209	**38.9**	74	**13.8**	537
Age							
16-25 years	71	**32.3**	110	**50.0**	39	**17.7**	220
26-35 years	106	**43.1**	93	**37.8**	47	**19.1**	246
36-45 years	131	**44.3**	121	**40.9**	44	**14.9**	296
46+ years	248	**58.5**	136	**32.1**	40	**9.4**	424
Sexual Identity							
Gay	445	**45.3**	388	**39.5**	149	**15.2**	982
Bisexual/Straight	105	**53.6**	71	**36.2**	20	**10.2**	196
Relationship Status							
Single	282	**40.1**	296	**42.1**	125	**17.8**	703
Regular Male Partner	198	**54.5**	130	**35.8**	35	**9.6**	363
Regular Female Partner	72	**62.6**	34	**29.6**	9	**7.8**	115
Financial Worries							
No (Occasional/Never)	406	**60.1**	221	**32.7**	49	**7.2**	676
Yes (Sometimes/All of the time)	147	**29.1**	238	**47.1**	120	**23.8**	505

9.6.3 Depression Assessment: By Sexual Identity

Chi^2 analysis (χ^2=5.65, df=2, p>0.05) suggested that depression levels were not patterned by sexual identity (see Table 9.9).

9.6.4 Depression Assessment: By Relationship Status

Chi^2 analysis (χ^2=37.67, df=4, p<0.001) suggested that depression levels were patterned by relationship status. Single men were less likely to report no depression and more likely to report mild/moderate and moderately severe/severe depression than expected by chance. Men with a regular male or female partner were more likely to report no depression and less likely to report mild/moderate and moderately severe/severe depression (see Table 9.9). In summary, single men were more likely to report depression symptoms than men with a regular partner of either gender.

9.6.5 Depression Assessment: By Financial Worries

Chi^2 analysis (χ^2=129.77, df=1, p<0.001) suggested that depression levels were patterned by financial worries, such that men who reported financial worries were significantly less likely to report no depression symptoms and significantly more likely to report mild/moderate and moderately severe/severe depression than men who reported no financial worries (see Table 9.9).

9.7 Summary

- Diagnosed mental health problems were common amongst MSM in Scotland, with almost one third of men (32.3%) having had a mental health problem diagnosed by a doctor within their lifetime.
- Gay identified men (33.7%), men who were single (34.8%) or have a regular male partner (32.6%) and men who report financial worries (46.5%) were all significantly more likely to report a

diagnosed mental health problem. There was also some tentative evidence that older men (36-45 years, 36.9%) were more likely to have received such a diagnosis.

- Regarding the type of mental health disorder men have been diagnosed with, depression (22.2% of the whole sample), anxiety (14.0%) and mixed anxiety/depression (14.6%) were by far the most common. Few men (0.4% - 2.0%) in the whole sample reported each of the other psychiatric disorders assessed. Therefore, levels of depression, anxiety and mixed anxiety/depression are higher amongst MSM than the wider population of Scotland, but levels of other mental health disorders are broadly similar (Nowell, 2014).
- Most men who have been diagnosed with mental health problems in their lifetime had also been affected by them in the previous year. Overall, 72.4% of men diagnosed with depression, 71.1% of those diagnosed with mixed anxiety/depression and 80.9% of those diagnosed with an anxiety disorder had experienced this mental illness in the last year, respectively. The pattern for other psychiatric disorders was equally high.
- Just over 1 in 5 (20.4%) 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; of these well over one third (38.9% or 8.0% of the whole sample) had not had this mental health problem diagnosed.
- Moreover, younger men (16-25 years, 28.2%; 26-35 years, 27.6%), gay identified men (21.9%), single men (23.8%) and men with financial worries (32.7%) were all significantly more likely to report moderate/severe anxiety symptoms. There was also some tentative evidence that men in NHS GGC (24.7%) were more likely to have moderate/severe anxiety than men living elsewhere.
- Over half of participants (53.2%) had experienced mild-to-severe depression in the previous 2 weeks; 38.8% had mild-to-moderate depression and according to clinical guidelines should be referred to their GP regarding the issue, whilst a further 14.3% had moderately-severe-to-severe symptoms and as such warrant clinically lead treatment for their depression.

- Of the men in this study who had mild-to-severe depression, over half (55.2%) had not had this diagnosed by a doctor and therefore were not receiving treatment for their mental health problems.
- Depression levels and severity tended to decrease with age, with younger men significantly less likely to report no depression (16-25 years, 32.3%) and significantly more likely to report both mild-to-moderate (16-25 years, 50.0%) and moderately severe-to-severe (16-25 years, 17.7%; 26-35 years, 19.1%) depression. Single men (42.1% mild/moderate, 17.8% moderately severe-to-severe) were significantly more likely to report depression symptoms than men with a regular (male or female) partner and men with financial worries (47.1% mild/moderate; 23.8% moderately severe-to-severe) were significantly more likely to report depression symptoms than men with no financial worries.
- In concert these data suggest that MSM experience high levels of depression, anxiety and mixed depression/anxiety symptoms, a sizeable proportion of which appears to be undiagnosed, but that levels of other mental health disorders are in line with the wider population.

Chapter 10 Stigma And Psychological Functioning

10.1 Introduction

This chapter looks at issues of stigma and psychological functioning amongst MSM 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. (2007) modification of the Berger et al. (2001) HIV stigma scale). We examine the reliability of each scale, 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 sexual identity, either gay or bisexual/straight.
4. By relationship status, either single, regular male partner or regular female partner.
5. By financial status, reporting financial worries either 'occasionally/never' or 'sometimes/all of the time'.

10.2 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.

10.2.1 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, MSM. Cronbach's Alpha is used herein. Scores of around 0.7 – 0.8 indicate good reliability within the items in a scale. Table 10.1 shows that the reliability analysis of the overall EC 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 0.65 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 MSM.

Table 10.1 Reliability Analysis Of SOC Scale And Subscales

Scale	Cronbach's Alpha
Overall SoC	0.879
SoC Comprehensibility	0.747
SoC Manageability	0.650
SoC Meaning	0.750

10.2.2 Sense Of Coherence: Overall Mean Score

For the 989 men who answered all 13 SoC questions, the overall mean score was 40.9 (see Table 10.2). This is substantially (20%) lower than the average levels of SoC reported for a general population research study conducted in Glasgow (SoC mean = 51.2), Manchester (47.1) and Liverpool (44.0) (Walsh et al., 2014) where gender was not a significant predictor of SoC. As such we may tentatively conclude that overall, MSM in Scotland have lower resilience, as measured by the SoC scale, than the general population.

10.2.3 Sense Of Coherence: By NHS Region

ANOVA suggested that SoC ($F=0.86$, $df(2,986)$, $p>0.05$) and each of the three subscales (Comprehensibility, Manageability and Meaning) were not significantly related to NHS region (see Table 10.2). This means that levels of resilience amongst MSM in Scotland did not differ by the area in which they live.

10.2.4 Sense Of Coherence: By Age

ANOVA suggested that SoC ($F=13.43$, $df(3,984)$, $p<0.001$) and each of the three subscales [Comprehensibility ($F=15.34$, $df(3,1022)$, $p<0.001$), Manageability ($F=9.38$, $df(3,1031)$, $p<0.001$) and Meaning ($W=9.00$, $df(3,506.41)$, $p<0.001$)] were significantly related to Age (see Table 10.2). Post-hoc analyses suggested that overall, younger men (16-25 years, 37.1) had significantly ($p<0.001$) lower levels of resilience than the oldest men (46+ years, 44.1). Comprehensibility – younger men (16-25 years, 12.9) had significantly lower levels than men aged 25–35 (14.5) and 26-45 years (14.8), who in turn had significantly lower levels than men aged 46+ years (16.2, $p<0.005$). Manageability – younger men (16-25 years, 11.4; 26-35 years, 12.0; 36-45 years, 11.9) had significantly lower levels than men aged 46+ years (13.3; $p<0.001$). Meaning – younger men (16-25 years, 12.8; 26–35 years, 12.9; 36-45 years, 13.2) had significantly lower levels than men aged 46+ years (14.6;$p<0.001$). In summary these results suggest that younger men had lower levels of resilience than older men.

Table 10.2 Sense Of Coherence Mean Scores: By Sociodemographic Variables

Sociodemographic variable (Range)	SoC Scale (0-78)	Comprehensibility (0-30)	Manageability (0-24)	Meaning (0-24)	Total N
N	989	1027	1036	1039	
Average score overall	40.9	14.9	12.4	13.6	
NHS Region					
GGC	41.0	15.0	12.5	13.6	310
Lothian	41.8	15.4	12.6	13.9	227
RoS	40.4	14.7	12.1	13.5	452
Age					
16-25 years	37.1	12.9	11.4	12.8	170
26-35 years	39.4	14.5	12.0	12.9	218
36-45 years	40.1	14.8	11.9	13.2	232
46+ years	44.1	16.2	13.3	14.6	368
Sexual Identity					
Gay	40.8	14.9	12.3	13.6	830
Bisexual/Straight	41.1	15.1	12.5	13.6	151
Relationship Status					
Single	39.1	14.3	11.9	12.9	591
Regular Male Partner	43.1	15.6	12.7	14.5	302
Regular Female Partner	45.2	16.6	13.7	14.9	90
Financial Worries					
No (Occasional/Never)	44.7	16.3	13.5	14.9	573
Yes (Sometimes/All of the time)	35.5	13.0	10.7	11.8	412

10.2.5 Sense Of Coherence: By Sexual Identity

ANOVA suggested that SoC ($F=0.034$, $df(1,979)$, $p>0.05$) and each of the three subscales (Comprehensibility, Manageability and Meaning) were not significantly related to Sexual Identity. This means that levels of resilience amongst gay identified and bisexual/straight identified men in Scotland are not significantly different (see Table 10.2).

10.2.6 Sense Of Coherence: By Relationship Status

ANOVA suggested that SoC ($F=14.53$, $df(2,980)$, $p<0.001$) and each of the three subscales [Comprehensibility ($F=9.56$, $df(2,1018)$, $p<0.001$), Manageability ($F=8.27$, $df(2,1027)$, $p<0.001$) and Meaning ($F=13.71$, $df(2,1030)$, $p<0.001$)] were significantly related to relationship status (see Table 10.2). Post-hoc analyses suggested that overall, single men (39.1) had significantly ($p<0.001$) lower levels of resilience than men with either a regular male (43.1) or a regular female (45.2) partner. In addition, single men had significantly ($p<0.005$) lower levels than men with either a regular male or a regular female partner, for each of the Comprehensibility ($p<0.005$), Manageability ($p<0.05$) and Meaning ($p<0.005$) resilience subscales. In summary these results suggest that single men had lower level of resilience than men with either a regular male or a regular female partner.

10.2.7 Sense Of Coherence: By Financial Worries

ANOVA suggested that SoC ($F=127.35$, $df(1,983)$, $p<0.001$) and each of the three subscales [Comprehensibility ($F=90.15$, $df(1,1021)$, $p<0.001$), Manageability ($F=107.88$, $df(1,1030)$, $p<0.001$) and Meaning ($F=111.57$, $df(1,1033)$, $p<0.001$)] 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 10.2).

10.3 Emotional Competency

The Trait Emotional Intelligence Questionnaire (TEI-QUE) is a 30 item scale that measures emotional competency, that is, the ability to understand and regulate emotions skilfully to help improve your well-being (Petrides and 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).

10.3.1 TEI-QUE Emotional Competency Scale Reliability Analysis

The psychometric properties and robustness of the TEI-QUE 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, MSM. Cronbach's Alpha is used herein. Scores of around 0.7 – 0.8 indicate good reliability within the items in a scale. Table 10.3 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 TEI-QUE EC scale and subscales for this population of MSM.

Table 10.3 Reliability Analysis Of TEI-QUE Scale And Subscales

Scale	Cronbach's Alpha
Overall EC	0.93
EC Wellbeing	0.85
EC Self-Control	0.72
EC Emotionality	0.74
EC Sociability	0.76

10.3.2 Emotional Competency: By NHS Region

ANOVA suggested that Overall EC ($F=2.13$, $df(2,973)$, $p>0.05$) and two of subscales (EC Wellbeing, Self-Control) were not significantly related to NHS region. However, both EC Emotionality ($F=5.72$, $df(2,1049)$, $p<0.005$) and EC Sociability ($F=4.35$, $df(2,1058)$, $p<0.05$) were significantly different by

NHS region. Post-hoc analyses suggested that men in NHS Lothian (3.2, $p<0.05$) and NHS GGC (3.2, $p<0.01$) had significantly lower EC Emotionality than men in the RoS (3.4). In addition, men in NHS GGC (2.3, $p<0.01$) had significantly lower EC Sociability than men in the RoS (2.5) (see Table 10.4).

10.3.3 Emotional Competency: By Age

ANOVA suggested that Overall EC ($W=6.76$, df(3,480.8), $p<0.001$), EC Wellbeing ($F=5.33$, df(3,1050), $p<0.005$), EC Self-Control ($W=14.24$, df(3,494.7), $p<0.001$) and EC Emotionality ($F=2.81$, df(3,1040), $p<0.05$) were significantly patterned by age, although EC Sociability was not. Post-hoc analyses suggested that older men (46+ years, 3.1) had significantly lower Overall EC than men in all other age groups (16-25 years, 3.4; 26-35 years, 3.3; 36-45 years, 3.4; $p<0.05$). In addition, older men (46+ years, 2.8) also reported significantly lower EC Wellbeing to men aged 26-35 (3.1) and 36-45 (3.1) ($p<0.01$) but not men aged 16-25 (3.0). Older men (46+ years; 3.3) also had significantly lower EC self-control than all other age groups (16–25 years, 3.9; 26–35 years, 3.7; 36–45 years, 3.6) ($p<0.01$). Moreover, men aged 36–45 years (3.6) also had significantly lower EC Self-control than the youngest group of men (16–25 years, 3.9) ($p<0.01$). Finally, older men (46+ years, 3.2) also reported significantly lower EC Emotionality than the youngest group of men (16–26 years, 3.4; $p<0.05$) (see Table 10.4).

In concert, these findings suggest that older men had significantly lower emotional competency than younger men, albeit of a rather small magnitude in each case. This makes sense, since it is theorised that emotional competency develops, at least in part, through emotional and romantic/sexual relationship learning during teenage years. The socio-legal situation for older men meant that testing and developing emotional relationships with other men during their teenage years (e.g. 1960 – mid 1980s) when homosexuality was illegal (in Scotland until 1981) and highly socially stigmatised, would have been substantially more difficult than for the youngest men in this

study, due to the great steps in social and legal acceptance of homosexuality over the past 3 decades, not least the introduction of equal marriage in Scotland in 2014.

Table 10.4 Emotional Competency Mean Scores: By Sociodemographic Variables

Sociodemographic variable	Overall EC	EC Wellbeing	EC Self-control	EC Emotionality	EC Sociability	Total N
N	976	1055	1052	1045	1061	
Average score for whole sample	3.3	3.0	3.6	3.3	2.4	
NHS Region						
GGC	3.2	2.9	3.6	3.2	2.3	300
Lothian	3.2	2.9	3.5	3.2	2.4	219
RoS	3.3	3.0	3.6	3.4	2.5	457
Age						
16-25 years	3.4	3.0	3.9	3.4	2.4	175
26-35 years	3.3	3.1	3.7	3.3	2.4	217
36-45 years	3.4	3.1	3.6	3.3	2.5	230
46+ years	3.1	2.8	3.3	3.2	2.4	353
Sexual Identity						
Gay	3.3	3.0	3.6	3.2	2.4	815
Bisexual/Straight	3.3	2.9	3.4	3.4	2.4	154
Relationship Status						
Single	3.4	3.1	3.7	3.3	2.5	588
Regular Male Partner	3.1	2.8	3.5	3.1	2.4	293
Regular Female Partner	3.1	2.7	3.2	3.4	2.3	89
Financial Worries						
No (Occasional/Never)	3.1	2.7	3.3	3.2	2.3	560
Yes (Sometimes/All of the time)	3.5	3.4	3.9	3.4	2.6	412

10.3.4 Emotional Competency: By Sexual Identity

ANOVA suggested that Overall EC (F=0.06, df(1,967), p>0.05), EC Wellbeing, EC Self-Control, and EC Sociability were not significantly patterned by sexual identity, although EC Emotionality (F=4.85, df(1,1035), p<0.05) was. Post-hoc analyses suggested that gay identified men (3.2) had significantly lower EC Emotionality than bisexual/heterosexual identified men (3.4) (see Table 10.4). This is potentially the impact of a lack of opportunity to develop romantic/sexual relationships with men during teenage years, compared to opportunities for romantic/sexual relationships with women, which bisexual/heterosexual identified men are more likely to benefit from. However, overall this was a relatively small effect for one subcomponent of EC only.

10.3.5 Emotional Competency: By Relationship Status

ANOVA suggested that Overall EC (F=6.79, df(1,967), p<0.005), EC Wellbeing (W=10.72, df(1,269.2), p<0.001), EC Self-control (W=8.61, df(1,263.6), p<0.001), and EC Emotionality (F=5.43, df(1,1036), p<0.01), but not EC Sociability, were significantly related to relationship status. Analyses suggested that single men (3.4) had significantly higher emotional competency compared to men with a regular male (3.1) or regular female[4] (3.1) partner. Single men (3.1) had significantly higher EC Wellbeing compared to men with a regular male (2.8) or regular female (2.7) partner. Single men (3.7) had significantly higher EC Self-control than men with a regular male (3.5) or regular female (3.2) partner. Single men (3.3) had significantly higher EC Emotionality than men with a regular male partner (3.1), but not men with a regular female partner (3.4) (see Table 10.4). Overall, these data suggest that single men had higher emotional competency than men with a regular male or regular female partner.

[4] this was a trend towards significance, such that p=0.058.

10.3.6 Emotional Competency: By Financial Worries

ANOVA suggested that Overall EC (F=70.26, df(1,970), p<0.001), EC Wellbeing (W=83.41, df(1,875.7), p<0.001), EC Self-control (F=83.02, df(1,1046), p<0.001), EC Emotionality (F=19.07, df(1,1039), p<0.001) and EC Sociability (F=26.76, df(1,1055), p<0.001) were all related to financial worries. Post-hoc analyses suggested that men with financial worries (3.5) have significantly higher Overall EC than men with no financial worries (3.1). They also had higher EC Wellbeing (3.4 vs 2.7), higher EC Self-control (3.9 vs 3.3), higher EC emotionality (3.4 vs 3.2) and higher EC Sociability (2.6 vs 2.3) (see Table 10.4). Overall, these data suggest that men with financial worries have higher emotional competency than men with no financial worries.

10.4 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).

10.4.1 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 SMMASH2 questionnaire, Appendix 1, pages 37 – 38). 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.

10.4.2 Gay-Related Stigma Scale Reliability Analysis

The psychometric properties and robustness of the Gay-Related Stigma Scale have already been established amongst MSM in the USA (see Frost et al, 2007). However, it is good practice to check the reliability of this scale with our population of MSM 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 10.5 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 MSM.

Table 10.5 Reliability Analysis Of Gay-Related Stigma Scale And Subscales

Scale	Cronbach's Alpha
Gay-Related Stigma	0.91
Personalised Stigma	0.89
Concealment Stigma	0.93

10.4.3 Gay-Related Stigma: Mean Values

Mean scores for Overall, Personalised and Concealment gay-related stigma are shown in Table 10.6. In each case the mean score suggested that men experience some, but reasonably low levels of gay related stigma overall. Mean Overall Gay-Related Stigma was 22.4, Personalised Stigma was 10.1 and Concealment Stigma was 9.1. This 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.

10.4.4 Gay-Related Stigma: By NHS Region

ANOVA suggested that neither Gay-Related Stigma (F=0.91, df(2,1044), p>0.05), Personalised Stigma nor Concealment Stigma were related to NHS region (see Table 10.6). Therefore, men living in different NHS regions of Scotland did not report different levels of gay-related stigma.

Table 10.6 Gay-Related Stigma: By Sociodemographic Variables

Sociodemographic variable (Range)	Gay-Related Stigma (0-60)	Personalised Stigma (0-24)	Concealment Stigma (0-32)	Total N
N	1047	1098	1083	
Total	22.4	10.1	9.1	
NHS Region				
GGC	22.0	9.8	9.1	325
Lothian	22.0	9.7	8.9	250
RoS	22.9	10.5	9.2	472
Age				
16-25 years	21.2	9.5	8.6	196
26-35 years	20.7	9.2	8.2	231
36-45 years	22.7	10.0	9.6	256
46+ years	23.9	11.0	9.4	363
Sexual Identity				
Gay	21.5	9.2	9.1	885
Bisexual/Straight	27.5	14.6	9.0	155
Relationship Status				
Single	22.4	9.9	9.3	636
Regular Male Partner	20.9	8.9	8.9	324
Regular Female Partner	28.7	16.1	8.2	82
Financial Worries				
No (Occasional/Never)	21.5	10.0	8.2	599
Yes (Sometimes/All of the time)	23.6	10.3	10.2	444

10.4.5 Gay-Related Stigma: By Age

ANOVA suggested that Gay-Related Stigma ($F=5.12$, $df(3,1042)$, $p<0.005$) and Personalised Stigma ($F=5.52$, $df(3,1093)$, $p<0.005$) but not Concealment Stigma, were significantly related to age. Post-hoc analyses suggested that younger men (16-25 years, 21.2; 26–35 years, 20.7) reported significantly lower levels of gay-related stigma than the oldest age group of men (46+ years, 23.9). Similarly, younger men (16-25 years, 9.5; 26–35 years, 9.2) reported significantly lower levels of personalised stigma than the oldest age group of men (46+ years, 11.0) (see Table 10.6). In summary, younger men reported less gay-related and personalised stigma than the oldest group of men.

10.4.6 Gay-Related Stigma: By Sexual Identity

ANOVA suggested that Gay-Related Stigma ($W=46.93$, $df(1,226.2)$, $p<0.001$) and Personalised Stigma ($F=138.62$, $df(1,1089)$, $p<0.001$) were significantly lower for gay identified men (21.5, 9.2) compared to bisexual/straight identified men (27.5, 14.6) (see Table 10.6). Concealment Stigma was not related to sexual identity. In summary, gay identified men reported less gay-related and personalised stigma than bisexual/straight men.

10.4.7 Gay-Related Stigma: By Relationship Status

ANOVA suggested that Gay-Related Stigma ($W=23.37$, $df(2,233.5)$, $p<0.001$) and Personalised Stigma $W=101.53$, $df(2,272.5)$, $p<0.001$) but not Concealment Stigma, were significantly related to Relationship Status. Post-hoc analyses suggested that men with a regular female partner (28.7, 16.1) reported significantly higher Gay-Related Stigma and Personalised Stigma than single men (22.4, 9.9), and men with a regular male partner (20.9, 8.9) (see Table 10.6). In summary, men with a regular female partner reported more gay-related and personalised stigma than single men or men with a regular male partner. This effect is likely to be tempered by the fact that fewer MSM

with a regular female partner are likely to be open or 'out' about their sexuality, which will impact upon gay-related and personalised stigma scores.

10.4.8 Gay-Related Stigma: By Financial Worries

ANOVA suggested that Gay-Related Stigma ($F=9.21$, $df(1,1041)$ $p<0.005$) and Concealment Stigma ($f=23.68$, $df(1,1077)$, $p<0.001$), but not Personalised Stigma, were significantly related to financial worries. Specifically, men who reported financial worries reported significantly higher gay-related stigma (23.6) and concealment stigma (10.2) than men who had no financial worries (21.5; 8.2) (see Table 10.6).

10.5 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 SMMASH2 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 MSM in Scotland was 20% lower compared to the general population of Glasgow. As such we may tentatively conclude that overall, MSM in Scotland have lower resilience, as measured by the SoC scale, than the general population.
- Analyses suggested that; younger men had significantly lower levels of resilience than older men; single men had significantly lower levels of resilience than men with a regular (male or female) partner and men who reported financial worries had significantly lower levels of resilience than men who reported no financial worries.

- Emotional Competency (EC) is the ability to understand and regulate emotions skilfully to help improve your well-being. 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.
- Older men had significantly lower emotional competency than younger men. This makes sense since is theorised that emotional competency develops, at least in part, through emotional and romantic/sexual relationship learning during teenage years. The socio-legal situation for older men meant that testing and developing emotional relationships with other men during their teenage years (e.g. 1960 – mid 1980s) when homosexuality was illegal (in Scotland until 1980) and highly socially stigmatised, would have been substantially more difficult than for the youngest men in this study, due to the great steps in social and legal acceptance of homosexuality over the past 3 decades, not least the introduction of equal marriage in Scotland in 2014.
- Men in NHS GGC and NHS Lothian report significantly lower EC Emotionality than men in the RoS. In addition, men in NHS GGC report significantly lower EC Sociability than men in the RoS. Further research is required to interpret why these differences have arisen.
- Gay identified men report significantly lower EC than bisexually and heterosexually identified men. This is potentially the impact of a lack of opportunity to develop romantic/sexual relationships with men during teenage years, compared to opportunities for romantic/sexual relationships with women, which bisexual/heterosexual identified men are more likely to benefit from. However, overall this was a relatively small effect for one subcomponent of EC only.

- Single men reported significantly higher EC (overall EC, EC Wellbeing, EC Self-control and EC Emotionality) than men with a regular male, or regular female partner. Further research is required to interpret these differences.
- Men with financial worries have significantly higher EC, based on the overall measure and each sub-component. 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.
- Younger men reported significantly lower levels of gay-related and personalized stigma than older men.
- Gay identified men reported significantly lower levels of gay related and personalized stigma than bisexual/straight identified men.
- Men with a regular female partner reported significantly higher levels of gay related and personalized stigma than single men or men with a regular male partner. This effect is likely to be tempered by the fact that fewer MSM with a regular female partner are likely to be open or 'out' about their sexuality, which will impact upon gay-related and personalized stigma scores.

- Men with financial worries reported significantly higher gay-related and concealment stigma than men with no financial worries.

Chapter 11 Alcohol, Recreational Drug Use and Chemsex

11.1 Introduction

This chapter describes alcohol and recreational drug use amongst MSM 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 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 sexual identity, either gay or bisexual/straight.
4. By relationship status, either single, regular male partner or regular female partner.
5. By financial status, reporting financial worries either 'occasionally/never' or 'sometimes/all of the time'.

11.2 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 1200 men who answered this question, one third (35.8%) had consumed alcohol within the last 24 hours, a further third (32.0%) within the last 7 days and a further 15.2% within the last month (see Table 11.1). As such, 67.8% of participants could be described as 'regular drinkers' and 15.2% infrequent drinkers. A further 9.8% of men last drank alcohol only in the previous 6 – 12 months and the remaining 7.3% did so over a year ago or never.

Table 11.1 When Did You Last Consume Alcohol?

	n	%
Within the last 24 hours	429	**35.8**
Within the last 7 days	384	**32.0**
Within the last 4 weeks	182	**15.2**
Within the last 6 months	90	**7.5**
Within the last 12 months	28	**2.3**
Within the last 5 years	24	**2.0**
More than 5 years ago	25	**2.1**
Never	38	**3.2**
Total	**1200**	

11.3 Sex And Alcohol In The Last 12 Months

We asked men who reported any sexual partners in the last 12 months, how much of the sex they'd had was after drinking alcohol (n=1068). The results are shown in Table 11.2. Over one third of men (39.0%) said none of the sex they had was after drinking alcohol, and a further third (29.2%) answered 'a little'. Only 1 in 5 (19.3%) said that around half of their sex they had was after alcohol consumption and only 7.1% said that almost all or all of it was after alcohol consumption. Therefore, overall most (79.3%) of MSM in Scotland report that most or all of their sex was sober.

Table 11.2 In The Last 12 Months, How Much Of The Sex You've Had Was After Consuming Alcohol?

	n	%
None of it	416	**39.0**
A little	312	**29.2**
Less than half	119	**11.1**
About half	88	**8.2**
More than half	51	**4.8**
Almost all	54	**5.1**
All of it	21	**2.0**
I don't know	7	**.7**
Total	1068	

11.4 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 11.1). 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 SMMASH2 questionnaire; the results are shown in Table 11.3.

Figure 11.1 FAST Standard Drink Image

Table 11.3 How Often Do You Have EIGHT Or More Standard Drinks On One Occasion?.

	n	%
Never	265	**23.9**
Less than monthly	373	**33.7**
Monthly	205	**18.5**
Weekly	211	**19.0**
Daily or almost daily	54	**4.9**
Total	1108	

Just under one quarter of men (23.9%) said they 'never' consume this level of alcohol on one occasion and a further third (33.7%) did so 'less than monthly'. As such these men are defined by

the FAST as ‘not misusing alcohol’. Next, 19.0% said they ’; these men are defined by the FAST as ‘hazardous, harmful or dependent drinkers’ who would benefit from a brief alcohol intervention. One third of participants (18.5%) 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 occasion either ‘Never’ (score 0) or ‘Less than monthly’ (score 1) were not scored on the remaining 3 FAST questions. These data are shown in Table 11.4.

Table 11.4 Total Score On FAST Questionnaire (Light Blue Indicates Problem Drinking).

FAST Score	n	%
0	265	**24.0**
1	373	**33.7**
2	104	**9.4**
3	137	**12.4**
4	75	**6.8**
5	42	**3.8**
6	35	**3.2**
7	27	**2.4**
8	20	**1.8**
9	11	**1.0**
10-16	17	**1.5**
Total	**1106**	

The FAST suggests that a score of 3 or more indicates 'hazardous, harmful or dependent drinkers'. In the SMMASH2 sample, whilst two thirds (67.1%) of participants were assessed as 'safe' drinkers, a further third (32.9%) were assessed as 'hazardous' drinkers (see Table 11.5). We now analyse these data to examine whether hazardous alcohol consumption is pattered by our key sociodemographic variables.

Table 11.5 FAST Score Categorization, Either 'Safe' Or 'Hazardous' Alcohol Consumption

FAST Score Categorization	n	%
Safe	742	**67.1**
Hazardous	364	**32.9**
Total	1106	

11.4.1 Hazardous Alcohol Consumption: By NHS Region

Chi^2 analysis (χ^2=11.34, df=2, p<0.005) suggested that hazardous alcohol consumption was patterned by NHS Region (see Table 11.6), such that men in NHS GGC (39.4%) were significantly

more likely, and men in the RoS were significantly less likely (28.3%) to report hazardous drinking than expected by chance.

Table 11.6 Hazardous Alcohol Consumption: By Sociodemographic Variables

Sociodemographic variable	Safe		Hazardous		Total
	n	%	n	%	N
Total	742	**67.1**	364	**32.9**	1106
NHS Region					
GGC	211	**60.6**	137	**39.4**	348
Lothian	174	**66.9**	86	**33.1**	260
RoS	357	**71.7**	141	**28.3**	498
Age					
16-25 years	125	**61.0**	80	**39.0**	205
26-35 years	152	**65.8**	79	**34.2**	231
36-45 years	175	**64.3**	97	**35.7**	272
46+ years	289	**72.8**	108	**27.2**	397
Sexual Identity					
Gay	613	**66.9**	303	**33.1**	916
Bisexual/Straight	125	**68.7**	57	**31.3**	182
Relationship Status					
Single	412	**63.5**	237	**36.5**	649
Regular Male Partner	246	**71.5**	98	**28.5**	344
Regular Female Partner	80	**74.8**	27	**25.2**	107
Financial Worries					
No (Occasional/Never)	432	**68.2**	201	**31.8**	633
Yes (Sometimes/All of the time)	307	**65.6**	161	**34.4**	468

11.4.2 Hazardous Alcohol Consumption: By Age

Chi^2 analysis (χ^2=10.43, df=3, p<0.05) suggested that hazardous alcohol consumption was patterned by age. Older men (46+ years, 27.2%) were significantly less likely, and younger men (16 –25 years, 39.0%; 36-45 years, 35.7%; *but not men aged 26-35*) to report hazardous alcohol consumption than expected by chance (see Table 11.6).

11.4.3 Hazardous Alcohol Consumption: By Sexual Identity

Chi^2 analysis (χ^2=0.21, df=1, p>0.05) suggested that hazardous alcohol consumption was not patterned by sexual identity (see Table 11.6).

11.4.4 Hazardous Alcohol Consumption: By Relationship Status

Chi^2 analysis (χ^2=9.73, df=2, p<0.01) suggested that hazardous alcohol consumption was patterned by relationship status, such that single men (36.5%) were significantly more likely, and men with a regular male (28.5%) or result female (25.2%) partner were significantly less likely, to report hazardous alcohol consumption (see Table 11.6).

11.4.5 Hazardous Alcohol Consumption: By Financial Worries

Chi^2 analysis (χ^2=0.86, df=1, p>0.05) suggested that hazardous alcohol consumption was not patterned by financial worries (see Table 11.6).

11.5 Recreational Drug Use: Legal Drugs

We asked participants about their most recent use of a range of recreational drugs. 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 11.7.

Most men (64.0%) had ever tried poppers, with almost half (44.8%) doing so in the last year and over one quarter (27.9%) in the last month. One third of men (36.0%) had tried erectile dysfunction medications (such as Viagra©, Cialis© etc.)[5], with one quarter (26.8%) doing so in the last year and 16.3% in the last month. In comparison, new psychoactive substance use (which were legal in the

[5] Note, herein we do not distinguish between recreational and therapeutic use of these drugs.

UK at the time of this survey, but were subsequently banned in May 2016) was much less frequent, with only 12.7% of men having tried these, just 6.8% in the last year and 2.6% in the last month.

Table 11.7 When Did You Last Consume The Following Drugs?

	Poppers		Erectile Dysfunction Medications		New Psychoactive Substances	
	n	%	n	%	n	%
Within the last 24 hours	72	**6.1**	37	**3.1**	7	**.6**
Within the last 7 days	165	**13.9**	88	**7.5**	11	**.9**
Within the last 4 weeks	94	**7.9**	67	**5.7**	12	**1.0**
Within the last 6 months	132	**11.1**	77	**6.5**	31	**2.7**
Within the last 12 months	68	**5.7**	47	**4.0**	18	**1.5**
Within the last 5 years	120	**10.1**	61	**5.2**	50	**4.3**
More than 5 years ago	108	**9.1**	47	**4.0**	20	**1.7**
Never	427	**36.0**	755	**64.0**	1020	**87.3**
Total	1186	**100.0**	1179	**100.0**	1169	**100.0**

11.6 Recreational Drug Use: Illicit Drugs

We asked men whether they had ever taken any other recreational or illicit drugs (e.g. cannabis, ecstasy, cocaine etc.?). Overall just under half (49.0%, n=581) of participants said they had not whilst just over half (51.0%, n=604) said they had. We asked those 604 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) or injected illicit drugs. The results of these questions are shown in Tables 11.8-11.12 below. In these tables, the first column 'n' shows the number of men reporting each drug use type, the second column '%' show the proportion within all men who had used illicit drugs (n=604) whilst the third column '% Tot' shows the proportion of *all* SMMASH2 participants (n=1169) who

report using the particular drug in each time period. Herein we discuss the frequency of drug use amongst the whole SMMASH2 cohort.

11.6.1 Illicit Recreational Drug Use: Cannabis, Ecstasy And Amphetamines

In Table 11.8, we see that just over half (53%) of all men in the SMMASH2 study have ever used cannabis, one in five (20.5%) did so in the last year and 8.9% in the last month. One quarter (24.5%) of men have ever used Ecstasy, just under 1 in ten (9.2%) in the last year and 3.5% in the last month. Finally, one in five men (21.1%) have ever used amphetamines, 4.7% in the last year and 1.8% in the last month. As such, a clear pattern of commonality arises, with cannabis use the most widespread and frequent, followed by ecstasy then amphetamines.

Table 11.8 When Did You Last Consume The Following Drugs?

	Cannabis			Ecstasy			Amphetamines		
	n	**%**	**% Tot**	**n**	**%**	**% Tot**	**n**	**%**	**% Tot**
Within the last 24 hours	45	7.5	**3.8**	4	0.7	**0.3**	7	1.2	**0.6**
Within the last 7 days	29	4.8	**2.5**	15	2.6	**1.3**	3	.5	**0.3**
Within the last 4 weeks	30	5.0	**2.6**	22	3.8	**1.9**	11	1.9	**0.9**
Within the last 6 months	78	12.9	**6.7**	39	6.7	**3.3**	21	3.6	**1.8**
Within the last 12 months	57	9.5	**4.9**	28	4.8	**2.4**	13	2.2	**1.1**
Within the last 5 years	106	17.6	**9.1**	69	11.9	**5.9**	44	7.5	**3.8**
More than 5 years ago	205	34.0	**17.5**	109	18.9	**9.3**	148	25.2	**12.7**
Never	53	8.8	**53.0**	292	50.5	**75.5**	341	58.0	**78.9**
Total	**603**			**578**			**588**		

11.6.2 Illicit Recreational Drug Use: Crystal Methamphetamine, Mephedrone, GHB/GBL And Ketamine

In Table 11.9 we see that less than 1 in 20 (4.7%) of all men in the SMMASH2 study have ever used crystal methamphetamine, less than 1 in 45 (2.3%) have done so in the last year and less than 1 in 100 (0.9%) in the last month. Mephedrone was more commonly reported, almost 1 in 10 (9.8%) have ever used this drug, 1 in 20 (5.4%) have done so in the last year and around 1 in 40 (2.6%) in

the last month. Similarly, almost 1 in 10 (9.2%) men had ever used GHB/GBL, under 1 in 20 (4.3%) had done so in the last year and 1 in 50 (2%) in the last month. In Table 11.10 we see that 1 in 8 (12.0%) men have ever used ketamine, around 1 in 30 (3.3%) have done so in the last year and less than 1 in 100 (0.9%) in the last month. In concert, we see that about 2-3% of MSM in Scotland use these illicit drugs on a monthly basis.

Table 11.9 When Did You Last Consume The Following Drugs?

	Crystal Methamphetamine			**Mephedrone**			**GHB/GBL**		
	n	%	**% Tot**	n	%	**% Tot**	n	%	**% Tot**
Within the last 24 hours	3	.5	**0.3**	3	.5	**0.3**	4	.7	**0.3**
Within the last 7 days	3	.5	**0.3**	11	1.8	**0.9**	8	1.3	**0.7**
Within the last 4 weeks	5	.9	**0.4**	16	2.7	**1.4**	11	1.8	**0.9**
Within the last 6 months	12	2.1	**1.0**	15	2.5	**1.3**	12	2.0	**1.0**
Within the last 12 months	3	.5	**0.3**	17	2.8	**1.5**	15	2.5	**1.3**
Within the last 5 years	12	2.1	**1.0**	36	6.0	**3.1**	24	4.0	**2.1**
More than 5 years ago	17	2.9	**1.5**	17	2.8	**1.5**	33	5.5	**2.8**
Never	527	90.5	**95.3**	482	80.7	**90.2**	488	82.0	**90.8**
Total	**582**			**597**			**595**		

Table 11.10 When Did You Last Consume Ketamine?

	Ketamine		
	N	%	**% Tot**
Within the last 24 hours	4	.7	**0.3**
Within the last 7 days	4	.7	**0.3**
Within the last 4 weeks	4	.7	**0.3**
Within the last 6 months	12	2.0	**1.0**
Within the last 12 months	16	2.7	**1.4**
Within the last 5 years	39	6.5	**3.3**
More than 5 years ago	61	10.2	**5.2**
Never	457	76.5	**88.0**
Total	**597**		

11.6.3 Illicit Recreational Drug Use: Cocaine, Crack Cocaine And Heroin

Around one quarter (24.4%) of men have ever used cocaine, around 1 in 10 (10.1%) in the last year and 3.6% in the last month (see Table 11.11). In contrast, crack cocaine use was rare in the last year (1%), last month (0.5%) and lifetime (2.7%). Similarly, only 3 men (0.3%) reported heroin use in the last year, all of whom said this was in the last 24 hours, with a further 1.8% of the sample (21 men) reporting lifetime heroin use.

Table 11.11 When Did You Last Consume The Following Drugs?

	Cocaine			Crack Cocaine			Heroin		
	n	%	**% Tot**	**n**	%	**% Tot**	**n**	%	**% Tot**
Within the last 24 hours	5	0.8	**0.4**	4	0.7	**0.3**	3	0.5	**0.3**
Within the last 7 days	15	2.5	**1.3**	1	0.2	**0.1**	-	-	**-**
Within the last 4 weeks	22	3.7	**1.9**	1	0.2	**0.1**	-	-	**-**
Within the last 6 months	40	6.7	**3.4**	2	0.3	**0.2**	-	-	**-**
Within the last 12 months	38	6.3	**3.2**	3	0.5	**0.3**	-	-	**-**
Within the last 5 years	68	11.4	**5.8**	4	0.7	**0.3**	5	0.8	**0.4**
More than 5 years ago	100	16.7	**8.5**	16	2.7	**1.4**	16	2.7	**1.4**
Never	311	51.9	**75.6**	558	94.7	**97.4**	572	96	**98.0**
Total	**599**			**589**			**596**		

11.6.4 Illicit Recreational Drug Use: Injecting Drug Use

A small number of men (n=32; 2.7%) said that they had ever injected illicit drugs; only 1.8% (n=21) men had done so in the last year, and just 1.2% (n=13) in the last 4 weeks (see Table 11.12). We consider injecting drugs at sex parties in the next section.

Table 11.12 Injecting Drug Use

	Injecting Drugs			Injecting Drugs At A Sex Party		
	n	**%**	**% Tot**	**N**	**%**	**% Tot**
Within the last 24 hours	3	0.5	**0.3**	1	4.8	**0.1**
Within the last 7 days	3	0.5	**0.3**	2	9.5	**0.2**
Within the last 4 weeks	7	1.2	**0.6**	5	23.8	**0.4**
Within the last 6 months	4	0.7	**0.3**	5	23.8	**0.4**
Within the last 12 months	4	0.7	**0.3**	5	23.8	**0.4**
Within the last 5 years	6	1	**0.5**	-	-	**-**
More than 5 years ago	5	0.8	**0.4**	-	-	**-**
Never	569	94.7	**97.3**	3	14.3	**98.5**
Total	**601**			**21**		

11.7 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 11.13 shows that 14.2% (n=168) of men in Scotland report recent illicit drug use, but only 8.2% (n=97) report non-cannabis recent illicit drug use. As such, 6% (n=71) of men in this study report recent cannabis use but no other illicit drugs.

Table 11.13 Recent Illicit Drug Use

	Recent Illicit Drug Use		Recent Illicit Drug Use excluding cannabis	
	n	**%**	**N**	**%**
Yes	168	**14.2**	97	**8.2**
No	1016	**85.8**	1087	**91.8**
Total	**1184**		**1184**	

11.7.1 Recent Illicit Drug Use: By NHS Region

Chi^2 analysis (χ^2=8.13, df=2, p<0.05) suggested that recent illicit drug use was patterned by NHS Region (see Table 11.14), such that men in NHS GGC (17.9%) were significantly more likely, and men in the RoS were significantly less likely (11.2%) to report recent illicit drug use than expected by chance.

11.7.2 Recent Illicit Drug Use: By Age

Chi^2 analysis (χ^2=22.7, df=2, p<0.001) suggested that recent illicit drug use was patterned by Age (see Table 11.14), such that men in all 3 younger age categories (16-25 years, 16.5%; 26-35 years, 19.3%; 36-45 years, 17.6%) were significantly more likely, and men in the oldest age category (46+ years, 8%) significantly less likely to report recent illicit drug use than expected by chance.

11.7.3 Recent Illicit Drug Use: By Sexual Identity

Chi^2 analysis (χ^2=0.25, df=2, p>0.05) suggested that recent illicit drug use was not patterned by sexual identity (see Table 11.14).

11.7.4 Recent Illicit Drug Use: By Relationship Status

Chi^2 analysis (χ^2=2.72, df=2, p>0.05) suggested that recent illicit drug use was not patterned by relationship status (see Table 11.14).

11.7.5 Recent Illicit Drug Use: By Financial Worries

Chi^2 analysis (χ^2=3.34, df=2, p=0.068) suggested a trend towards significance that recent illicit drug use was patterned by financial worries (see Table 11.14), such that men with financial worries (16.3%) were more likely to report recent illicit drug use than men with no financial worries (12.6%).

Table 11.14 Recent Illicit Drug Use: By Sociodemographic Variables

	Recent Illicit Drug Use				Recent Illicit Drug Use Excluding Cannabis				
Sociodemographic variable	**Yes**		**No**		**Yes**		**No**		**Total**
	n	**%**	**n**	**%**	**N**	**%**	n	**%**	**N**
Total	168	**14.2**	1016	**85.8**	97	**8.2**	1087	**91.8**	1184
NHS Region									
GGC	65	**17.9**	299	**82.1**	43	**11.8**	321	**88.2**	364
Lothian	42	**15.2**	235	**84.8**	27	**9.7**	250	**90.3**	277
RoS	61	**11.2**	482	**88.8**	27	**5.0**	516	**95.0**	543
Age									
16-25 years	35	**16.5**	177	83.5	26	**12.3**	186	**87.7**	212
26-35 years	47	**19.3**	196	80.7	27	**11.1**	216	**88.9**	243
36-45 years	51	**17.6**	238	82.4	29	**10.0**	260	**90.0**	289
46+ years	35	**8.0**	402	92.0	15	**3.4**	422	**96.6**	437
Sexual Identity									
Gay	137	**14.1**	837	**85.9**	82	**8.4**	892	**91.6**	974
Bisexual/Straight	31	**15.4**	170	**84.6**	15	**7.5**	186	**92.5**	201
Relationship Status									
Single	109	**15.5**	593	**84.5**	64	**9.1**	638	**90.9**	702
Regular Male Partner	43	**11.9**	319	**88.1**	25	**6.9**	337	**93.1**	362
Regular Female Partner	15	**13.2**	99	**86.8**	7	**6.1**	107	**93.9**	114
Financial Worries									
No (Occasional/Never)	85	**12.6**	592	**87.4**	48	**7.1**	629	**92.9**	677
Yes (Sometimes/All of the time)	82	**16.3**	421	**83.7**	49	**9.7**	454	**90.3**	503

11.7.6 Recent Illicit Drug Use (Excluding Cannabis): By NHS Region

Chi^2 analysis (χ^2=14.72, df=2, p<0.005) suggested that recent illicit drug use (excluding cannabis) was patterned by NHS Region (see Table 11.14), such that men in NHS GGC (11.8%) and NHS Lothian (9.7%) were significantly more likely, and men in the RoS (5.0%) were significantly less likely, to report recent illicit drug use (excluding cannabis) than expected by chance.

11.7.7 Recent Illicit Drug Use (Excluding Cannabis): By Age

Chi^2 analysis (χ^2=21.84, df=2, p<0.001) suggested that recent illicit drug use (excluding cannabis) was patterned by Age (see Table 11.14), such that men in all 3 younger age categories (16-25 years, 12.3%; 26-35 years, 11.1%; 36-45 years, 10.0%) were significantly more likely, and men in the oldest age category (46+ years, 3.4%) significantly less likely to report recent illicit drug use (excluding cannabis) than expected by chance.

11.7.8 Recent Illicit Drug Use (Excluding Cannabis): By Sexual Identity

Chi^2 analysis (χ^2=0.20, df=2, p>0.05) suggested that recent illicit drug use (excluding cannabis) was not patterned by sexual identity (see Table 11.14).

11.7.9 Recent Illicit Drug Use (Excluding Cannabis): By Relationship Status

Chi^2 analysis (χ^2=2.24, df=2, p>0.05) suggested that recent illicit drug use (excluding cannabis) was not patterned by relationship status (see Table 11.14).

11.7.10 Recent Illicit Drug Use (Excluding Cannabis): By Financial Worries

Chi^2 analysis (χ^2=2.69, df=2, p>0.05) suggested that recent illicit drug use (excluding cannabis) was not patterned by financial worries (see Table 11.14).

11.8 Sex And Illicit Drugs Amongst MSM: 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, 17.8% (n=210) of men in this study reported using at least one of these four chemsex drugs in their lifetime and 7.5% (n=89) reported using at least one chemsex drug in the last year.

We asked men who said they had used chemsex drugs in the last 12 months, how much of the sex they'd had was after taking each drug respectively (see Table 11.15). Overall, we see that, for those men who used each drug, most did so for sexual purposes, at least some of the time. Only 26 men had used crystal methamphetamine in the last year, but most (88.5%) users reported that at least some of the sex they had was after taking this drug, and almost one third of them (30.8%) said this accounted for half or more of the sex they'd had in the last year. Of the 61 men who reported mephedrone use, most (82%) said that at least some of the sex they'd had was after taking this drug, and almost one third (29.5%) said this accounted for half or more of their sexual activity. An almost identical pattern was seen for the 50 men who reported GHB/GBL use. Finally, of the 40 men who had used ketamine in the last year, most (70%) reported some sex on this drug, with one quarter (25%) saying this accounted for half or more of their sex.

Table 11.15 Amount Of Sex Reported Whilst Using Chemsex Drugs

	Crystal Methamphetamine		Mephedrone		GHB/GBL		Ketamine	
	n	%	n	%	N	%	n	%
None	3	**11.5**	11	**18.0**	8	**16.0**	12	**30.0**
Less than half	15	**57.7**	32	**52.5**	28	**56.0**	18	**45.0**
Half or more	8	**30.8**	18	**29.5**	14	**28.0**	10	**25.0**
Total	**26**		**61**		**50**		**40**	

Finally, a small group of men (n=18, 1.5%) said they had injected, or had someone inject them, with drugs at a sex party (see Table 11.12); all of these men had done this in the last year but only 8 men (0.7%) had done so in the last 4 weeks. In concert, the SMMASH2 data suggest that injecting drug use at sex parties ('injecting chemsex') is very rare across Scotland.

It is important to note that, within this sample of men in Scotland, the levels of chemsex use was very small; for example, mephedrone, the most widely reported drug was only used by 5.2% of in

Scotland in the last year, and only 2.6% of men (n=30) had used the drug monthly or more. Moreover, not all chemsex drug use was actually during a sexual session and only a small number of men (n=15, 1.5%) reported having injected drugs at a chemsex party. Therefore, whilst chemsex may present an HIV/STI transmission or other wellbeing risk for MSM, it is likely to affect quite a small proportion (< 5%) of MSM in Scotland.

11.9 Summary

- Around two thirds (67.8%) of MSM in the SMMASH2 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 MSM (32.9%) in Scotland were assessed as 'hazardous' drinkers, who would therefore benefit from a brief intervention to reduce their alcohol intake. Men in NHS GGC (39.4%), younger men (16–25 years, 39.0%; 36–45 years, 35.7%) and single men (36.5%) were all significantly more likely to report hazardous drinking.
- Levels of recreational drug use (both legal and illicit) were relatively common amongst MSM in Scotland, however, this depended strongly on the type of drug considered. Most men had tried poppers (64.0%) and/or cannabis (53%) and one third (36.0%) had used erectile dysfunction medications, one quarter had tried ecstasy (24.5%) and cocaine (24.4%) and one fifth (21.1%) had tried amphetamines. Fewer men had ever tried new psychoactive substances (12.7%) and/or chemsex drugs, including crystal methamphetamine (4.7%), mephedrone (9.8%), GHB/GBL (9.2%) and ketamine (12.0%). Finally, experience of injecting illicit drugs (2.7%) and using crack cocaine (2.6%) and heroin (2.0%) was rare.
- Recent recreational drug use was less widespread, though again a similar decreasing prevalence by each drug was seen. Whilst over one quarter (27.9%) of men had used poppers in the last month, erectile dysfunction medication (16.3%) and cannabis (8.9%) use was less common. Other illicit drugs including cocaine (3.6%), ecstasy (3.5%), mephedrone (2.6%), new psychoactive substances (2.6%), GHB/GBL (2.0%), amphetamines (1.8%), crystal methamphetamine (0.9%) and

ketamine (0.9%) were used by small proportions of this sample, and just a few men reported recent crack cocaine (0.5%) or heroin (0.3%) use.

- Two measures of illicit drug use were calculated; 14.2% of men reported taking any illicit drug(s) in the past 4 weeks, but only 8.2% reported taking illicit drugs other than cannabis recently. Men in NHS GGC (17.9%), younger men (16-25 years, 16.5%; 26-35 years, 19.3%; 36-45 years, 17.6%) and men with financial worries (16.3%) were significantly more likely to report taking any illicit drug(s) in the last 4 weeks. Similarly, men in NHS GGC (11.8%) and NHS Lothian (9.7%), and younger men (16-25 years, 12.3%; 26-35 years, 11.1%; 36-45 years, 10.0%) were significantly more likely to report taking illicit drug(s) other than cannabis in the last 4 weeks. As such, whilst experience of illicit drug use amongst MSM in Scotland is common (49.0%), a small proportion are using illicit drugs on a regular and recent basis.
- 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. Chemsex drug use in the last year was uncommon in this population (Crystal methamphetamine, 2.3%; GHB/GBL 4.3%; Ketamine, 3.3%), although almost 1 in 20 men (5.4%) reported Mephedrone use in the last year. Injecting chemsex drugs at sex parties was very rare (1.5% in the last year). Most men who used chemsex drugs, said they did so mainly, but not exclusively, for sexual purposes. About 20-25% of chemsex drug users said that they used chemsex drugs for most of the sex they had. In concert, these data suggest there are a very small group of MSM in Scotland who actively practice chemsex.

Chapter 12 Social And Sociosexual Media Use

12.1 Introduction

This chapter describes social media use amongst MSM in Scotland. Herein, this is divided into social media (including Facebook, YouTube, Instagram) which are primarily used for social means, and gay specific sociosexual media (including Gaydar, Grindr, Recon etc.) which are primarily used for sexual and romantic means. These questions were derived from the original SMMASH study (Frankis et al, 2013). We present the basic descriptive statistics (frequency and percentages) for these items and subsequently 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 sexual identity, either gay or bisexual/straight.
4. By relationship status, either single, regular male partner or regular female partner.
5. By financial status, reporting financial worries either 'occasionally/never' or 'sometimes/all of the time'.

12.2 Facebook Use

In 2016, the most popular social media site, in terms of unique users, worldwide, was Facebook. Participants were asked 'How often do you use Facebook?' (see Table 12.1). Of the 1180 men who answered this question, almost two thirds (65.5%, n=773) used Facebook on a daily basis, with a further 11.5% (n=136) doing so at least weekly. Fewer than 1 in 5 participants (17.7%, n=208) said they did not use Facebook, with a further 5.4% (n=63) saying they rarely did so over the year. Given that this sample was entirely recruited online, it is unsurprising that Facebook use is so common

amongst them. We now analyse these data to examine whether they are pattered by our key sociodemographic variables.

Table 12.1 How Often Do You Use Facebook?

	n	%
I used to use it but have stopped	42	3.6
I never use it	166	14.1
Every few months or longer	36	3.1
About once a month	27	2.3
About once a week	39	3.3
Every few days	97	8.2
At least once a day	192	16.3
Several times a day	348	29.5
All the time	233	19.7
Total	**1180**	

12.2.1 Facebook Use: By NHS Region

Chi^2 analysis (χ^2=2.57, df=2, p>0.05) suggested that Facebook use was not patterned by NHS Region (see Table 12.2).

12.2.2 Facebook Use: By Age

Chi^2 analysis (χ^2=106.29, df=3, p<0.001) suggested that Facebook use was patterned by age. Younger men (16-25 years, 95.2%, n=200; 26-35 years, 88.1%, n=214) were significantly more likely, and older men (46+ years, 62.8%, n=273; *but not men aged 36-45, 75.9%*, n=*221*) were significantly less likely, to report weekly Facebook use than expected by chance (see Table 12.2).

12.2.3 Facebook Use: By Sexual Identity

Chi^2 analysis (χ^2=11.02, df=1, p<0.005) suggested that gay men (79.0%, n=766) were significantly more likely than bisexual/straight men (68.2%, n=137) to report weekly Facebook use (see Table 12.2).

Table 12.2 Facebook Use: By Sociodemographic Variables

Sociodemographic variable	Monthly or less		Weekly or more		Total
	n	%	n	%	N
Total	271	**23**	909	**77**	1180
NHS Region					
GGC	75	**20.7**	288	**79.3**	363
Lothian	61	**21.9**	217	**78.1**	278
RoS	135	**25**	404	**75**	539
Age					
16-25 years	10	**4.8**	200	**95.2**	210
26-35 years	29	**11.9**	214	**88.1**	243
36-45 years	70	**24.1**	221	**75.9**	291
46+ years	162	**37.2**	273	**62.8**	435
Sexual Identity					
Gay	204	**21**	766	**79**	970
Bisexual/Straight	64	**31.8**	137	**68.2**	201
Relationship Status					
Single	149	**21.3**	551	**78.7**	700
Regular Male Partner	82	**22.7**	279	**77.3**	361
Regular Female Partner	38	**33.6**	75	**66.4**	113
Financial Worries					
No (Occasional/Never)	173	**25.6**	504	**74.4**	677
Yes (Sometimes/All of the time)	98	**19.6**	401	**80.4**	499

12.2.4 Facebook Use: By Relationship Status

Chi^2 analysis (χ^2=8.4, df=2, p<0.05) suggested that single men (78.7%, n=551) were significantly more likely to report weekly Facebook use than men with a regular female partner (66.4%, n=75) (see Table 12.2).

12.2.5 Facebook Use: By Financial Worries

Chi^2 analysis (χ^2=05.67, df=1, p<0.05) suggested that men with financial worries (80.4%, n=401) were significantly more likely to report weekly Facebook use than men with no financial worries (74.4%, n=504) (see Table 12.2).

12.3 Use Of Other Social Media.

Men were also asked 'Which of the following social media they had used in the previous 12 months' and provided with the first 11 options in Table 12.3 to choose from. Most (93.1%, n=1098) had used at least one of these types of social media Twitter (47%, n=555), Tumblr (37.6%, n=444), Instagram (36.1%, n=426) and LinkedIn (34.2%, n=403) all used by over one third of participants. Although YouTube use was almost universal (84.1%, n=992), 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. Many 'other' types of social media were also mentioned by users, but only one, Snapchat was used by a sizeable number of users (2.6%, n=31).

Table 12.3 Which Of The Following Social Media Have You Used In The Last 12 Months?

	n	%
None	6.9	**82**
YouTube	84.1	**992**
Twitter	47.0	**555**
Tumblr	37.6	**444**
Instagram	36.1	**426**
LinkedIn	34.2	**403**
Google+	22.4	**264**
Pinterest	12.7	**150**
Flickr	6.0	**71**
Vine	4.8	**57**
Blogspot	2.6	**31**
Snapchat	2.6	**31**

12.3.1 How Many Social Media Types Do You Use?

Combining this information, it was possible to calculate the number of social media types that men in Scotland used, at least on an annual basis (see Table 12.4). Although no participants reported using all 12 sources, most used multiple social media sources and over half of men (52.1%, n=615) used 4 social media sources or more.

Table 12.4 How Many Of These Social Media Sources Have Participants Used In The Last 12 Months?

Number of social media sources	n	%
None	60	5.1
1	89	7.5
2	187	15.8
3	229	19.4
4	206	17.5
5	184	15.6
6	129	10.9
7	61	5.2
8	19	1.6
9	12	1.0
10	3	.3
11	1	.1

12.4 Gay Sociosexual Media Use

We asked participants about their use of gay sociosexual media, distinguishing between gay sociosexual media websites (like Gaydar, FitLads, 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.

12.5 Gay Sociosexual Media Website Use

As this sample of men was recruited primarily through gay sociosexual media, we would expect their use of such media to be higher than the wider population. These data are presented in Table 12.5. Accordingly, 39.8% (n=469) of men said they use gay sociosexual media websites on a daily basis, with a further third (32.8%, n=387) using them weekly or more. The relatively large proportion, 1 in 7 (14.1%, n=166), who said they either never, or used to, use gay sociosexual media websites, reflects that this sample were recruited through both websites and apps and a small number overall on Facebook. We now analyse these data to examine whether they are pattered by our key sociodemographic variables.

Table 12.5 How Often Do You Use Gay Social Networking Websites?

	n	%
I used to use them but have stopped	87	**7.4**
I never use them	79	**6.7**
Every few months or longer	76	**6.5**
About once a month	80	**6.8**
About once a week	110	**9.3**
Every few days	277	**23.5**
At least once a day	218	**18.5**
Several times a day	144	**12.2**
All the time	107	**9.1**
Total	**1178**	

12.5.1 Gay Sociosexual Media Website Use: By NHS Region

Chi^2 analysis (χ^2=2.61, df=2, p>0.05) suggested that gay sociosexual media website use was not patterned by NHS Region (see Table 12.6).

Table 12.6 Gay Sociosexual Media Website Use: By Sociodemographic Variables

Sociodemographic variable	Monthly or less		Weekly or more		Total
	n	%	n	%	N
Total	322	**27.3**	856	**72.7**	1178
NHS Region					
GGC	101	**27.8**	262	**72.2**	363
Lothian	85	**30.6**	193	**69.4**	278
RoS	136	**25.3**	401	**74.7**	537
Age					
16-25 years	102	**48.6**	108	**51.4**	210
26-35 years	81	**33.3**	162	**66.7**	243
36-45 years	70	**24.1**	220	**75.9**	290
46+ years	69	**15.9**	365	**84.1**	434
Sexual Identity					
Gay	265	**27.3**	704	**72.7**	969
Bisexual/Straight	54	**27**	146	**73**	200
Relationship Status					
Single	185	**26.4**	515	**73.6**	700
Regular Male Partner	113	**31.4**	247	**68.6**	360
Regular Female Partner	22	**19.6**	90	**80.4**	112
Financial Worries					
No (Occasional/Never)	186	**27.6**	489	**72.4**	675
Yes (Sometimes/All of the time)	135	**27.1**	364	**72.9**	499

12.5.2 Gay Sociosexual Media Website Use: By Age

Chi^2 analysis (χ^2=106.29, df=3, p<0.001) suggested that gay sociosexual media website use was patterned by age. Younger men (16 – 25 years, 51.4%, n=108; 26-35 years, 66.7%, n=162) were significantly less likely, and older men (36-45 years, 75.9%, n=220 and 46+ years, 84.1%, n=365) were significantly more likely, to report weekly gay sociosexual media website use than expected by chance (see Table 12.6). Note this is a reversal of the pattern observed for Facebook use, where younger men were more likely to report at least weekly use.

12.5.3 Gay Sociosexual Media Website Use: By Sexual Identity

Chi^2 analysis (χ^2=0.01, df=1, p>0.05) suggested that gay sociosexual media website use was not patterned by sexual identity (see Table 12.6).

12.5.4 Gay Sociosexual Media Website Use: By Relationship Status

Chi^2 analysis (χ^2=6.61, df=2, p<0.05) suggested that men with a regular female partner (80.4%, n=90) were significantly more likely to report weekly gay sociosexual media website use than men with a regular male partner (68.6%, n=247) (see Table 12.6).

12.5.5 Gay Sociosexual Media Website Use: By Financial Worries

Chi^2 analysis (χ^2=0.04, df=1, p>0.05) suggested that gay sociosexual media website use was not patterned by financial worries (see Table 12.6).

12.5.6 Duration Of Gay Social Networking Website Use

Gay social media websites were first introduced in the late 1990's (e.g. Gay.com, 1997; Gaydar, 1999; Squirt.org, 1999). Those participants who said they used gay sociosexual media websites were asked how long they had been using these sites for (see Table 12.7). Over one third (38.5%, n=380) reported using gay sociosexual media websites from over 10 years, almost a further third (30.0%, n=296) had done so for 5 – 10 years, almost a further quarter (22.2%, n=219) for 2-5 years with less than 1 in 10 (9.2%, n=91) using social media for 2 years or less.

Table 12.7 How Long Have You Been Using Gay Social Networking Websites For?

	n	%
Less than 6 months	34	3.4
Between 6 months and a year	13	1.3
1 - 2 years	44	4.5
2 - 5 years	219	22.2
5 - 10 years	296	30.0
More than 10 years	380	38.5
Total	**986**	

12.5.7 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=1180 participants), and the 17 websites which men were able to choose from, are shown in Table 12.8. This selection of websites were chosen as a combination of the most often mentioned in the SMMASH 2013 study, the EMIS study and those which purported to have the largest user group in 2016, based on their online claims, along with the most prominent 'bareback' and 'heterosexual' hook-up websites operating in the UK.

Gaydar (50.9%, n=601), Squirt (34.4%, n=406), FabGuys (30.8%, n=364) and Recon (20.7%, n=244) were the most frequently reported websites used to meet male sex partners in the previous year. Both FabSwingers (14.1%, n=166) and FitLads (12.4%, 146) were also reported by over 1 in 8 men. As participants were recruited through Gaydar, Squirt and Recon, it is unsurprising that these were most frequently cited but it is notable that almost one third of participants mentioned FabGuys since we did not recruit through this website. That FabGuys (and FabSwingers) purport to be entirely free to use is likely to at least partially underpin its relative success here. Of the bareback websites, only BareBackRT (6.7%, n=79) was used by a sizeable proportion of participants; BareBack.com (1.4%, n=17), BareBackHookup (0.6%, n=7) and BareBackCity (0.3%, n=4) were used by relatively small numbers of participants. Heterosexually oriented websites POF (Plenty of Fish –

7.8%, n=92) and Zoosk (1.9%, n=22) were used by sizable numbers of men to source male sex partners. Men were also asked to list which 'other' gay sociosexual media websites they used to meet make sex partners and of the multiple sites suggested, only 2 were cited by more than 5 men in Scotland and therefore included in Table 12.8; SilverDaddies (1.5%, n=18) and Cottaging.com (0.5%, n=6). Finally, the classified ads website Craigslist, which includes a 'personal ads' section, had been used by 12 men in Scotland as a gay hook-up site (1.0%) in the last 12 months.

Table 12.8 Which Of The Following WEBSITES Have You Used To Meet Male Sex Partners In The Last 12 Months?

	n	%
Gaydar	601	**50.9**
Squirt	406	**34.4**
FabGuys	364	**30.8**
Recon	244	**20.7**
FabSwingers	166	**14.1**
FitLads	146	**12.4**
POF (Plenty of Fish)	92	**7.8**
PlanetRomeo	89	**7.5**
BareBackRealTime	79	**6.7**
Manhunt	64	**5.4**
Caffmos	46	**3.9**
Zoosk	22	**1.9**
Bareback.com	17	**1.4**
Out Everywhere	11	**0.9**
BareBackHookup	7	**0.6**
MyHIV	7	**0.6**
BarebackCity	4	**0.3**
SilverDaddies	18	**1.5**
CraigsList	12	**1.0**
Cottaging	6	**0.5**

12.5.8 How Many Sociosexual Media Websites Have You Used In The Past 12 Months?

Combining this information, the number of sociosexual media websites that participants used to source male sex partners in the past 12 months was calculated (see Table 12.9). Around one quarter (26.1%, n=308) of participants said they did not use any websites to meet male sex partners and one fifth (20%, n=236) used only one. It was common for men to report using several websites, with half (49.8%, n=587) saying they used 2-5 websites but fewer than 1 in 20 men reported using 6 or more websites (4.2%, n=49). Overall then, most men recruited online use multiple sociosexual media websites to source male sex partners, but have a propensity to favour a relatively small number of sites in any given year.

Table 12.9 How Many Different Sociosexual Media Websites Have Participants Used In The Last 12 Months?

Number of social media websites	n	%
None	308	**26.1**
1	236	**20**
2	219	**18.6**
3	166	**14.1**
4	119	**10.1**
5	83	**7**
≥6	49	**4.2**
Total	**1180**	

12.6 Gay Sociosexual Media Smartphone App Use

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 12.10. Almost half of participants (46.5%, n=547) said they used gay sociosexual media apps on a daily basis, with a further fifth (21.1%, n=249) using them weekly or more. As such, fewer men are *regular* (i.e. at least weekly) sociosexual media app users (67.6%, n=796) than website users (72.6%)

but more men use apps (46.5%, n=547) than websites (39.8%, n=469) on a *daily* basis. Again, the relatively large number of men who say they never (19.1%, n=232) or no longer (5.3%, n=62) use smartphone sociosexual networking apps reflects that this sample were recruited through websites, apps and Facebook.

Table 12.10 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	62	**5.3**
I never use them	232	**19.7**
Every few months or longer	54	**4.6**
About once a month	34	**2.9**
About once a week	64	**5.4**
Every few days	185	**15.7**
At least once a day	178	**15.1**
Several times a day	208	**17.7**
All the time	161	**13.7**
Total	**1178**	

12.6.1 Gay Sociosexual Media Smartphone App Use: By NHS Region

Chi^2 analysis (χ^2=6.19, df=2, p<0.05) suggested that men in GGC (72.1%, n=261) were significantly more likely, and men in Lothian (62.9%, n=175) significantly less likely to report weekly gay sociosexual media app use than expected by chance (see Table 12.11).

12.6.2 Gay Sociosexual Media Smartphone App Use: By Age

Chi^2 analysis (χ^2=65.36, df=3, p<0.001) suggested that gay sociosexual media app use was patterned by age. Men in each of the 3 younger age categories (16-25 years, 80.9%, n=169; 26-35 years, 77.4%, n=188; 36-45 years, 70.2%, n=203) were significantly more likely, and older men (46+ years, 53.9%, n=234) were significantly less likely, to report weekly gay sociosexual media app use than expected by chance (see Table 12.11). Note this is a reversal of the pattern observed for gay social media website use. As such, it suggests that, whilst most men used both apps and websites for

sociosexual networking, younger men use Apps more whereas older men favour websites. As smartphones and app use become increasingly ubiquitous, we would expect to see this delineation reduce, unless/until it is replaced by future technological developments (e.g. smartphone/wearable app) etc.

Table 12.11 Gay Sociosexual Media Smartphone App Use: By Sociodemographic Variables

Sociodemographic variable	Monthly or less		Weekly or more		Total
	n	%	n	%	N
Total	381	**32.4**	795	**67.6**	1176
NHS Region					
GGC	101	**27.9**	261	**72.1**	362
Lothian	103	**37.1**	175	**62.9**	278
RoS	177	**33**	359	**67**	536
Age					
16-25 years	40	**19.1**	169	**80.9**	209
26-35 years	55	**22.6**	188	**77.4**	243
36-45 years	86	**29.8**	203	**70.2**	289
46+ years	200	**46.1**	234	**53.9**	434
Sexual Identity					
Gay	272	**28.2**	694	**71.8**	966
Bisexual/Straight	106	**52.7**	95	**47.3**	201
Relationship Status					
Single	167	**23.9**	532	**76.1**	699
Regular Male Partner	139	**38.8**	219	**61.2**	358
Regular Female Partner	71	**62.8**	42	**37.2**	113
Financial Worries					
No (Occasional/Never)	247	**36.6**	428	**63.4**	675
Yes (Sometimes/All of the time)	134	**27**	363	**73**	497

12.6.3 Gay Sociosexual Media Smartphone App Use: By Sexual Identity

Chi^2 analysis (χ^2=45.90, df=1, p<0.001) suggested that gay men (71.8%, n=694) were significantly more likely to report weekly gay sociosexual media app use than bisexual/straight identified men (47.3%, n=95) (see Table 12.11).

12.6.4 Gay Sociosexual Media Smartphone App Use: By Relationship Status

Chi^2 analysis (χ^2=77.84, df=2, p<0.001) suggested that single men (76.1%, n=532) were significantly more likely, and men with a regular male (61.2%, n=219) or female (37.2%, n=42) partner significantly less likely to report weekly gay sociosexual media app use than expected by chance (see Table 12.11). This difference between single men and those with a regular female partner is particularly marked, with over twice as many weekly users amongst single men.

12.6.5 Gay Sociosexual Media Smartphone App Use: By Financial Worries

Chi^2 analysis (χ^2=12.10, df=1, p<0.005) suggested that men with financial worries (73.0%, n=363) are significantly more likely to report weekly gay sociosexual media app use compared to men with no financial worries (63.4%, n=428) (see Table 12.11).

12.6.6 Duration Of Gay Social Networking App Use

Those participants who said they used gay sociosexual media apps were asked how long they had been using these sites for (see Table 12.12). Smartphone apps have been available since around 2007 (the launch of the first iPhone), Grindr App launched in 2009, whilst Facebook did not appear on smartphones until 2010. Although a small proportion of men (2.8%, n=24) suggested they have been using smartphone sociosexual media apps for more than 10 years, this is likely to be an overestimate. Perhaps more accurately, over one quarter (27.4%, n=233) of men reported to have been using gay sociosexual media apps for 5 years or more. Almost half of participants (46.7%,

n=396) have been using these apps for 2-5 years, 16.6% (n=141) for 1-2 years and around 1 in 11 (9.2%, n=78) for less than a year.

Table 12.12 How Long Have You Been Using Gay Social Networking SMARTPHONE APPS For?

	n	%
Less than 6 months	39	**4.6**
Between 6 months and a year	39	**4.6**
1 - 2 years	141	**16.6**
2 - 5 years	396	**46.7**
5 - 10 years	209	**24.6**
More than 10 years	24	**2.8**
Total	**848**	

12.6.7 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=1180 participants), and the 18 websites which men were able to choose from, are shown in Table 12.13. This selection of apps were chosen as a combination of those most often mentioned in the SMMASH 2013 study, the EMIS study and a brief consultation with MSM. Companies which provide App market spaces (e.g. Apple, Microsoft) tend to reject sexually explicit apps, meaning that there appear to be no bareback-specific apps, in contrast to the very explicit nature of certain sociosexual networking websites.

Grindr (61.2%, n=722) was by far the most frequently used sociosexual media app used by men in this study, followed by Gaydar (31.1%, n=367), Scruff (28.5%, n=336) which were each used by almost one third of participants. About 1 in 5 participants said they used FabGuys (19.3%, n=228), Squirt (19.2%, n=227), Recon (18.1%, n=213) and Growlr (17.8%, n=210) in the last 12 months, with 1 in 10 using Hornet (10.3%, n=122) and FabSwingers (8.8%, n=104). 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 (14.9%, n=176) was substantially more popular than either POF (6.1%, n=72) or Zoosk (1.5%, n=18). Again, although participants mentioned various 'other' apps, only one (Surge, 0.8%, n=10) was used by ≥10 participants in Scotland.

Table 12.13 Which Of The Following SMARTPHONE APPS Have You Used To Meet Male Sex Partners In The Last 12 Months?

	n	%
Grindr	722	**61.2**
Gaydar	367	**31.1**
Scruff	336	**28.5**
FabGuys	228	**19.3**
Squirt	227	**19.2**
Recon	213	**18.1**
Growlr	210	**17.8**
Tinder	176	**14.9**
Hornet	122	**10.3**
FabSwingers	104	**8.8**
Jack'd	78	**6.6**
POF (Plenty of Fish)	72	**6.1**
PlanetRomeo	69	**5.8**
Manhunt	46	**3.9**
Bendr	43	**3.6**
Blendr	22	**1.9**
GayNetwork (GN)	20	**1.7**
Zoosk	18	**1.5**
Surge	10	**0.8**

12.6.8 How Many Sociosexual Media Apps Have You Used In The Past 12 Months?

Combining this information, the number of sociosexual media apps that participants used to source male sex partners in the past 12 months was calculated (see Table 12.14). Just over one quarter (28.8%, n=340) of participants said they had not used any sociosexual networking apps to meet

male sex partners and 1 in 7 (14.8%, n=175) had used just one app. It was more common for men to report using multiple apps, with almost half (46.3%, n=547) saying they used 2-5 apps, and 1 in 10 (10.0%, n=118) reported ≥6 apps in the last 12 months. Overall, we see that most men use a relatively small number of sociosexual networking apps to find male sex partners, and that the number of apps men use to source male sex partners in any given year is very similar to the number of websites they use for this purpose.

Table 12.14 How Many Different Gay Sociosexual Media Apps Have Participants Used In The Past 12 Months?

Number of social media apps	n	%
None	340	**28.8**
1	175	**14.8**
2	200	**16.9**
3	164	**13.9**
4	118	**10**
5	65	**5.5**
≥6	118	**10**
Total	**1180**	

12.7 Summary

- Participants in the SMMASH2 study were recruited via sociosexual media and apps. As such it is likely that the social media use of this sample is not reflective of the wider community of gay and other MSM. Unsurprisingly, this sample of MSM are highly active social media users.
- Facebook use is nearly ubiquitous, with almost two-thirds (65.5%) using Facebook on a daily basis and over three-quarters (77.0%) doing so at least weekly. Fewer than 1 in 5 (17.7%) said they did not use Facebook. Younger (16-25 years, 95.2%; 26-35 years, 88.1%), gay identified (79.0%) and single men (78.7%), alongside those with financial worries (80.4%), were significantly more likely to use Facebook frequently (at least weekly). Most participants also used other types of social media,

with Twitter, Tumblr, Instagram and LinkedIn all used by over one third of participants in the past year. Similarly, over half of men said they used 4 or more social media types in the last 12 months.

- Most participants also use gay sociosexual media websites on a daily (39.8%) or at least weekly (72.6%) basis. Older men (36-45 years, 75.9%; 46+ years, 84.1%) and those with a regular female partner (80.4%) were significantly more likely to report frequent gay sociosexual media website use. Moreover, the majority of participants had been using gay sociosexual media websites for over 5 years (68.5%). Gaydar (50.9%), Squirt (34.4%), FabGuys (30.8%) and Recon (20.7%) were the websites most often used to meet male sex partners, which partially reflects that the sample were recruited from three of these sites (Gaydar, Squirt, Recon). In contrast, explicitly bareback websites were used by only around 7% of participants to meet male sex partners as were 'heterosexual' websites (e.g. Plenty of Fish, Zoosk). Over half (54.0%) of men said they used multiple websites to source male sex partners but few used ≥6 sites (4.2%). Therefore, most (74%) participants used between 1 – 5 websites to source male sex partners.

- Whilst fewer men (67.6%) use sociosexual media apps weekly compared to websites (72.6%), more men use apps (46.5%) than websites (39.8%) on a daily basis. Younger (16-25 years, 80.9%; 26-35 years, 77.4%; 36-45 years, 70.2%), gay identified (71.8%) and single (76.1%) men, alongside those with financial worries (73.0%), were significantly more likely to report weekly gay sociosexual media app use. In contrast to websites, only one third (27.4%) had been using gay sociosexual media apps for over 5 years. This reflects the relative recency of apps over websites, with the newer technology more frequently being adopted by younger men (although well over half of the oldest 46+ age group reported weekly sociosexual media app use). Grindr (61.2%), followed by Gaydar (31.1%), Scruff (28.5%), FabGuys (19.3%), Squirt (19.2%), Recon (18.1%) and Growlr (17.8%) were the most frequently used apps, again reflecting the recruitment strategy of this survey, although Grindr was by far the most frequently used of these apps. A sizeable proportion of men (1 in 7) use 'heterosexual' sociosexual media apps but no explicitly bareback sites exist due to app market place restrictions. It was common for men to report using multiple sociosexual

networking apps, with over half (56.3%) using 2 or more apps, but only 10% reporting using 6 or more, in the last 12 months.

- In concert, whilst social media, sociosexual media websites and apps use is common amongst this group of MSM, this is patterned by certain sociodemographic differences, primarily around age, partner type and financial worries. Using multiple sociosexual media websites and/or apps is usual, but an element of 'brand loyalty' is apparent, where few men use 6 or more websites or apps.

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Appendix 1 – SMMASH2 Questionnaire (Scotland Version)

An electronic (.pdf) copy of the SMMASH2 Questionnaire (Scotland Version) will be distributed with this report.

End of Report

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