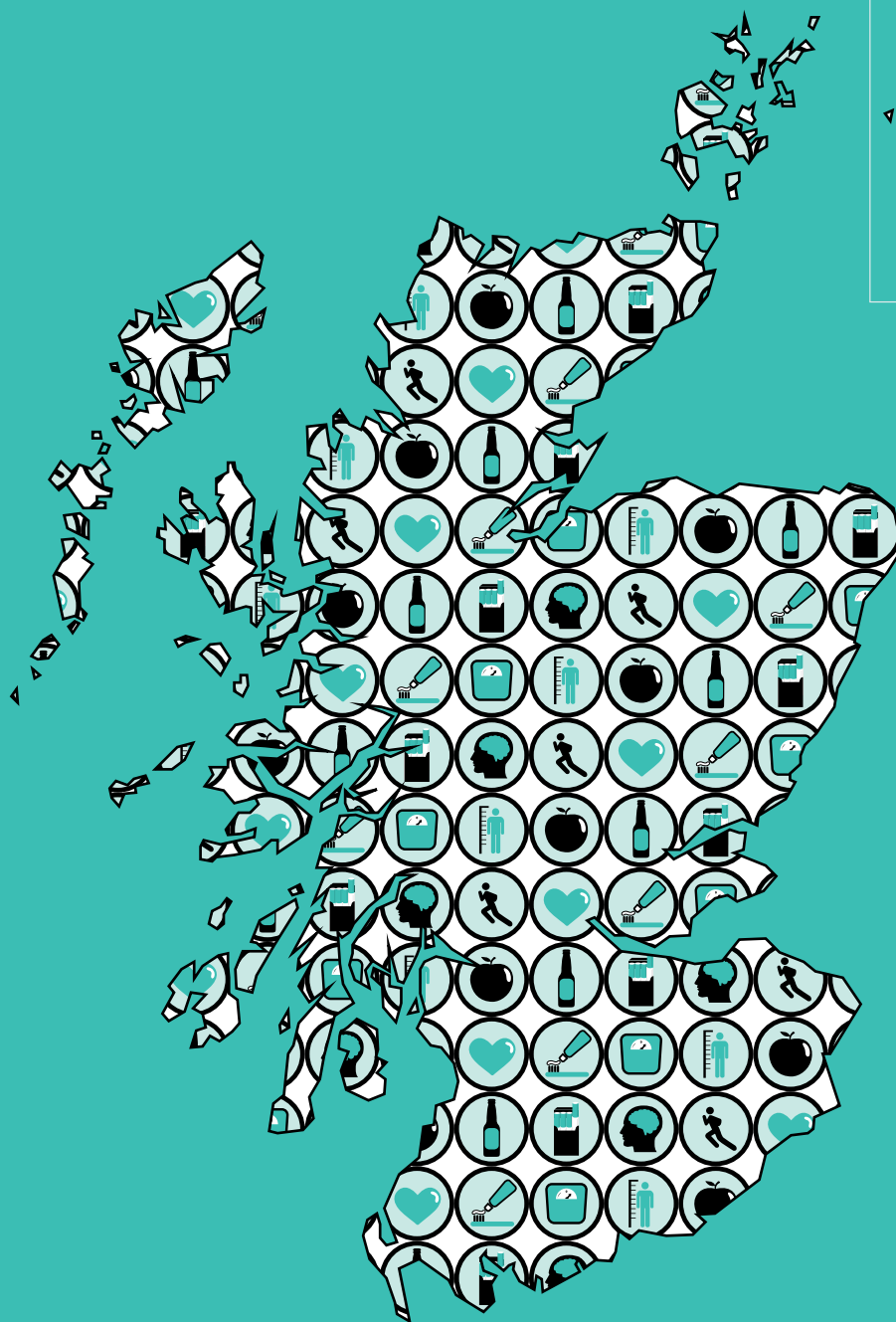
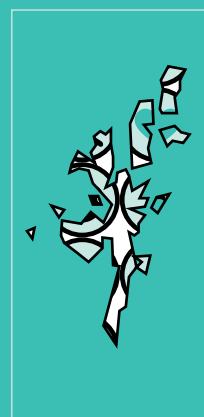




The Scottish
Government
Riaghaltas na h-Alba



The Scottish Health Survey

2012 edition | volume 1 | main report

A National Statistics Publication for Scotland

Editors:

Lisa Rutherford,¹ Stephen Hinchliffe¹ and Clare Sharp¹

Principal authors:

Catherine Bromley,² Shanna Dowling,¹ Lindsay Gray,³ Stephen Hinchliffe,¹ Tracey Hughes,¹ Alastair Leyland,³ Judith Mabelis,¹ Heather Wardle.⁶

¹ ScotCen Social Research, Edinburgh.

² University of Edinburgh.

³ MRC/CSO Social and Public Health Sciences Unit, Glasgow.

⁴ NatCen Social Research, London.

CONTENTS

Editors' Acknowledgements	1
Foreword from the Chief Medical Officer	2
Introduction	3
Notes to Tables	10
Chapter 1: General Health, Mental Wellbeing and Caring	11
1.1 Introduction	12
1.2 Self-assessed general health	14
1.2.1 Introduction	14
1.2.2 Trends in self-assessed general health since 2008	15
1.2.3 Self-assessed general health, 2012, by age and sex	15
1.3 Wellbeing	15
1.3.1 Introduction	15
1.3.2 Trends in WEMWBS mean scores since 2008	16
1.3.3 WEMWBS mean scores, 2012, by age and sex	16
1.3.4 Trends in GHQ12 scores since 1995	17
1.3.5 GHQ12 scores, 2012, by age and sex	17
1.3.6 Trends in life satisfaction since 2008	18
1.3.7 Life satisfaction, 2012, by age and sex	18
1.4 Caring Prevalence	19
1.4.1 Introduction	19
1.4.2 Trends in the prevalence of caring since 2008	19
1.4.3 Caring prevalence, 2012, by age and sex	20
Chapter 2: Dental Health	37
2.1 Introduction	38
2.2 Methods and definitions	39
2.3 Dental health	40
2.3.1 Trends in prevalence of natural teeth since 1995	40
2.3.2 Number of natural teeth and prevalence of no natural teeth, 2012, by age and sex	41
2.3.3 Dental health problems, 2012, by age and sex	41

Chapter 3: Alcohol Consumption	52
3.1 Introduction	54
3.2 Methods and definitions	56
3.2.1 Definitions used in this chapter	56
3.2.2 Data collection in the 2008-2012 surveys	57
3.2.3 Unit calculations and conversion factors	59
3.2.4 Alcohol Use Disorders Identification Test (AUDIT) scale	60
3.3 Weekly alcohol consumption levels	62
3.3.1 Trends in weekly alcohol consumption since 2003	62
3.3.2 Weekly alcohol consumption, 2012, by age and sex	63
3.4 Estimated daily consumption	64
3.4.1 Trends in alcohol consumption on the heaviest drinking day since 2003	64
3.4.2 Alcohol consumption on the heaviest drinking day, 2012, by age and sex	65
3.5 Adherence to weekly and daily drinking advice	67
3.5.1 Trends in adherence to weekly and daily drinking advice since 2003	67
3.5.2 Adherence to weekly and daily drinking advice, 2012, by age and sex	67
3.6 Number of days alcohol was consumed in past week	67
3.6.1 Trends in number of days alcohol was consumed in past week since 2003	67
3.6.2 Number of days alcohol was consumed in past week, 2012, by age and sex	68
3.7 AUDIT Scores by Socio-Demographic Factors	69
3.7.1 AUDIT scores, 2012, by age and sex	69
3.7.2 AUDIT scores (age-standardised), 2012, by NS-SEC of household reference person and sex	71
3.7.3 AUDIT scores (age-standardised), 2012, by equivalised household income and sex	71
3.7.4 AUDIT scores (age-standardised), 2012, by Scottish Index of Multiple Deprivation and sex	72
3.8 Factors Associated With Alcohol Use Disorders (AUD)	72
Chapter 4: Smoking	95
4.1 Introduction	97
4.2 Methods and definitions	98
4.2.1 Questions on smoking	98

4.2.2	Methods of data collection	99
4.2.3	Definitions	99
4.3	Smoking prevalence	100
4.3.1	Trends in smoking prevalence since 1995	100
4.3.2	Smoking prevalence, 2012, by age and sex	100
4.4	Exposure to second hand smoke	102
4.4.1	Trends in adult exposure to second-hand smoke since 1998	102
4.4.2	Adult exposure to second-hand smoke, 2012, by age and sex	103
4.4.3	Child exposure to second-hand smoke, 2012, by age and sex	104
4.4.4	Household smoking rules, 2012, by age and sex	105
4.5	Smoking cessation status, 2012, by age and sex	106
4.6	Use of nicotine replacement therapy, 2012, by age and sex	106
 Chapter 5: Diet		129
5.1	Introduction	130
5.2	Methods and definitions	131
5.2.1	Measures of eating habits	131
5.3	Fruit and vegetable consumption	132
5.3.1	Trends in adult fruit and vegetable consumption since 2003	132
5.3.2	Adult fruit and vegetable consumption, 2012, by age and sex	133
5.3.3	Trends in child fruit and vegetable consumption since 2003	134
5.3.4	Child fruit and vegetable consumption, 2012, by age and sex	135
5.4	Adult eating habits	136
5.4.1	Trends in adult eating habits since 2008	136
 Chapter 6: Physical Activity		149
6.1	Introduction	150
6.2	Methods and definitions	153
6.2.1	Adult physical activity questionnaire	153
6.2.2	Adult physical activity definitions	153
6.2.3	Child physical activity questionnaire	155
6.2.4	Child physical activity definitions	155
6.2.5	Changes made to the adult and child physical activity questionnaires in 2012	157
6.3	Child physical activity levels	158

6.3.1 Trends in summary physical activity levels for children since 1998	158
6.3.2 Trends in sports and exercise participation among children since 1998	158
6.3.3 Physical activity levels in children, 2012, by age and sex	159
6.4 Adult physical activity levels	161
6.4.1 Summary adult physical activity levels and adherence to the MVPA guideline, 2012, by age and sex	161
6.4.2 Adherence to the muscle strengthening and MVPA guidelines, 2012, by age and sex	163
6.4.3 Trends in summary physical activity levels since 2008	164
6.4.4 Impact of changes to the physical activity guidelines and to the questionnaire	164
6.5 Adult participation in sport, 2012, by age and sex	166
6.6 Adult sedentary activity, 2012, by age and sex	167
Chapter 7: Obesity	187
7.1 Introduction	189
7.2 Methods and definitions	190
7.2.1 Height	190
7.2.2 Weight	190
7.2.3 Body Mass Index (BMI)	190
7.3 Trends in adult overweight and obesity prevalence since 1995	193
7.3.1 Obesity and morbid obesity	193
7.3.2 Overweight including obesity	194
7.3.3 Mean BMI	194
7.4 Adult BMI, 2012, by age and sex	195
7.5 Trends in the prevalence of child healthy weight, overweight and obesity since 1998	196
7.6 Children's BMI categories, 2012, by age and sex	197
Chapter 8: Long-Term Conditions	209
8.1 Introduction	210
8.2 Methods and definitions	213
8.2.1 Questions	213
8.2.2 Summary measures	214
8.3 Long-term conditions	215
8.3.1 Trends in long-term conditions prevalence since 2008	215

8.3.2 Long-term conditions, 2012, by age and sex	215
8.4 Asthma	216
8.4.1 Trends in asthma prevalence since 1998	216
8.4.2 Asthma prevalence, 2012, by age and sex	218
8.5 COPD	219
8.5.1 Trends in COPD prevalence since 2008	219
8.5.2 COPD prevalence, 2012, by age and sex	219
8.6 Cardiovascular conditions and diabetes	219
8.6.1 Trends in any CVD, and CVD or diabetes prevalence since 1995	219
8.6.2 Trends in doctor-diagnosed diabetes since 1995	220
8.6.3 Trends in IHD, stroke, and IHD or stroke prevalence since 1995	221
8.6.4 Any CVD, CVD or diabetes, diabetes, IHD, stroke and IHD or stroke prevalence, 2012, by age and sex	221
Chapter 9: Gambling Behaviour	240
9.1 Introduction	242
9.2 Methods and definitions	243
9.2.1 Gambling participation in the last year – definitions and methods	243
9.2.2 Classification of gambling groups	244
9.2.3 Problem gambling definition and measurement	245
9.3 Gambling participation in the last year	246
9.3.1 Participation in gambling activities in last year, 2012, by age and sex	246
9.3.2 Number of gambling activities undertaken in last year, 2012, by age and sex	249
9.3.3 Age and sex profile of gambling groups	250
9.3.4 Socio-economic profile of gambling groups	251
9.4 Problem gambling	252
9.4.1 DSM-IV items, 2012, by age and sex	252
9.4.2 PGSI items, 2012, by age and sex	253
9.4.3 Problem gambling prevalence, 2012, by age and sex	253
9.4.4 'At risk' prevalence, 2012, by age and sex	255
9.4.5 Problem gambling prevalence, 2012, by gambling groups	255
9.5 Factors associated with problem gambling	256

Appendix A: Glossary

EDITORS' ACKNOWLEDGEMENTS

Our first thank you is to the 4,815 adults, and 1,787 children, who gave up their time voluntarily to take part in the 2012 survey and welcomed our interviewers into their homes.

We would also like to thank those colleagues who contributed to the survey and this report. In particular we would like to thank:

- All the interviewers who worked on the project. We owe a huge debt of gratitude for the dedication and professionalism they applied to their work.
- The authors of the chapters: Catherine Bromley, Michael Davidson, Julie Day, Mira Doig, Shanna Dowling, Linsay Gray, Alix Hampson, Tracey Hughes, Alastair Leyland, Judith Mabelis, and Heather Wardle.
- Joan Corbett and Jackie Palmer, whose hard work and expertise has been crucial in preparing the survey data, and for conducting much of the analysis in this report.
- Other research colleagues, in particular: Simon Anderson, Lesley Birse and Andy MacGregor (ScotCen Social Research); Christine Bidwell, Rachel Craig, Kevin Pickering and Josephine Taylor (NatCen Social Research); Fiona Corbett (ScotCen); Melissa Shapero (ScotCen/ University of St Andrews),
- Emma Fenn and colleagues in the NatCen Social Research Operations team.
- The area manager, interviewer team leaders as well as Sue Nash and her nurse supervisors.
- The principal programmers: Iain Templeton and Sven Sjodin.
- The Survey Doctors: Dr Sangeeta Dhama and Professor Aziz Sheikh.
- Alison Platts for her assistance with editing and proofing of the report.

We would also like to express our thanks Dr Linda Wilson of the Freeman Hospital, Newcastle, and the laboratory staff at the Royal Victoria Infirmary, Newcastle, and to Dr Colin Feyerabend and his staff at ABS Laboratories in Welwyn Garden City, Hertfordshire, for their continuing helpfulness and efficiency in processing and analysing the saliva and urine samples on the study.

Ethical approval for the study was granted by the Research Committee for Wales (11/WA/0246). We are grateful to the committee, and its co-ordinator Dr Corrine Scott, for their careful scrutiny and on-going support.

Finally, special thanks are due to Julie Ramsay, and her colleagues in the Scottish Government Health Directorates, for their support at all stages of the project.

Lisa Rutherford, Stephen Hinchliffe and Clare Sharp

FOREWORD FROM THE CHIEF MEDICAL OFFICER

This report presents the findings of the eighth Scottish Health Survey and is the fifth report published since the survey moved to a continuous design in 2008. The 2012-2015 surveys have been commissioned by the Scottish Government and produced by a collaboration between ScotCen Social Research, the MRC/CSO Social and Public Health Sciences Unit at the University of Glasgow, The Centre for Population Health Sciences at the University of Edinburgh and The Public Health Nutrition Research Group at Aberdeen University.

The survey provides us with an immensely valuable collection of data on cardiovascular disease and the related risk factors, including smoking, alcohol, diet, physical activity and obesity. Information on general health, mental health and dental health are also included.

The survey design was changed somewhat in 2012, with the removal of the nurse visit and the introduction of an interviewer-led biological module covering many of the measurements and samples previously collected via the nurse visit. The sample size was also reduced with around 6,500 interviews with adults and children being carried out in 2012 compared with around 9,000 in previous years.

Data are presented on gambling for the first time in this year's report. Gambling behaviour is increasingly a subject of public health and policy interest given the significant changes which have occurred in the gambling landscape in the past decade. The chapter looks at the types of gambling people participate in, estimates the prevalence of problem gambling in Scotland and examines the socio-economic patterning of problem gambling.

I am pleased to welcome this valuable report and to thank the consortium led by ScotCen Social Research for their hard work in conducting the survey and preparing this report. Most importantly, I would also like to thank the 6,602 people who gave their time to participate in the survey. The information they have provided is invaluable in developing and monitoring public health policy in Scotland.

Sir Harry Burns
Chief Medical Officer for Scotland
Scottish Government Health Directorates

INTRODUCTION

Lisa Rutherford

POLICY CONTEXT

Health features prominently in the Scottish Government's National Performance Framework (NPF).^{1,2} The Government's core purpose, to create a more successful Scotland, is underpinned by five strategic objectives, one of which is to create a *healthier* Scotland. The objective is driven, in part, by the recognition of the considerable need to help people to sustain and improve health, particularly in disadvantaged communities. Of the 16 national outcomes allied to the Government's strategic objectives, those of greatest relevance to health are:

We live longer, healthier lives.

We have tackled the significant inequalities in Scottish society.

Many of the 50 national indicators that track progress towards the national outcomes have relevance to health. The addition of 2 indicators relating to health to the recently refreshed NPF,² highlights the Government's ongoing commitment to improving the health of the population and tackling inequalities.

The Scottish Health Survey (SHeS) is used to monitor progress towards the following national indicators:

[Improve mental wellbeing](#)

[Increase physical activity](#)

[Improve self-assessed general health](#)

[Increase the proportion of healthy weight children](#)

As a study of public health, SHeS plays an important role in assessing health outcomes and the extent of health inequalities in Scotland and how these have changed over time. Each of the chapters included in this volume addresses an aspect of health that relates either directly or indirectly to the Government's objective of improving health in Scotland.

THE SCOTTISH HEALTH SURVEY SERIES

The Scottish Health Survey (SHeS) comprises a series of surveys, of which the 2012 survey is the eighth. The survey has been carried out annually since 2008 and prior to that was carried out in 1995,³ 1998⁴ and 2003.⁵

The series is commissioned by the Scottish Government Health Directorates to provide regular information that cannot be obtained from other sources on a range of aspects concerning the public's health, and many factors related to health. The series was designed to:

- estimate the prevalence of particular health conditions in Scotland

- estimate the prevalence of certain risk factors associated with these health conditions and to document the pattern of related health behaviours
- look at differences between regions and between subgroups of the population in the extent of their having these particular health conditions or risk factors, and to make comparisons with other national statistics for Scotland and England
- monitor trends in the population's health over time
- make a major contribution to monitoring progress towards health targets

The 2012 -2015 surveys are being carried out by ScotCen Social Research, the MRC/CSO Social and Public Health Sciences Unit (MRC/CSO SPHSU) based in Glasgow, The Centre for Population Health Sciences at the University of Edinburgh and The Public Health Nutrition Research Group at Aberdeen University.

THE 2012 SURVEY

Topics

Each survey in the series includes core questions and measurements (height and weight and, if applicable, blood pressure, waist circumference, urine and saliva samples), plus modules of questions on specific health conditions that vary biennially.

The principal focus of the 2012-2015 surveys is cardiovascular disease (CVD) and related risk factors. The main components of CVD are coronary heart disease (CHD) and stroke. As noted in Chapter 8, CHD is Scotland's second biggest cause of death and is the focus of a significant number of health policies, many of which have a specific emphasis on reducing the significant health inequalities associated with CVD in Scotland. The SHeS series now has trend data going back for over a decade, and providing the time series is an important function of the survey.

Many of the key behavioural risk factors for CVD are in themselves of particular interest to health policy makers and the NHS. For example, smoking, poor diet, lack of physical activity, obesity and alcohol misuse are all the subject of specific strategies targeted at improving the nation's health. SHeS includes detailed measures of all these factors and these are reported on separately in Chapters 3-7.

Sample

The sample for the 2012-2015 surveys was designed to yield a representative sample of the general population living in private households in Scotland every year. Estimates at the NHS Board level are possible after four years of data collection.

A random sample of 4459 addresses was selected from the small user Postcode Address File (PAF), using a multi-stage stratified design. The PAF is a list of nearly all the residential addresses in Scotland and is maintained by The Royal Mail. The population surveyed was therefore people living in private households in Scotland. People living in institutions, who are likely to be older and, on average, in poorer health than those in private households, were outwith the scope of the survey. This should be considered when interpreting the survey estimates. The very small proportion of households living at addresses not on PAF (less than 1%) was not covered.

Where an address was found to have multiple dwelling units, one was selected at random. Where there were multiple households at a dwelling unit, a single household was selected at random. Each individual within a selected household was eligible for inclusion. Where there were more than two children in a household, two were randomly selection for inclusion, to limit the burden on households.

In addition, two further samples were selected for the survey in 2012: a child boost sample (4140 addresses) in which up to two children in a household were eligible to be interviewed but adults were not, and a Health Board boost sample (956 addresses) where some Health Boards opted to boost the number of adults interviewed in their area.

Fieldwork

A letter stating the purpose of the visit was sent to each sampled address before the interviewer visited. The interviewer sought the permission of each eligible selected adult in the household to be interviewed and both parents' and children's consent to interview selected children aged up to 15.

Interviewing was conducted using Computer Assisted Interviewing (CAI). The content of the interview and full documentation are provided in Volume 2. Children aged 13-15 were interviewed themselves, and parents of children aged 0-12 were asked about their children.

In addition, those aged 13 and over were asked to complete a short paper questionnaire on more sensitive topics. There were four such booklets: one for adults aged 18 and over, one for young adults aged 16-17 (with the option of using it for those aged 18-19 at the interviewer's discretion), and one for teenagers aged 13-15. Parents of children aged 4-12 years, included in the sample, were also asked to fill in a self completion booklet about the child's strengths and difficulties designed to detect behavioural, emotional and relationship difficulties in children.

Height and weight measurements were taken from those aged 2 and over at the end of the interview.

In a sub-sample of households, interviewers sought permission from adults (aged 16 and over) to take part in an additional 'biological module'. This module was carried out by specially trained interviewers. In the biological module, participants were asked questions about prescribed medication and anxiety, depression and self-harm. The interviewer also took participants' blood pressure readings and waist measurement as well as samples of saliva and urine. Further details of these samples and measurements are available in the Glossary and Volume 2.

Survey response

In 2012, across all sample types, interviews were held in 6602 households with 4815 adults (aged 16 and over), and 1787 children aged 0-15. 1020 adults also completed the biological module. More detailed information can be found in Volume 2, Chapter 1.

The following table sets out the numbers of participating households and adults in the four most recent survey years. Further details of all the 2012 figures are presented in Volume 2, Chapter 1.

<i>Numbers participating:</i>	
Participating households (main & health board boost sample)	3183
Adult interviews	4815
Adults eligible for biological module	1516
Adults who completed biological module	1020
Child interviews	1787
<i>Response rates:</i>	
% of all eligible households (main & health board boost sample)	66
% of all eligible adults	56

Ethical Approval

Ethical approval for the 2012 survey was obtained from the REC for Wales committee (reference number 11/WA/0246).

DATA ANALYSIS

Weighting

Since addresses and individuals did not all have equal chances of selection, the data have to be weighted for analysis. SHeS comprises of a general population (main sample) and a boost sample of children screened from additional addresses. Therefore slightly different weighting strategies were required for the adult sample (aged 16 or older) and the child main and boost samples (aged 0-15). Additional weights have been created for use on combined datasets (described below). A detailed description of the weights is available in Volume 2, Chapter 1.

Statistical information

The SHeS 2012 used a clustered, stratified multi-stage sample design. In addition, weights were applied when obtaining survey estimates. One of the effects of using the complex design and weighting is the standard errors for the survey estimates are generally higher than the standard errors that would be derived from an unweighted simple random sample of the sample size. The calculations of standard errors shown in tables, and comment on statistical significance throughout the report, have taken the clustering, stratifications and weighting into account. Full details of the sample design and weighting are given in Volume 2.

Analysis variables

As in all previous SHeS reports, data for men and women are presented separately where possible. Many of the measures are also reported for the whole adult population. Survey variables are tabulated by age groups and, usually, Scottish Index of Multiple Deprivation (SIMD), National Statistics Socio-Economic Classification (NS-SEC), and equivalised household income.

Presentation of trend data

Trend data are presented, where possible, for the eight surveys in the series to-date (1995, 1998, 2003, 2008-2012). In some cases trend data are restricted to those aged 16-64 (the age range common to all eight surveys), for some measures trends are available for the 16-74 age range (common to the 1998 survey onwards). Trends based on the surveys from 2003 onwards can be presented for all adults aged 16+.

Presentation of results

Commentary in the report highlights differences that are statistically significant at the 95% confidence level. It should be noted that statistical significance is not intended to imply substantive importance. A summary of findings is presented at the beginning of each chapter. Chapters then include a brief introduction to the relevant policy initiatives in the area. These should be considered alongside the higher level policies noted above and related policy initiatives covered in other chapters. Following the chapter introduction and details of methods and key definitions, the results are outlined in detail. Tables are at the end of each chapter and show the results discussed in the text.

Availability of further data

As with surveys from previous years, a copy of the SHeS 2012 data will be deposited at the UK Data Archive. Furthermore, additional 2012 data are presented in web tables on the Scottish Government's SHeS website along with trend tables showing data for variables collected every year for adults and children.⁶

CONTENT OF REPORT

This volume contains chapters with substantive results from the SHeS 2012, and is one of two volumes based on the survey, published as a set as 'The Scottish Health Survey 2012:'

Volume 1: Main Report

Volume 2: Technical report

Volume 1 contents:

1. General health and mental wellbeing
2. Dental health
3. Alcohol consumption
4. Smoking
5. Diet
6. Physical activity
7. Obesity
8. Long-term conditions
9. Gambling

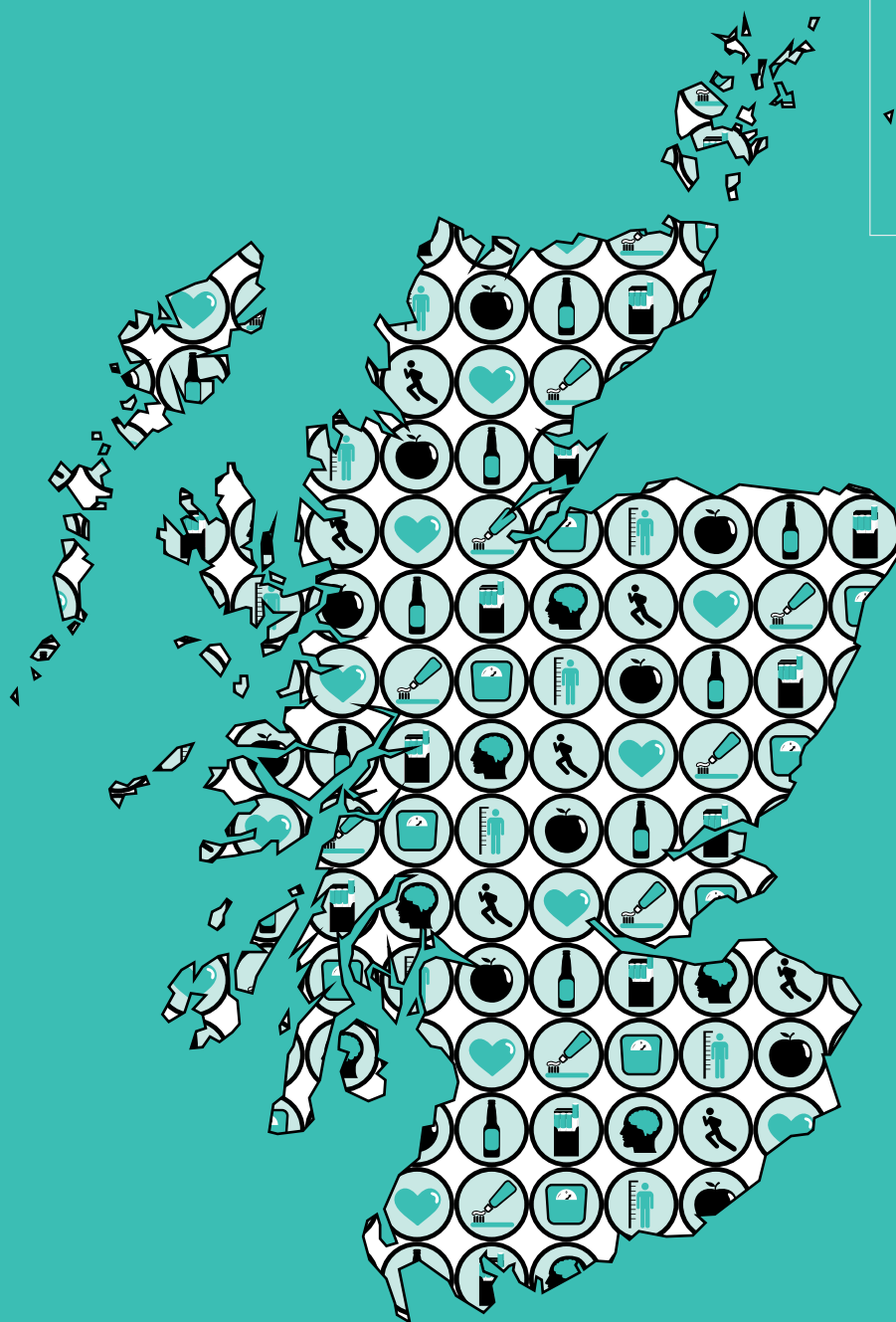
Both volumes are available from the Scottish Government's SHeS website. A summary report of the key findings from the 2012 report and a set of web tables are also available on the survey website. (www.scotland.gov.uk/scottishhealthsurvey).

References and notes

- ¹ *Scottish Budget Spending Review 2007*, Edinburgh: Scottish Government, 2007. [online] Available from: <www.scotland.gov.uk/Publications/2007/11/13092240/0> See also: www.scotlandperforms.com
- ² National Performance Framework: Changes to the National Indicator Set, Edinburgh: Scottish Government, 2012. [online] Available from: <www.scotland.gov.uk/About/scotPerforms/Nlchanges> See also: www.scotlandperforms.com
- ³ Dong, W. and Erens, B. (1997). *The 1995 Scottish Health Survey*. Edinburgh: The Stationery Office.
- ⁴ Shaw, A., McMunn, A. and Field, J. (2000). *The 1998 Scottish Health Survey*. Edinburgh: The Stationery Office.
- ⁵ Bromley, C., Sproston, K. and Shelton, N. [eds] (2005). *The Scottish Health Survey 2003*. Edinburgh: The Scottish Executive.
- ⁶ See: www.scotland.gov.uk/scottishhealthsurvey

NOTES TO TABLES

- 1 The following conventions have been used in tables:
 - n/a no data collected
 - no observations (zero value)
 - 0 non-zero values of less than 0.5% and thus rounded to zero
 - [] normally used to warn of small sample bases, if the unweighted base is less than 50. (If a group's unweighted base is less than 30, data are normally not shown for that group.)
- 2 Because of rounding, row or column percentages may not add exactly to 100%.
- 3 A percentage may be quoted in the text for a single category that aggregates two or more of the percentages shown in a table. The percentage for the single category may, because of rounding, differ by one percentage point from the sum of the percentages in the table.
- 4 Values for means, medians, percentiles and standard errors are shown to an appropriate number of decimal places. Standard Errors may sometimes be abbreviated to SE for space reasons.
- 5 'Missing values' occur for several reasons, including refusal or inability to answer a particular question; refusal to co-operate in an entire section of the survey (such as a self-completion questionnaire); and cases where the question is not applicable to the participant. In general, missing values have been omitted from all tables and analyses.
- 6 The population sub-group to whom each table refers is stated at the upper left corner of the table.
- 7 Both weighted and unweighted sample bases are shown at the foot of each table. The weighted numbers reflect the relative size of each group in the population, not numbers of interviews conducted, which are shown by the unweighted bases.
- 8 The term 'significant' refers to statistical significance (at the 95% level) and is not intended to imply substantive importance.



Chapter 1

General health, mental wellbeing
& caring

1 GENERAL HEALTH, MENTAL WELLBEING & CARING

Judith Mabelis

SUMMARY

- In 2012, around three-quarters (74%) of adults described their health as either 'good' or 'very good', while 9% described it as 'bad' or 'very bad'. The proportion of adults rating their health as good or very good declined with age.
- There has been little change, since 2008, in how men describe their health in general. There has, however, been a significant decline in the proportion of women describing their health as good or very good since 2009 (from 77% to 73% in 2012).
- In 2012, the mean score for adults on the Warwick-Edinburgh Mental Wellbeing Scale (WEMWBS) was 49.9. Men had a significantly higher score than women (50.4 and 49.4 respectively). Mean scores have not changed significantly since 2008 (50.0 in 2008).
- WEMWBS scores were highest for those aged 16-24 (50.7) and those aged 65-74 (51.1), whilst those aged 45-54 (49.0) and 75 and over (49.2) had the lowest average scores.
- In 2012, one in six (15%) adults exhibited signs of a possible psychiatric disorder (a GHQ12 score of 4 or more). Women were significantly more likely than men to have a score of 4 or more (17% and 13% respectively).
- GHQ12 scores have remained fairly stable since 1995 with only minor fluctuations over the years.
- Mean life satisfaction scores were identical for men and women in 2012 (7.7).
- Adult life satisfaction levels have not changed significantly since 2008 (7.6).
- Life satisfaction varied with age, with the highest scores found among those aged 16-24 (7.8) and those aged 65-74 (8.1), and the lowest among those aged 45-54 (7.4).
- In 2012, around one in five adults (18%) reported that they provide regular care to others. Women were more likely than men to provide care for others (20% and 17% respectively).
- Caring prevalence increased in line with age up until age 55-64 (9% of those aged 16-24 provided regular care for someone compared with 31% of those aged 55-64).
- Between 2011 and 2012 there was a significant increase in the proportion of adults providing regular care (from 11% to 17% among men and from 14% to 20% among women). This increase may, however, in part be due to a change in the wording of this question between these years.
- In 2012, 5% of children aged 4 to 15 provided regular care for someone else, with no significant difference in prevalence among boys and girls. Older children (aged 12 to 15) were most likely to provide care (10% compared with 2% of those aged 4 to 11).

1.1 INTRODUCTION

One of the Scottish Government's national outcomes is the overall strategic objective for health: We live longer, healthier lives.¹ This is supported by a number of national indicators. The data from the Scottish Health Survey (SHeS) is used to monitor a number of these national indicators, including two which

relate specifically to the topics covered in this chapter: 'improve self-assessed general health'² and 'improve mental wellbeing.'³

Mental health and wellbeing has been, and remains, a key focus of government policy. *The Mental Health Strategy for Scotland: 2012-2015*,⁴ published in August 2012, sets out the Scottish Government's key commitments in relation to improving the nation's mental health and wellbeing and for ensuring improved services and outcomes for individuals and communities. It adopts three Quality Ambitions for Scotland: that health and care is person-centred, safe and effective. There is also a strong focus, throughout the strategy, on actions that individuals and communities can take to maintain and improve their own health.

The strategy supports the Scottish Government's overall purpose and builds upon the work of a number of other key policy documents. *Delivering for Mental Health*⁵ was published in 2006, and contained a series of targets relating to the care and treatment of people with mental ill-health. *Towards a Mentally Flourishing Scotland*⁶ was published in 2009, and was aimed at promoting good mental wellbeing, reducing the prevalence of common mental health problems, suicide and self-harm, and improving the quality of life of those experiencing mental health problems and mental illnesses.

A commitment to monitoring the nation's mental health was established via the Scottish Government's National Programme for Improving Mental Health and Wellbeing,⁷ and, in 2004, NHS Health Scotland was commissioned by the Scottish Government to establish a core set of national, sustainable indicators for mental health. These were published in 2007, with the aim of enabling national monitoring of adult mental health and associated contextual factors.⁸ Data from the SHeS was used to inform 28 of these indicators, and this chapter reports on indicators relating to mental wellbeing, life satisfaction and common mental health problems. The most recent of the NHS Health Scotland reports on the indicators, *Scotland's Mental Health: Adults 2012*⁹ provides an updated picture of adult mental health in Scotland, monitoring change over time as well as by key equality measures.

This chapter also reports on the prevalence of unpaid carers in the general population in Scotland. Carers are defined as those who look after or give any regular help or support to family members, friends, neighbours or others because of either a long-term physical, mental ill-health or disability, or problems related to old age. Caring which is done as part of any paid employment is not asked about on SHeS. Concerns about the health and wellbeing of unpaid carers have been addressed in a number of Scottish Government policy documents. The most recent is *Caring Together: The Carers Strategy for Scotland 2010-15*,¹⁰ published in July 2010. Building on the work of an earlier publication, *The Future of Unpaid Care in Scotland*,¹¹ the strategy sets out actions to support carers and ensure their health and wellbeing.

Through the implementation of *Caring Together*, the health and wellbeing of carers is being addressed nationally through a range of measures, such as the Scottish Government's commitment to the voluntary sector Short Breaks Fund,¹² and the inclusion of an indicator on carers in the core part of the GP

contract.¹³ Moreover, the Reshaping Care for Older People Change Fund¹⁴ is supporting the carers of older people in many different ways.

Caring Together highlights the need for key data on the characteristics of Scotland's carers in order to plan for and deliver support to them. One of the strategy's action points is for the Scottish Government to make information on carers from surveys such as the Scottish Household Survey and the Scottish Health Survey available to the research community, care providers and the public through its publications and website.

Data on carers has been collected by the SHeS since 2008, with other sources of such data including the Census and the Scottish Household Survey. Data from these sources have highlighted that carers themselves report poor health and suffer from the effects of illness and disability.¹⁵ Previous analysis of SHeS data showed that carers aged 16 and over had slightly lower mental wellbeing than those without caring responsibilities.¹⁶

Recognising that children and young people may also be in a caring role and may have particular needs, the Scottish Government, along with COSLA, published a separate strategy to support them: *Getting it Right for Young Carers*.¹⁷ Young carers have been defined within the Strategy as a child or young person aged under 18 who has a significant role in looking after someone else who is experiencing illness or disability. Questions to ascertain the prevalence of young carers were introduced to SHeS in 2012, and this chapter includes data on young carers aged 4 to 15.

In summary, this chapter presents updated trends for self-assessed general health and mental health and wellbeing among adults, both key indicators of the mental health of the population. Additionally, the chapter includes data on the prevalence of carers in the general population in Scotland, a group who are concerned with the health and wellbeing of others, but at the same time are at risk of poor health and wellbeing themselves.¹⁸

1.2 SELF-ASSESSED GENERAL HEALTH

1.2.1 Introduction

In this section data on self-assessed general health for adults aged 16 and over are reported. Within the survey, all participants are asked to rate their general health as either 'very good', 'good', 'fair', 'bad', or 'very bad'. Self-assessed health is a useful measure of how individuals regard their own overall health status. Assessments have been shown to be strongly related to the presence of chronic and acute disease, as well as being a good predictor of hospital admission and mortality.^{19,20}

Data from this question are used to monitor the national indicator '*improve self-assessed health*' and one of the Scottish Government's adult mental health indicators: '*percentage of adults who perceive their health in general to be good or very good*'.^{2,8}

1.2.2 Trends in self-assessed general health since 2008

Self-assessed general health remained largely unchanged for adults between 2008 and 2012 (Table 1.1). Over this period the proportion of adults describing their health as either good or very good fluctuated between 74% and 77%. Similarly, there has been no significant change in the proportion of adults reporting their health as bad or very bad. In 2008, 2009, 2010 and 2011, 7% of adults described their health negatively: in 2012 9% did.

Male and female trends in self-assessed general health were largely similar to that discussed above for all adults. The only significant change has been a small decline (between 2009 and 2012) in the proportion of women describing their general health positively (from 77% to 73%). This decline is explained by a drop in the proportion describing their health in general as very good (36% in 2009 and 32% in 2012).

Table 1.1

1.2.3 Self-assessed general health, 2012, by age and sex

In 2012, around three-quarters (74%) of adults described their health as either good or very good. While men appeared slightly more likely than women to rate their health positively (75% compared with 73%) this difference was not significant and was not true of all age groups.

In line with previous years, in 2012, the proportion of adults reporting good or very good general health declined with age. This was coupled with an increase, by age, in the proportion describing their health negatively. Nine in ten (89%) 16-24 year olds rated their health as good or very good compared with five in ten (52%) of those in the oldest age group (aged 75 and over). As might be expected, the opposite was true for prevalence of self-assessed bad health; just 1% of the youngest age group (16-24) classed their health as bad or very bad compared with 17% of those aged 75 and over. These age-related patterns were observed for both men and women.

Table 1.2

1.3 WELLBEING

1.3.1 Introduction

Three indicators of wellbeing are included in the survey and described in this section: the Warwick Edinburgh Mental Wellbeing Scale (WEMWBS);²¹ the General Health Questionnaire (GHQ12);²² and life satisfaction score.²³

WEMWBS is used to monitor the national indicator 'improve mental wellbeing.'³ It comprises 14 items designed to assess: positive affect (optimism, cheerfulness, relaxation); satisfying interpersonal relationships; and positive functioning (energy, clear thinking, self-acceptance, personal development, mastery and autonomy). Statements are positively worded and a five-item scale ranging from '1 - none of the time' to '5 - all of the time' is used. The lowest score

possible is 14 and the highest score possible is 70. As WEMWBS was not designed to identify individuals with exceptionally high or low levels of positive mental health, cut-off points have not been developed, and it is mean scores that are presented in this chapter.²⁴

GHQ12²² is a widely used standard measure of mental distress and psychological ill-health consisting of 12 questions on concentration abilities, sleeping patterns, self-esteem, stress, despair, depression, and confidence in the previous few weeks. Responses to each of the GHQ12 items are scored, with one point allocated each time a particular feeling or type of behaviour is reported to have been experienced 'more than usual' or 'much more than usual' over the previous few weeks. These scores are combined to create an overall score of between zero and twelve. A score of four or more (referred to as a high GHQ12 score) has been used here to indicate the presence of a possible psychiatric disorder. A score of zero on the GHQ12 questionnaire can, in contrast, be considered to be an indicator of psychological wellbeing. GHQ12 measures deviations from people's usual functioning in the previous few weeks and therefore cannot be used to detect chronic conditions.

Life satisfaction is measured by asking participants to rate, on a scale of 0 to 10, how satisfied they are with their life in general. On the scale, 0 represented 'extremely dissatisfied' and 10 'extremely satisfied' (the intervening scale points were numbered but not labelled). This measure has been used in numerous international surveys. There are no pre-defined cut-off points within the scale to distinguish between different levels of satisfaction. However, a summary measure was used in this analysis which identified three groups of interest based on the overall distribution of scores in the whole population: people with the highest levels of satisfaction (scores of 9 or 10), people with an average satisfaction level (score 8), and those with below average scores (0-7).

1.3.2 Trends in WEMWBS mean scores since 2008

There has been no significant change in the mean WEMWBS score for adults in Scotland since the scale was first included in the survey in 2008 (50.0 in 2008 and 49.9 in 2012). In the intervening years scores fluctuated between 49.7 and 49.9. The lack of change in average wellbeing scores over this period was true for both men and women.

Table 1.3

1.3.3 WEMWBS mean scores, 2012, by age and sex

In 2012, the mean WEMWBS score for adults in Scotland was 49.9. In line with results from previous years, the average scores for men were significantly higher than for women (50.4 and 49.4 respectively).

The association between mean WEMWBS scores and age was complex. Younger people (aged 16-24) and those aged 65-74 had the highest mean WEMWBS scores (50.7 and 51.1 respectively). Conversely, mean scores were lowest among 45-54 year olds (49.0)

and those aged 75 and over (49.2). This pattern of low self-reported wellbeing among the middle aged and oldest age groups is consistent with findings from earlier years of the survey.²⁵ For men, the pattern by age was similar to that seen for all adults. The exception for women was that the mean score for the youngest age group (16-24 year olds) was one of the lowest observed (48.9). **Table 1.4**

1.3.4 Trends in GHQ12 scores since 1995

Prevalence scores for GHQ12 are shown in Table 1.5 for adults aged 16 to 64 from 1995 onwards and for all adults aged 16 and over since 2003. The proportion of 16 to 64 year olds with a GHQ12 score of 4 or more (indicating the presence of a possible psychiatric disorder) has remained fairly constant since 1995 (15%-16%). This was true for both men and women, with the proportion exhibiting signs of a possible psychiatric disorder ranging between 12% and 14% for men since 1995 and between 17% and 19% for women since then.

A score of zero on the GHQ12 is indicative of psychological wellbeing with no symptoms of medical distress evident. Between 1995 and 2003 the proportion of 16 to 64 year olds scoring zero increased significantly from 57% to 64%. This increase was not sustained in 2008, when 60% did not indicate any symptoms of medical distress. Since then, there has been some minor fluctuations, but no significant changes, in the proportion indicating psychological wellbeing. Again, this trend was evident among both men and women.

Since 2003 there has been no significant change in GHQ12 scores for all adults (aged 16 or above). In both 2003 and 2012, 15% had a GHQ12 score of 4 or more. The proportion of men and women indicating some symptoms of medical distress has also remained the same since 2003 (13% in 2003 and 2012 for men and 17% for women in both years). **Table 1.5**

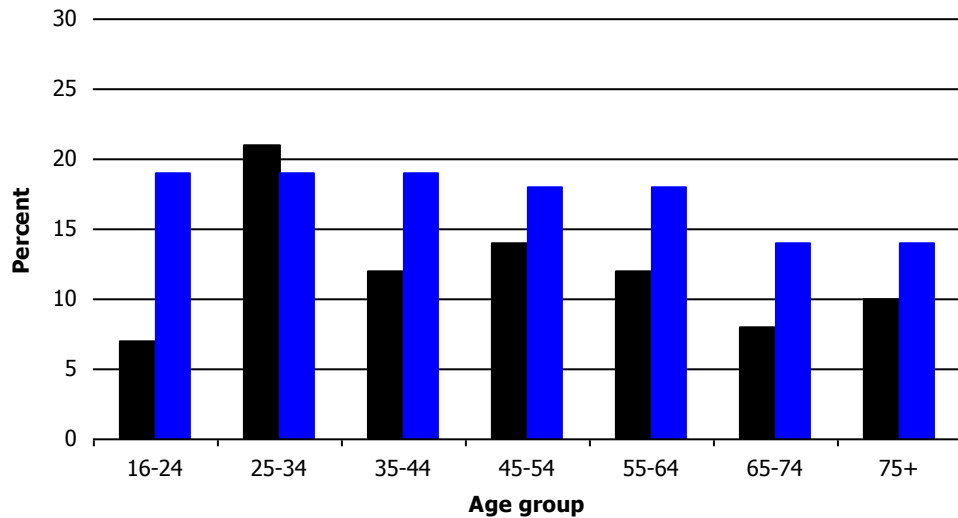
1.3.5 GHQ12 scores, 2012, by age and sex

In 2012, 15% of adults (aged 16 and above) exhibited signs of a possible psychiatric disorder (GHQ12 score of 4 or more) (Table 1.6). As seen in previous years, women were significantly more likely than men to have a score of four or more (17% compared with 13%). Conversely, a higher proportion of men than women had a score of zero for GHQ12 (66% and 59% respectively).

It is difficult to discern a clear pattern to GHQ12 scores across age groups, as illustrated in Figure 1A. Prevalence of high GHQ12 scores was greatest for those aged 25-34 (20%) and lowest for those aged 65-74 (11%). The pattern by age was slightly different for men and women. Among women, the proportion with a high score was very similar for those aged under 65 (between 18% and 19%), but was lower for those aged 65 and above (14%). Whereas for men, those aged 25-34 were most likely to have a score of four or more (21%), while the youngest (aged 16-24) and oldest age groups (aged 65 and over) were least likely (7% and 8%-10% respectively). **Figure 1A, Table 1.6**

Figure 1A

GHQ12 scores of 4 or more, 2012, by age and sex



1.3.6 Trends in life satisfaction since 2008

There has been no significant change in mean life satisfaction scores for all adults since the question was first introduced in 2008. Since then, the average score has ranged from 7.5 (in 2010) to 7.7 (in 2012). The separate trends for men and women followed a similar pattern to the all adult trend.

In line with the trend in mean scores, there have been some minor fluctuations in the proportions of adults scoring above average (a score of 9 or 10), average (a score of 8) or below average (a score of 0-7) since 2008 but none have been significant. Between 2008 and 2012, the proportion of adults scoring their life satisfaction as 9 or 10 (where 10 is classified as extremely satisfied) fluctuated between 30% and 32% (32% in 2012). Thirty-seven percent had below average life-satisfaction (score of 0-7) in 2012; the equivalent figure in previous years ranged between 38% and 40%). The proportion of adults with below average scores have not changed significantly since 2008 and the same was true for men. There has, however, been a significant drop in the proportion of women with a life satisfaction score of 0-7 from 41% in 2008 to 36% in 2012.

Table 1.7

1.3.7 Life satisfaction, 2012, by age and sex

Men and women had identical mean life satisfaction scores in 2012 (7.7) and the proportions with above average (33% of men and 32% of women), average (30% of men and 31% of women) and below average (37% of men and 36% of women) scores were also similar.

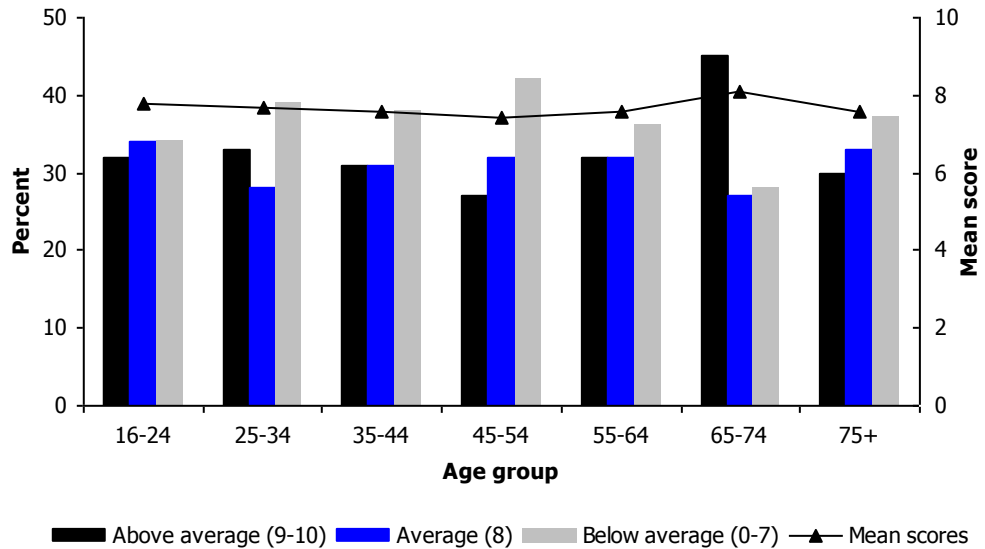
Life satisfaction did, however, vary significantly by age. While adults aged 16-24 had a mean life satisfaction score of 7.8. The average score dipped to 7.4 for adults aged 45-54. However, as seen with the WEMWBS wellbeing score, life satisfaction levels then increased

among older people (peaking at 8.1 among those aged 65-74), and dropping thereafter for those aged 75 and over (7.6). This is illustrated in Figure 1B, which also shows that the age group most likely to have above average scores (9 or 10) were those aged 65-74 (45%), while the group most likely to score below average (0-7) were those aged 45-54 (42%). The age-related pattern to life satisfaction was broadly similar for men and women.

Figure 1B, Table 1.8

Figure 1B

Life satisfaction scores, 2012, by age and sex



1.4 CARING PREVALENCE

1.4.1 Introduction

In the survey, caring prevalence is measured by asking participants if they look after, or give any regular help or support to family members, friends, neighbours or others because of either a long-term physical condition, mental ill-health or disability; or problems related to old age. This question has been asked of adults aged 16 and over since 2008. Children aged 4 to 15 were asked about their caring responsibilities for the first time in 2012.

1.4.2 Trends in the prevalence of caring since 2008

Between 2008 and 2012 there was an increase in the proportion of adults (aged 16 and over) that reported regularly caring for someone (Table 1.9). In 2008, around one in ten (11%) reported doing so and by 2012 this had increased to nearly two in ten (18%). The biggest increase (five percentage points) occurred between 2011 and 2012 when prevalence rose from 13% to 18%. It is, however, important to note that the wording for this question changed between 2011 and 2012.²⁶ Consequently, any increase in caring prevalence between these years may be partly due to this change in wording. It will be necessary to look at future data in the series to see if this upward trend continues.

Trends in caring prevalence were similar for men and women, with both undergoing a significant increase between 2011 and 2012 (from 11% to 17% for men and from 14% to 20% for women), although, as mentioned above, this may be partly related to a change in question wording. Prior to 2012 prevalence among women remained steady at 14%, while for men it increased slightly between 2008 and 2011 (from 9% to 11%).

Table 1.9

1.4.3 Caring prevalence, 2012, by age and sex

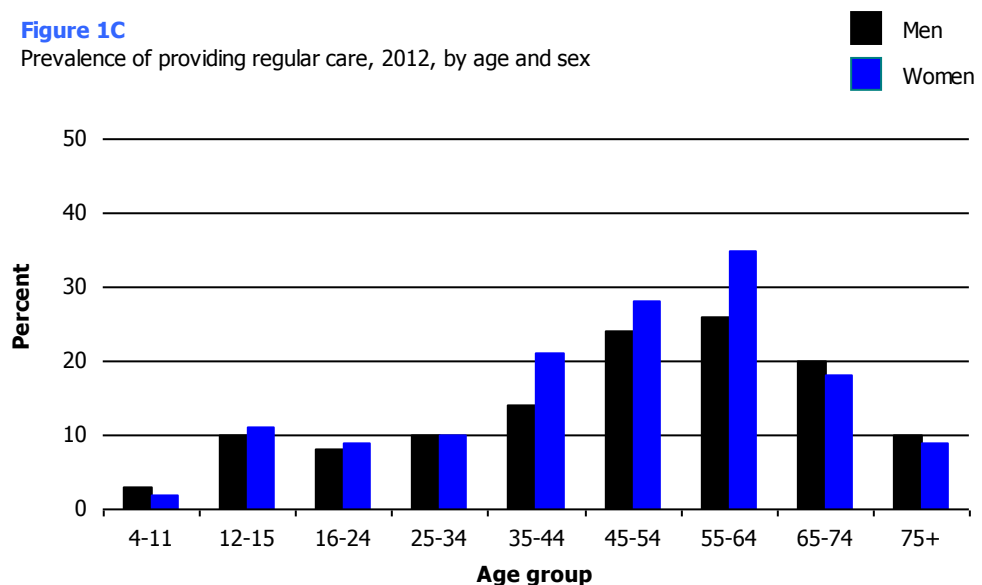
In 2012, for the first time, the questions on caring prevalence were extended to children. As patterns of care differ for adults and children, results for both are discussed separately here.

Caring prevalence among adults (aged 16 and above)

One in six adults reported providing regular care in 2012, with women significantly more likely than men to do so (20% compared with 17%). As demonstrated in Figure 1C, for adults, there was also a clear association between caring and age. The proportion of men and women caring regularly steadily increased with age, peaking among those aged 55-64 and then dropping thereafter. One in ten (9%) 16-24 year olds provided regular care, compared with three in ten (31%) of those aged 55-64 and one in ten (9%) of those in the oldest age group (aged 75 and over). The gender difference in care provision, highlighted above, was most apparent among 35 to 64 year olds with little difference in prevalence across other age groups.

Figure 1C

Prevalence of providing regular care, 2012, by age and sex



Caring prevalence among children (aged 4 to 15)

In 2012, the first year these data were collected on SHeS, 5% of children aged 4 to 15 provided regular care for someone else. In contrast to adult caring rates, there were no significant differences between the prevalence of caring among boys and girls (both 5%).

The proportion of boys and girls with caring responsibilities did however vary significantly by age. Older children (aged 12-15), were five times as likely as younger children (aged 4-11) to provide regular care for someone else (10% compared with 2%). **Figure 1C, Table 1.10**

References and notes

- 1 See: www.scotland.gov.uk/About/Performance/Strategic-Objectives/healthier
- 2 See: www.scotland.gov.uk/About/Performance/scotPerforms/indicator/generalhealth
- 3 See: www.scotland.gov.uk/About/scotPerforms/indicator/wellbeing
- 4 *Mental Health Strategy for Scotland: 2012-2015* Edinburgh: Scottish Government, 2012. www.scotland.gov.uk/Publications/2012/08/9714
- 5 *Delivering for Mental Health*. Edinburgh: Scottish Government, 2006. See: www.scotland.gov.uk/Resource/Doc/157157/0042281.pdf
- 6 *Towards a Mentally Flourishing Scotland*. Edinburgh: Scottish Government, 2009. Available from: www.scotland.gov.uk/Publications/2007/10/26112853/0
- 7 See: www.scotland.gov.uk/Publications/2003/09/18193/26508
- 8 Parkinson, J. (2007). *Establishing a Core Set of National, Sustainable Mental Health Indicators for Adults in Scotland: Final Report*. Glasgow: NHS Health Scotland. www.childrenscotland.org.uk/docs/NHSHealthScotlandCYPsmentalhealthindicatorsdraffframeworkconsultationdocument.pdf
- 9 *Scotland's Mental Health: Adults 2012*. Edinburgh: NHS Health Scotland, 2012. See: www.healthscotland.com/documents/6123.aspx
- 10 *Caring Together: The Carers Strategy for Scotland 2010-2015*. Edinburgh: Scottish Government, 2010. www.scotland.gov.uk/Publications/2010/07/23153304/0
- 11 *The Future of Unpaid Care in Scotland*. Edinburgh: Scottish Executive, 2006. www.scotland.gov.uk/Publications/2006/02/28094157/0
- 12 For information on the Short Breaks Fund see: www.sharedcarescotland.org.uk/short-breaks-fund.html
- 13 For information on the inclusion of the carers indicator in the GP contract see: www.scotland.gov.uk/Publications/2013/05/8702/2
- 14 For information about the Reshaping Care for Older People Change Fund, see: www.scotland.gov.uk/Topics/Health/Support-Social-Care/Support/Older-People/ReshapingCare
- 15 Stuart, F, and Patterson, E. (2010). *Caring in Scotland: Analysis of Existing Data Sources on Unpaid Carers in Scotland*. Edinburgh: Scottish Government. www.scotland.gov.uk/Publications/2010/07/23163626/11
- 16 See Scottish Health Survey 2011 supplementary web tables: www.scotland.gov.uk/Topics/Statistics/Browse/Health/scottish-health-survey/Publications/Supplementary2011
- 17 *Getting it Right for Young Carers: The Young Carer's Strategy for Scotland: 2010-2015*. Scottish Government, 2010. www.scotland.gov.uk/Publications/2010/08/16095043/0
- 18 *The State of Caring 2013*. Carers UK, 2013 www.carersuk.org/professionals/resources
- 19 Idler, E.L and Benyamini, Y. (1997) Self-rated health and mortality: a review of twenty-seven community studies. *Journal of Health and Social Behaviour* 38 (1), 21-37.
- 20 Hanlon, P., Lawder, R., Elders, A., Clark, D., Walsh, D., Whyte, B. and Sutton, M. (2007). An analysis of the link between behavioural, biological and social risk factors and subsequent hospital admission in Scotland. *Journal of Public Health* 29, 405-412

- 21 More information on WEMWBS is available at: www.healthscotland.com/scotlands-health/population/Measuring-positive-mental-health.aspx
- 22 Goldberg, D. and Williams, P.A. (1988). *A User's Guide to the General Health Questionnaire*. Windsor: NFER-Nelson.
- 23 Waldron, S. (2010). *Measuring Subjective Wellbeing in the UK*. London: Office for National Statistics.
- 24 Stewart-Brown, S. and Janmohamed, K. (2008). *Warwick-Edinburgh Mental Well-being Scale (WEMWBS). User Guide Version 1*. Warwick and Edinburgh: University of Warwick and NHS Health Scotland.
- 25 McManus, S. (2012) Chapter 1: General Health and Mental Wellbeing. In Rutherford, L. and Bromley, C. (eds.) *The 2011 Scottish Health Survey – Volume 1: Main Report*. Edinburgh, Scottish Government. www.scotland.gov.uk/Publications/2012/09/7854/0
- 26 In 2011 respondents were asked: 'Do you provide any regular help or care for any sick, disabled or frail person? Please include any regular help or care you provide within or outside your household.' [INTERVIEWER: Exclude any help provided in the course of employment.]
- In 2012 the question was changed to: 'Do you look after, or give any regular help or support to family members, friends, neighbours or others because of either a long-term physical, mental ill-health or disability; or problems related to old age?' [INTERVIEWER: Exclude any caring that is done as part of any paid employment.]

Table list

Table 1.1	Self-assessed general health, 2008 to 2012
Table 1.2	Self-assessed general health, 2012, by age and sex
Table 1.3	WEMWBS mean scores, 2008 to 2012
Table 1.4	WEMWBS mean scores, 2012, by age and sex
Table 1.5	GHQ12 scores, 1995 to 2012
Table 1.6	GHQ12 scores, 2012, by age and sex
Table 1.7	Life satisfaction mean scores, 2008 to 2012
Table 1.8	Life satisfaction mean scores, 2012, by age and sex
Table 1.9	Caring prevalence, 2008 to 2012
Table 1.10	Caring prevalence, 2012, by age and sex

Table 1.1 Self-assessed general health, 2008 to 2012

<i>Aged 16 and over</i>		<i>2008 to 2012</i>			
Self-assessed general health	2008	2009	2010	2011	2012
	%	%	%	%	%
Men					
Very good	37	37	35	37	36
Good	39	40	41	41	39
Fair	16	16	17	16	17
Bad	6	6	5	5	6
Very Bad	2	1	2	2	2
<i>Very good/good</i>	<i>76</i>	<i>77</i>	<i>76</i>	<i>77</i>	<i>75</i>
<i>Bad/very bad</i>	<i>7</i>	<i>7</i>	<i>7</i>	<i>7</i>	<i>8</i>
Women					
Very good	35	36	35	36	32
Good	40	41	39	39	41
Fair	19	17	18	18	18
Bad	5	6	6	6	7
Very Bad	2	1	2	2	2
<i>Very good/good</i>	<i>75</i>	<i>77</i>	<i>74</i>	<i>74</i>	<i>73</i>
<i>Bad/very bad</i>	<i>7</i>	<i>7</i>	<i>8</i>	<i>8</i>	<i>9</i>
All adults					
Very good	36	36	35	36	34
Good	39	40	40	40	40
Fair	17	16	18	17	17
Bad	5	6	6	6	7
Very Bad	2	1	2	2	2
<i>Very good/good</i>	<i>75</i>	<i>77</i>	<i>75</i>	<i>76</i>	<i>74</i>
<i>Bad/very bad</i>	<i>7</i>	<i>7</i>	<i>7</i>	<i>7</i>	<i>9</i>
<i>Bases (weighted):</i>					
<i>Men</i>	<i>3087</i>	<i>3598</i>	<i>3464</i>	<i>3608</i>	<i>2309</i>
<i>Women</i>	<i>3376</i>	<i>3926</i>	<i>3775</i>	<i>3932</i>	<i>2504</i>
<i>All adults</i>	<i>6463</i>	<i>7524</i>	<i>7239</i>	<i>7541</i>	<i>4813</i>
<i>Bases (unweighted):</i>					
<i>Men</i>	<i>2840</i>	<i>3285</i>	<i>3112</i>	<i>3279</i>	<i>2127</i>
<i>Women</i>	<i>3622</i>	<i>4241</i>	<i>4128</i>	<i>4262</i>	<i>2686</i>
<i>All adults</i>	<i>6462</i>	<i>7526</i>	<i>7240</i>	<i>7541</i>	<i>4813</i>

Table 1.2 Self-assessed general health, 2012, by age and sex

<i>Aged 16 and over</i>								2012
Self-assessed general health	Age							Total
	16-24	25-34	35-44	45-54	55-64	65-74	75+	
	%	%	%	%	%	%	%	%
Men								
Very good	59	38	43	32	28	19	17	36
Good	32	47	39	41	38	39	34	39
Fair	7	12	12	15	25	29	31	17
Bad	2	1	4	9	6	10	15	6
Very Bad	-	2	1	3	4	3	4	2
<i>Very good/good</i>	<i>91</i>	<i>85</i>	<i>83</i>	<i>73</i>	<i>66</i>	<i>58</i>	<i>50</i>	<i>75</i>
<i>Bad/very bad</i>	<i>2</i>	<i>3</i>	<i>6</i>	<i>11</i>	<i>10</i>	<i>13</i>	<i>19</i>	<i>8</i>
Women								
Very good	36	44	37	35	28	21	18	32
Good	51	42	41	38	39	41	35	41
Fair	12	12	12	17	21	26	31	18
Bad	1	1	7	8	10	11	14	7
Very Bad	-	0	3	2	1	2	3	2
<i>Very good/good</i>	<i>87</i>	<i>86</i>	<i>78</i>	<i>73</i>	<i>67</i>	<i>62</i>	<i>53</i>	<i>73</i>
<i>Bad/very bad</i>	<i>1</i>	<i>2</i>	<i>10</i>	<i>11</i>	<i>12</i>	<i>13</i>	<i>16</i>	<i>9</i>
All Adults								
Very good	48	41	40	33	28	20	17	34
Good	41	44	40	40	38	40	35	40
Fair	9	12	12	16	23	27	31	17
Bad	1	1	6	9	8	11	14	7
Very Bad	-	1	2	2	2	2	3	2
<i>Very good/good</i>	<i>89</i>	<i>85</i>	<i>80</i>	<i>73</i>	<i>66</i>	<i>60</i>	<i>52</i>	<i>74</i>
<i>Bad/very bad</i>	<i>1</i>	<i>3</i>	<i>8</i>	<i>11</i>	<i>11</i>	<i>13</i>	<i>17</i>	<i>9</i>

Continued...

Table 1.2 - Continued

<i>Aged 16 and over</i>								2012
Self-assessed general health	Age							Total
	16-24	25-34	35-44	45-54	55-64	65-74	75+	
<i>Bases (weighted):</i>								
<i>Men</i>	339	383	380	420	362	251	173	2309
<i>Women</i>	326	376	414	456	383	285	263	2504
<i>All adults</i>	665	760	795	876	745	536	435	4813
<i>Bases (unweighted):</i>								
<i>Men</i>	170	228	346	409	364	385	225	2127
<i>Women</i>	228	329	474	500	443	386	326	2686
<i>All adults</i>	398	557	820	909	807	771	551	4813

Table 1.3 WEMWBS mean scores, 2008 to 2012

<i>Aged 16 and over</i>	<i>2008 to 2012</i>				
WEMWBS scores^a	2008	2009	2010	2011	2012
Men					
Mean	50.2	49.9	50.2	50.2	50.4
SE of the mean	0.20	0.16	0.19	0.19	0.24
Standard deviation	8.55	8.02	8.37	8.35	8.34
Women					
Mean	49.7	49.7	49.6	49.7	49.4
SE of the mean	0.16	0.16	0.17	0.17	0.22
Standard deviation	8.48	8.51	8.67	8.37	8.63
All Adults					
Mean	50.0	49.7	49.9	49.9	49.9
SE of the mean	0.14	0.12	0.14	0.14	0.18
Standard deviation	8.52	8.28	8.54	8.36	8.50
<i>Bases (weighted):</i>					
<i>Men</i>	2785	3282	3171	3191	2063
<i>Women</i>	3026	3586	3478	3540	2256
<i>All adults</i>	5812	6868	6649	6731	4319
<i>Bases (unweighted):</i>					
<i>Men</i>	2539	2994	2842	2900	1909
<i>Women</i>	3248	3886	3805	3845	2431
<i>All adults</i>	5787	6880	6647	6745	4340

a WEMWBS scores range from 14 to 70. Higher scores indicate greater wellbeing. Mean WEMWBS score is part of the national mental health indicator set for adults.

Table 1.4 WEMWBS mean scores, 2012, by age and sex

<i>Aged 16 and over</i>								2012
WEMWBS scores^a	Age							Total
	16-24	25-34	35-44	45-54	55-64	65-74	75+	
Men								
Mean	52.5	49.2	50.1	49.2	50.5	51.8	50.1	50.4
SE of the mean	0.64	0.65	0.56	0.47	0.50	0.53	0.73	0.24
Standard deviation	6.89	8.34	8.79	8.34	8.21	8.64	8.72	8.34
Women								
Mean	48.9	50.0	49.1	48.8	50.1	50.4	48.7	49.4
SE of the mean	0.70	0.52	0.54	0.49	0.51	0.56	0.50	0.22
Standard deviation	8.25	8.18	9.36	8.97	8.90	8.25	7.59	8.63
All Adults								
Mean	50.7	49.6	49.6	49.0	50.3	51.1	49.2	49.9
SE of the mean	0.53	0.42	0.41	0.34	0.40	0.40	0.44	0.18
Standard deviation	7.78	8.26	9.10	8.67	8.57	8.46	8.06	8.50
<i>Bases (weighted):</i>								
<i>Men</i>	293	341	345	388	332	231	133	2063
<i>Women</i>	272	347	382	420	359	260	216	2256
<i>All adults</i>	565	688	727	808	691	491	349	4319
<i>Bases (unweighted):</i>								
<i>Men</i>	150	202	316	382	333	351	175	1909
<i>Women</i>	192	303	441	462	414	353	266	2431
<i>All adults</i>	342	505	757	844	747	704	441	4340

a WEMWBS scores range from 14 to 70. Higher scores indicate greater wellbeing. Mean WEMWBS score is part of the national mental health indicator set for adults.

Table 1.5 GHQ12 scores, 1995 to 2012

<i>Aged 16 and over</i>		<i>1995 to 2012</i>						
GHQ12 score^a	1995	1998	2003	2008	2009	2010	2011	2012
	%	%	%	%	%	%	%	%
Men								
16+								
0	n/a	n/a	67	64	65	65	65	66
1-3	n/a	n/a	20	23	23	22	23	22
4 or more	n/a	n/a	13	12	11	13	13	13
16-64								
0	60	62	68	63	65	64	64	65
1-3	27	25	20	24	23	22	23	22
4 or more	13	13	13	13	12	14	13	14
Women								
16+								
0	n/a	n/a	61	58	58	57	57	59
1-3	n/a	n/a	23	25	25	25	26	24
4 or more	n/a	n/a	17	17	17	17	17	17
16-64								
0	55	55	61	58	58	58	57	58
1-3	26	26	22	24	25	24	25	23
4 or more	19	19	17	18	18	18	18	18
All adults								
16+								
0	n/a	n/a	64	61	62	61	60	62
1-3	n/a	n/a	21	24	24	24	25	23
4 or more	n/a	n/a	15	15	14	15	15	15
16-64								
0	57	59	64	60	61	61	60	62
1-3	26	26	21	24	24	23	24	22
4 or more	16	16	15	16	15	16	16	16

Continued...

Table 1.5 - Continued

<i>Aged 16 and over</i>								<i>1995 to 2012</i>
GHQ12 score^a	1995	1998	2003	2008	2009	2010	2011	2012
<i>Bases (weighted):</i>								
<i>Men 16+</i>	<i>n/a</i>	<i>n/a</i>	<i>3614</i>	<i>2819</i>	<i>3301</i>	<i>3177</i>	<i>3196</i>	<i>2073</i>
<i>Women 16+</i>	<i>n/a</i>	<i>n/a</i>	<i>4057</i>	<i>3079</i>	<i>3589</i>	<i>3498</i>	<i>3559</i>	<i>2257</i>
<i>All adults 16+</i>	<i>n/a</i>	<i>n/a</i>	<i>7672</i>	<i>5898</i>	<i>6890</i>	<i>6674</i>	<i>6755</i>	<i>4329</i>
<i>Men 16-64</i>	<i>3825</i>	<i>3900</i>	<i>3007</i>	<i>2336</i>	<i>2738</i>	<i>2621</i>	<i>2648</i>	<i>1707</i>
<i>Women 16-64</i>	<i>3924</i>	<i>3955</i>	<i>3203</i>	<i>2448</i>	<i>2868</i>	<i>2768</i>	<i>2830</i>	<i>1781</i>
<i>All adults 16-64</i>	<i>7749</i>	<i>7855</i>	<i>6209</i>	<i>4785</i>	<i>5606</i>	<i>5389</i>	<i>5477</i>	<i>3488</i>
<i>Bases (unweighted):</i>								
<i>Men 16+</i>	<i>n/a</i>	<i>n/a</i>	<i>3380</i>	<i>2569</i>	<i>3007</i>	<i>2849</i>	<i>2904</i>	<i>1915</i>
<i>Women 16+</i>	<i>n/a</i>	<i>n/a</i>	<i>4285</i>	<i>3301</i>	<i>3893</i>	<i>3823</i>	<i>3867</i>	<i>2436</i>
<i>All adults 16+</i>	<i>n/a</i>	<i>n/a</i>	<i>7665</i>	<i>5870</i>	<i>6900</i>	<i>6672</i>	<i>6771</i>	<i>4351</i>
<i>Men 16-64</i>	<i>3448</i>	<i>3315</i>	<i>2618</i>	<i>1901</i>	<i>2239</i>	<i>2128</i>	<i>2183</i>	<i>1386</i>
<i>Women 16-64</i>	<i>4326</i>	<i>4173</i>	<i>3326</i>	<i>2497</i>	<i>3019</i>	<i>2902</i>	<i>2944</i>	<i>1815</i>
<i>All adults 16-64</i>	<i>7774</i>	<i>7488</i>	<i>5944</i>	<i>4398</i>	<i>5258</i>	<i>5030</i>	<i>5127</i>	<i>3201</i>

a GHQ12 scores range from 0 to 12. Scores of 4 or more indicate low wellbeing / possible psychiatric disorder.

Table 1.6 GHQ12 scores, 2012, by age and sex

<i>Aged 16 and over</i>								2012
GHQ12 score ^a	Age							Total
	16-24	25-34	35-44	45-54	55-64	65-74	75+	
	%	%	%	%	%	%	%	%
Men								
0	63	59	68	62	74	73	63	66
1-3	30	21	20	24	14	19	27	22
4 or more	7	21	12	14	12	8	10	13
Women								
0	49	56	61	59	65	64	55	59
1-3	32	26	20	23	18	23	31	24
4 or more	19	19	19	18	18	14	14	17
All adults								
0	57	57	64	60	69	68	58	62
1-3	31	23	20	24	16	21	29	23
4 or more	13	20	16	16	15	11	13	15
<i>Bases (weighted):</i>								
<i>Men</i>	294	345	347	389	333	230	135	2073
<i>Women</i>	270	347	385	420	359	257	219	2257
<i>All adults</i>	565	692	732	808	692	487	354	4329
<i>Bases (unweighted):</i>								
<i>Men</i>	150	205	316	383	332	350	179	1915
<i>Women</i>	191	303	444	463	414	349	272	2436
<i>All adults</i>	341	508	760	846	746	699	451	4351

a GHQ12 scores range from 0 to 12. Scores of 4 or more indicate low wellbeing / possible psychiatric disorder.

Table 1.7 Life satisfaction mean scores, 2008 to 2012

<i>Aged 16 and over</i>	<i>2008 to 2012</i>				
Life satisfaction^a	2008	2009	2010	2011	2012
	%	%	%	%	%
Men					
Above average (9-10)	32	30	30	30	33
Average (8)	30	31	31	32	30
Below average (0-7)	39	39	39	38	37
Mean score	7.6	7.6	7.5	7.6	7.7
SE of mean	0.04	0.04	0.04	0.04	0.05
Women					
Above average (9-10)	30	32	30	31	32
Average (8)	30	32	30	31	31
Below average (0-7)	41	37	40	38	36
Mean score	7.5	7.6	7.5	7.6	7.7
SE of mean	0.04	0.03	0.03	0.04	0.04
All adults					
Above average (9-10)	31	31	30	31	32
Average (8)	30	31	31	31	31
Below average (0-7)	40	38	40	38	37
Mean score	7.6	7.6	7.5	7.6	7.7
SE of mean	0.03	0.03	0.03	0.03	0.04
<i>Bases (weighted):</i>					
<i>Men</i>	3074	3588	3458	3602	2302
<i>Women</i>	3368	3913	3771	3923	2502
<i>All adults</i>	6442	7502	7229	7525	4804
<i>Bases (unweighted):</i>					
<i>Men</i>	2825	3278	3105	3270	2121
<i>Women</i>	3613	4226	4122	4250	2683
<i>All adults</i>	6438	7504	7227	7520	4804

a Life satisfaction was assessed using a 0-10 scale where 0 was 'extremely dissatisfied' and 10 'extremely satisfied'.

Table 1.8 Life satisfaction mean scores, 2012, by age and sex

<i>Aged 16 and over</i>								2012
Life satisfaction ^a	Age							Total
	16-24	25-34	35-44	45-54	55-64	65-74	75+	
	%	%	%	%	%	%	%	%
Men								
Above average (9-10)	37	31	30	25	32	47	32	33
Average (8)	30	27	31	33	32	28	31	30
Below average (0-7)	33	43	40	42	36	26	37	37
Mean score	7.9	7.6	7.6	7.4	7.6	8.2	7.6	7.7
SE of mean	0.15	0.13	0.11	0.10	0.12	0.10	0.15	0.05
Women								
Above average (9-10)	27	36	33	28	31	44	29	32
Average (8)	37	28	31	31	32	26	34	31
Below average (0-7)	36	36	37	41	37	30	37	36
Mean score	7.8	7.8	7.6	7.5	7.5	8.0	7.6	7.7
SE of mean	0.12	0.09	0.10	0.11	0.11	0.11	0.11	0.04
All adults								
Above average (9-10)	32	33	31	27	32	45	30	32
Average (8)	34	28	31	32	32	27	33	31
Below average (0-7)	34	39	38	42	36	28	37	37
Mean score	7.8	7.7	7.6	7.4	7.6	8.1	7.6	7.7
SE of mean	0.11	0.09	0.08	0.08	0.09	0.08	0.10	0.04
<i>Bases (weighted):</i>								
<i>Men</i>	338	381	380	419	362	249	172	2302
<i>Women</i>	326	375	414	455	382	287	262	2502
<i>All adults</i>	664	755	795	874	744	537	434	4804
<i>Bases (unweighted):</i>								
<i>Men</i>	169	227	346	408	364	383	224	2121
<i>Women</i>	228	328	474	499	441	388	325	2683
<i>All adults</i>	397	555	820	907	805	771	549	4804

a Life satisfaction was assessed using a 0-10 scale where 0 was 'extremely dissatisfied' and 10 'extremely satisfied'.

Table 1.9 Caring prevalence, 2008 to 2012

<i>Aged 16 and over</i>	<i>2008 to 2012</i>				
Regular carer^a	2008	2009	2010	2011	2012
	%	%	%	%	%
Men					
Provides regular care	9	10	10	11	17
Women					
Provides regular care	14	14	14	14	20
All adults					
Provides regular care	11	12	12	13	18
<i>Bases (weighted):</i>					
<i>Men</i>	3083	3598	3466	3610	2309
<i>Women</i>	3376	3926	3776	3932	2506
<i>All adults</i>	6459	7524	7242	7542	4815
<i>Bases (unweighted):</i>					
<i>Men</i>	2838	3285	3113	3280	2127
<i>Women</i>	3622	4241	4129	4262	2688
<i>All adults</i>	6460	7526	7242	7542	4815

a Provides regular help or care for any sick, disabled or frail person (excluding caring done as part of paid employment). In 2012, the question was amended to specifically mention problems related to old age.

Table 1.10 Caring prevalence, 2012, by age and sex

<i>Aged 4 and over</i>											2012
Regular carer ^a	Age										Total 16+
	4-11	12-15	Total 4-15	16-24	25-34	35-44	45-54	55-64	65-74	75+	
	%	%	%	%	%	%	%	%	%	%	%
Males											
Provides regular care	3	10	5	8	10	14	24	26	20	10	17
Females											
Provides regular care	2	11	5	9	10	21	28	35	18	9	20
All											
Provides regular care	2	10	5	9	10	18	26	31	19	9	18
<i>Bases (weighted):</i>											
<i>Males</i>	439	237	676	339	383	380	420	362	251	173	2309
<i>Females</i>	420	217	637	326	376	414	456	383	287	263	2506
<i>All persons</i>	858	454	1313	665	760	795	876	745	539	435	4815
<i>Bases (unweighted):</i>											
<i>Males</i>	421	222	643	170	228	346	409	364	385	225	2127
<i>Females</i>	433	220	653	228	329	474	500	443	388	326	2688
<i>All persons</i>	854	442	1296	398	557	820	909	807	773	551	4815

a Provides regular help or care for any person for reasons of long-term ill-health, disability, or problems relating to old age (excluding caring done as part of paid employment).

2 DENTAL HEALTH

Tracey Hughes

SUMMARY

- In 2012 nine in ten adults (aged 16 and above) in Scotland had some natural teeth.
- Men were significantly more likely than women to have at least some natural teeth (91% compared with 88%).
- Since 1995, there has been a steady decline in the proportion of 16 to 64 year olds with no natural teeth. One in ten (11%) had all false teeth in 1995; by 2012 this had more than halved (4%). The decline has been particularly pronounced for women (from 13% in 1995 to 4% in 2012).
- The proportion of adults (aged 16 and over) with some natural teeth has not changed significantly since 2008 (88% in 2008 and 90% in 2012).
- In 2012, 28% of adults reported experiencing bleeding gums in the previous month; 23% experienced it occasionally while 5% said that it happened often.
- Experience of gum bleeding declined with age, decreasing from 29% of men and 26% of women aged 16-24 to 8% of those aged 75 and over.
- In 2012, around one in seven (13%) adults (12% of men and 13% of women) reported experiencing toothache in the previous month. Toothache prevalence declined by age for both men and women.
- Twelve percent of adults reported that they often or occasionally had difficulty in chewing food (13% of men and 11% of women).

2.1 INTRODUCTION

To address Scotland's poor oral health record and increase access to dental health services, *An Action Plan for Improving Oral Health and Modernising NHS Dental Services in Scotland*¹ (the Action Plan) was published by the Scottish Executive in 2005. The Action Plan laid out a series of national dental health and dental service targets, including the aim, that by 2010, 90% of adults in Scotland, and 65% of adults aged between 55 and 74 years, would possess some natural teeth. The dental health chapter in the 2011 Scottish Health Survey (SHeS) annual report² noted that the target for all adults had been met for the first time in 2011; the separate target for adults in the 55 to 74 age group had already been met in 2008.³

Each year, in addition to presenting the most up-to-date data on dental health, the SHeS annual report also provides a broad overview of the recent policy developments and initiatives in the area. Recent dental health initiatives of relevance have included:

- The opening of a new dental school in Aberdeen in 2008, and steps to attract more dentists to work in Scotland.
- Two NHS HEAT targets⁴ relating to child dental health - one on increasing NHS dentist registration rates for 3 to 5 year olds by 2010/11 (the 80% target has now been surpassed, with 88% registered), and one on fluoride varnish applications for 3 to 4 year olds by March 2014.⁵

- The Childsmile national oral health improvement programme for children in Scotland.⁶
- The introduction of free dental checks for adults.
- The 2005 *Action Plan*¹ recognised the links to inequalities, the problems with access to services, and that poor dental health in adults often has its origins in childhood.

There have also been more recent policy developments in the field of dental health. In May 2012, the Scottish Government published the *National oral health improvement strategy for priority groups: frail older people, people with special care needs and those who are homeless*⁷ which is a preventive strategy aimed at vulnerable adults. A new core national preventive programme, Smile, builds upon the established Childsmile programme for children, in providing access to oral health care regardless of life circumstances. Two training guides for those working with frail older people in care homes and with homeless people have now also been published.⁸

This chapter presents up-to-date figures for a selection of the dental health questions included on SHeS each year. The trend in natural teeth prevalence among adults in Scotland has been updated and is presented here (allowing monitoring of the related Action Plan target). The relationship between prevalence of natural teeth and age and sex is also explored. The chapter concludes by examining prevalence, in 2012, of a number of specific dental health problems among those with natural teeth, such as gum bleeding, toothache and difficulties chewing.

Since 2008, more detailed questions on dental services have been asked in alternating years of the survey (2009, 2011 and 2013). Updated data for these questions are likely to be included in the 2013 SHeS annual report.

2.2 METHODS AND DEFINITIONS

Two changes to the SHeS dental health questions have implications for the time series data presented here. In 1995, 1998 and 2003 participants were asked if they had their own teeth but were not asked how many of their own teeth they had. From 2008 onwards, participants were asked how many natural teeth they had. Consequently, it is only possible to compare people in the period 1995 to 2003 who said they had *all false teeth* with people from 2008 onwards who said they had *no natural teeth*. In addition, the definition of false teeth used in 1995 was not the same as that used in 1998 and 2003. In 1998 and 2003 participants were asked to count caps and crowns as natural teeth but there was no such instruction in 1995.

While the question on natural teeth prevalence used since 2008 is very different to that used in earlier years, it attempts to measure the same underlying concept - having no natural teeth - and might therefore be considered as functionally equivalent. As there is no way of verifying this, however, the comparison over time between 1995-2003 and 2008 onwards should be interpreted with caution.

2.3 DENTAL HEALTH

2.3.1 Trends in prevalence of natural teeth since 1995

The trend in natural teeth prevalence for adults in Scotland is presented in Figure 2A and Table 2.1 from 1995 onwards. As a result of changes to the sample composition in 2003, figures presented here for the first two survey years (1995 and 1998) are based on those aged 16 to 64 only. Figures for 16 to 64 year olds and for all adults (aged 16 and over) are presented for 2003 onwards.

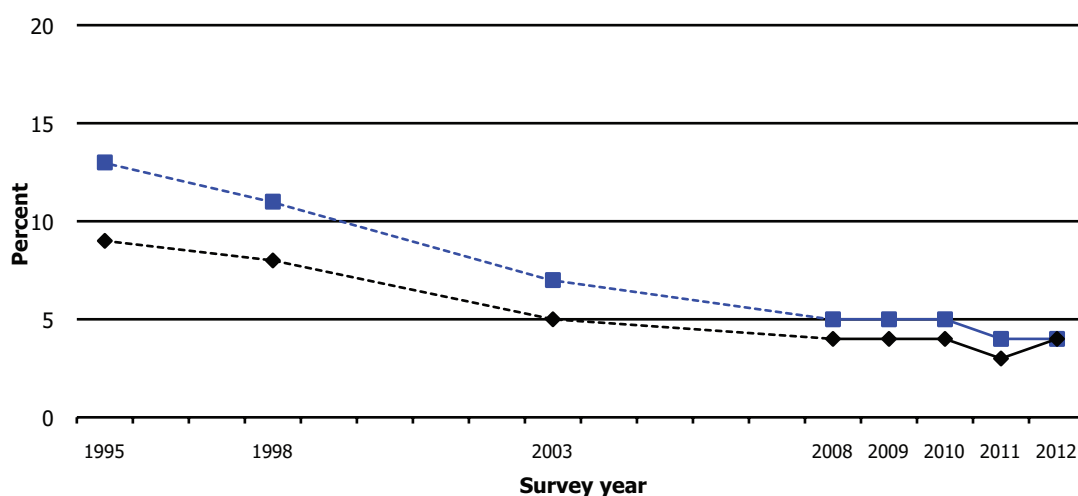
As noted in Section 2.2, some of the data presented are from earlier years of the survey when the question on presence of natural teeth had slightly different wording. In Table 2.1, the proportion of adults aged 16-64 with all false teeth are presented for 1995, 1998 and 2003, and, for 2008 onwards, the proportions with no natural teeth are shown.

Over the years there has been a steady decline in the proportion of 16 to 64 year olds with no natural teeth. In 1995, one in ten (11%) reported that they had all false teeth and, by 2008, just 4% reported that they had no natural teeth. Since 2008, the proportion of adults with no natural teeth has remained steady at between 3% and 5% (4% in 2012). The decline has been more pronounced for women than for men, declining from 13% in 1995 to 4% in 2012 (the equivalent figures for men were 9% in 1995 and 4% in 2012).

The proportion of adults (aged 16 and above) reporting that they had no natural teeth has fluctuated between 10% and 12% (10% in 2012) since 2008. The 2005 Action Plan¹ set out the aim that 90% of all adults living in Scotland would possess some natural teeth by 2010. This target was met in 2011² and prevalence remained unchanged in 2012 (90%). Prevalence trends have, however, followed slightly different patterns for men and women. In 2012, nine in ten men (91%) possessed some natural teeth, a level which has remained unchanged since 2008. For women, in 2012, the proportion with some natural teeth was 88%, just short of the Action Plan target of 90%. There has, however, been a slight rise in prevalence among women since 2008 when 86% had some natural teeth.

Figure 2A, Table 2.1

Figure 2A
Proportion of adults aged 16-64 with all false teeth (1995-2003)/
no natural teeth (2008-2012), by sex



2.3.2 Number of natural teeth and prevalence of no natural teeth, 2012, by age and sex

The proportion of adults (aged 16 and over) with some natural teeth in 2012 is presented in Table 2.2 by age and sex. As already noted (see Table 2.1), in 2012, 90% of adults in Scotland reported that they had some natural teeth. The proportion of men with some natural teeth was significantly higher than the level for women (91% compared with 88%).

Prevalence also varied by age, with the proportion of adults with natural teeth generally decreasing as age increased. In 2012, the percentage of 16 to 44 year olds with some natural teeth was between 99% and 100%; thereafter, the proportion declined, dropping to 54% for those aged 75 and over. Age-related prevalence patterns were slightly different for men and women. While similar proportions of men and women reported having natural teeth at age 65-74 (74% and 71% respectively) by age 75 and over, women were significantly less likely than men to have some natural teeth (51% and 60% respectively).

Table 2.2

2.3.3 Dental health problems, 2012, by age and sex

In 2012, bleeding gums was the most widely reported dental health problem for adults aged 16 and above (28%). When asked whether it was a problem they experienced occasionally or often, most described it as an occasional problem (23%, compared with 5% who experienced it often).

Men and women were equally likely to report bleeding gums as a problem (29% and 28% respectively) and the frequency with which they experienced it was also similar (24% of men and 23% of women experienced it occasionally compared with the 5% who experienced it often).

In 2012, around one in seven (13%) adults (12% of men and 13% of women) reported experiencing toothache in the last month, while a similar proportion reported that they often or occasionally had difficulty in chewing (12% of all adults, 13% of men and 11% of women).

While men and women's experience of dental health problems was very similar, experience of gum-bleeding and toothache did vary noticeably by age. On the whole, gum bleeding and toothache incidence decreased with age, a pattern which can, in large part, be explained by the decline in the presence of natural teeth over the life course (as seen in Table 2.2).

For gum bleeding (occasional or often), the age-related pattern was similar for men and women, with prevalence decreasing from 29% of men and 26% of women aged 16-24 to 8% of those aged 75 and over.

For toothache, the pattern by age was slightly different for men and women. For men, toothache prevalence fluctuated between 10% and 17% among 16 to 44 year olds and dropped to between 6% and 8% for those aged 55 and over. For women, prevalence among those aged 16-24 was high, with a quarter (24%) experiencing toothache in the last month. Prevalence dropped to 15% among 25-34 year old women and then declined steadily to 6% of women aged 75 and over. **Table 2.3**

References and Notes

- ¹ *An Action Plan for Improving Oral Health and Modernising NHS Dental Services in Scotland*. Edinburgh: Scottish Executive, 2005. <www.scotland.gov.uk/Resource/Doc/37428/0012526.pdf>
- ² Rutherford, L. (2012). Chapter 2: Dental Health. In Rutherford, L., and Bromley, C. (eds.) *The 2011 Scottish Health Survey – Volume 1: Main Report*. Edinburgh, Scottish Government. www.scotland.gov.uk/Publications/2012/09/7854/0
- ³ Miller, M. (2009). Chapter 2: Dental Health. In Bromley, C., Bradshaw, P. and Given, L. (eds.) *The 2008 Scottish Health Survey – Volume 1: Main Report*. Edinburgh, Scottish Government. www.scotland.gov.uk/Publications/2009/09/28102003/0
- ⁴ The 2007 Better Health, Better Care action plan for improving health and health care in Scotland set out how NHS Scotland's HEAT performance management system (based around a series of targets against which the performance of its individual Boards are measured) would feed into the Government's overarching objectives. The HEAT targets derive their name from the four strands in the performance framework: the Health of the population; Efficiency and productivity, resources and workforce; Access to services and waiting times; and Treatment and quality of services.
- ⁵ *NHS Scotland HEAT Targets Due for Delivery in 2010/11 – Summary of Performance*. Edinburgh: NHS Scotland Performance and Business Management, 2012. www.scotland.gov.uk/About/scotPerforms/partnerstories/NHSScotlandperformance/HT201011
- ⁶ See: www.child-smile.org.uk/ for further details.
- ⁷ *National Oral Health Improvement Strategy for Priority Groups: Frail Older People, People with Special Care Needs and Those Who are Homeless*. Edinburgh: Scottish Government, 2012. <http://www.scotland.gov.uk/Publications/2012/05/7031>
- ⁸ *Caring for Smiles: Guide for Trainers - Better Oral Care for Dependent Older People*. Edinburgh: Scottish Government, 2010; and *Smile4life: Guide for Trainers - Better Oral Care for Homeless People*. Edinburgh, Scottish Government, 2011.

Table list

Table 2.1	Number of natural teeth and % with no natural teeth, 1995 to 2012, by age and sex
Table 2.2	Number of natural teeth and % with no natural teeth, 2012, by age and sex
Table 2.3	Dental health problems, 2012, by age and sex

Table 2.1 Number of natural teeth and % with no natural teeth, 1995 to 2012, by age and sex

<i>Aged 16 and over</i>	<i>1995 to 2012</i>							
False teeth / number of natural teeth	1995	1998	2003	2008	2009	2010	2011	2012
	%	%	%	%	%	%	%	%
Men								
All own teeth								
16 - 64	69	73	76	n/a	n/a	n/a	n/a	n/a
16+	n/a	n/a	67	n/a	n/a	n/a	n/a	n/a
All false teeth								
16 - 64	9	8	5	n/a	n/a	n/a	n/a	n/a
16+	n/a	n/a	12	n/a	n/a	n/a	n/a	n/a
No natural teeth								
16 - 64	n/a	n/a	n/a	4	4	4	3	4
16+	n/a	n/a	n/a	9	9	9	9	9
Fewer than 10								
16 - 64	n/a	n/a	n/a	4	3	3	3	3
16+	n/a	n/a	n/a	6	6	5	5	5
Between 10 and 19								
16 - 64	n/a	n/a	n/a	11	11	11	11	12
16+	n/a	n/a	n/a	13	12	13	13	13
20 or more								
16 - 64	n/a	n/a	n/a	82	82	82	83	82
16+	n/a	n/a	n/a	72	72	73	73	72
All with teeth								
16 - 64	n/a	n/a	n/a	96	96	96	97	96
16+	n/a	n/a	n/a	91	91	91	91	91

Continued...

Table 2.1 - Continued

<i>Aged 16 and over</i>		<i>1995 to 2012</i>						
False teeth / number of natural teeth	1995	1998	2003	2008	2009	2010	2011	2012
	%	%	%	%	%	%	%	%
Women								
All own teeth								
16 - 64	66	70	75	n/a	n/a	n/a	n/a	n/a
16+	n/a	n/a	62	n/a	n/a	n/a	n/a	n/a
All false teeth								
16 - 64	13	11	7	n/a	n/a	n/a	n/a	n/a
16+	n/a	n/a	18	n/a	n/a	n/a	n/a	n/a
No natural teeth								
16 - 64	n/a	n/a	n/a	5	5	5	4	4
16+	n/a	n/a	n/a	14	14	13	11	12
Fewer than 10								
16 - 64	n/a	n/a	n/a	3	3	3	3	4
16+	n/a	n/a	n/a	5	4	5	6	6
Between 10 and 19								
16 - 64	n/a	n/a	n/a	9	10	8	8	7
16+	n/a	n/a	n/a	11	12	11	11	10
20 or more								
16 - 64	n/a	n/a	n/a	83	82	84	85	85
16+	n/a	n/a	n/a	70	70	72	72	73
All with teeth								
16 - 64	n/a	n/a	n/a	95	95	95	96	96
16+	n/a	n/a	n/a	86	86	87	89	88

Continued...

Table 2.1 - Continued

<i>Aged 16 and over</i>		<i>1995 to 2012</i>						
False teeth / number of natural teeth	1995	1998	2003	2008	2009	2010	2011	2012
	%	%	%	%	%	%	%	%
All adults								
All own teeth								
16 - 64	68	72	75	n/a	n/a	n/a	n/a	n/a
16+	n/a	n/a	64	n/a	n/a	n/a	n/a	n/a
All false teeth								
16 - 64	11	9	6	n/a	n/a	n/a	n/a	n/a
16+	n/a	n/a	15	n/a	n/a	n/a	n/a	n/a
No natural teeth								
16 - 64	n/a	n/a	n/a	4	5	4	3	4
16+	n/a	n/a	n/a	12	12	11	10	10
Fewer than 10								
16 - 64	n/a	n/a	n/a	4	3	3	3	3
16+	n/a	n/a	n/a	5	5	5	5	6
Between 10 and 19								
16 - 64	n/a	n/a	n/a	11	10	10	10	9
16+	n/a	n/a	n/a	12	12	12	12	11
20 or more								
16 - 64	n/a	n/a	n/a	82	82	83	84	83
16+	n/a	n/a	n/a	71	71	72	73	73
All with teeth								
16 - 64	n/a	n/a	n/a	96	95	96	97	96
16+	n/a	n/a	n/a	88	88	89	90	90

Continued...

Table 2.1 - Continued

<i>Aged 16 and over</i>	<i>1995 to 2012</i>							
False teeth / number of natural teeth	1995	1998	2003	2008	2009	2010	2011	2012
<i>Bases (weighted):</i>								
<i>Men 16 - 64</i>	3902	3950	3169	2537	2940	2824	2944	1885
<i>Men 16+</i>	<i>n/a</i>	<i>n/a</i>	3833	3083	3585	3450	3598	2309
<i>Women 16 - 64</i>	3998	3989	3318	2632	3060	2938	3063	1950
<i>Women 16+</i>	<i>n/a</i>	<i>n/a</i>	4276	3362	3917	3762	3924	2500
<i>All adults 16 - 64</i>	7900	7939	6487	5169	6001	5762	6007	3836
<i>All 16+</i>	<i>n/a</i>	<i>n/a</i>	8109	6445	7502	7212	7522	4809
<i>Bases (unweighted):</i>								
<i>Men 16 - 64</i>	3524	3364	2756	2078	2398	2287	2416	1517
<i>Men 16+</i>	<i>n/a</i>	<i>n/a</i>	3589	2835	3276	3104	3270	2126
<i>Women 16 - 64</i>	4408	4212	3451	2687	3206	3073	3172	1970
<i>Women 16+</i>	<i>n/a</i>	<i>n/a</i>	4522	3608	4234	4114	4252	2684
<i>All adults 16 - 64</i>	7932	7576	6207	4765	5604	5360	5588	3487
<i>All 16+</i>	<i>n/a</i>	<i>n/a</i>	8111	6443	7510	7218	7522	4810

Table 2.2 Number of natural teeth and % with no natural teeth, 2012, by age and sex

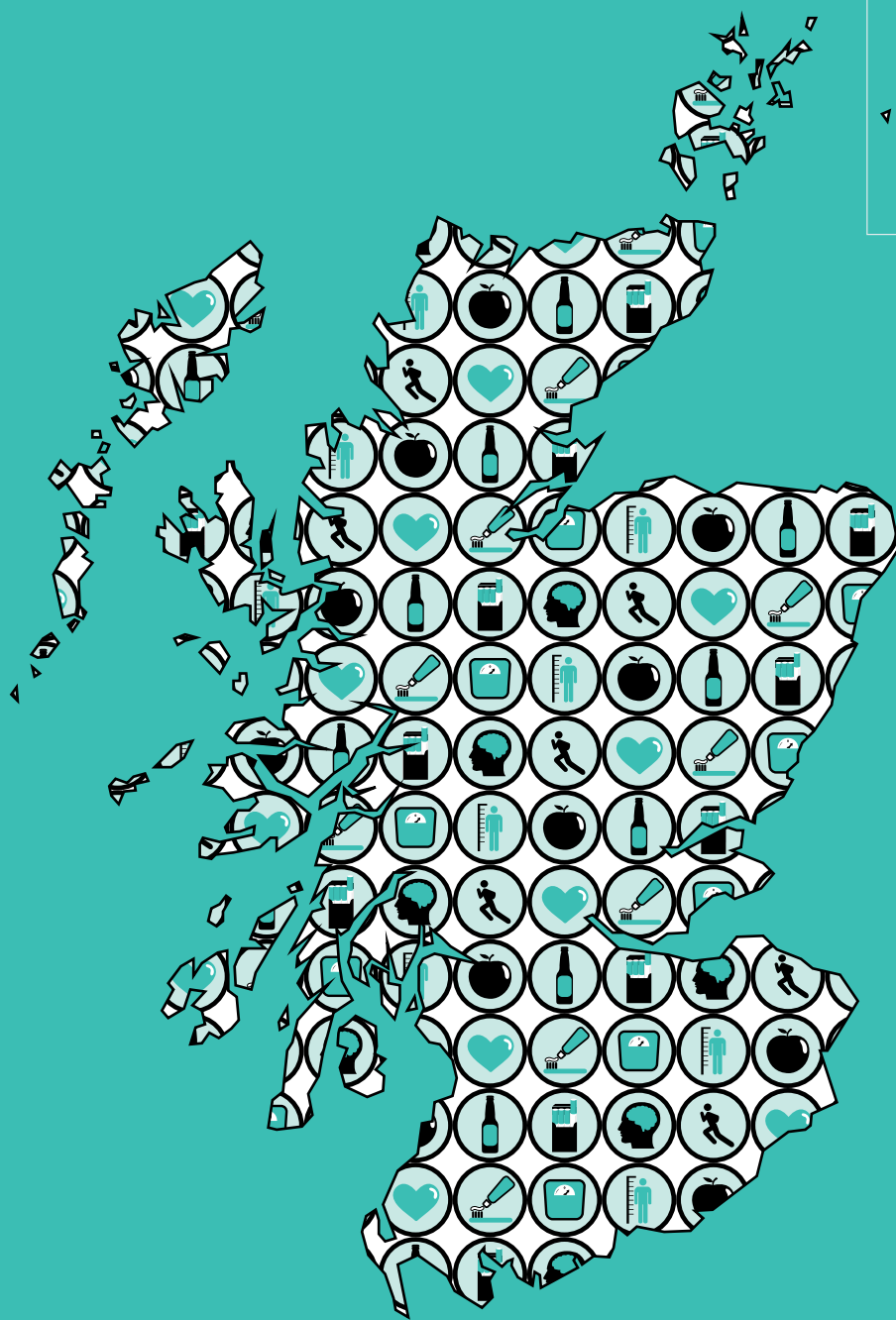
<i>Aged 16 and over</i>								<i>2012</i>
False teeth / number of natural teeth	Age							Total
	16-24	25-34	35-44	45-54	55-64	65-74	75+	
	%	%	%	%	%	%	%	%
Men								
No natural teeth	1	0	1	3	13	26	40	9
Fewer than 10	-	1	4	5	6	16	15	5
Between 10 and 19	0	4	10	19	22	22	22	13
20 or more	99	95	86	72	58	36	23	72
<i>All with teeth</i>	99	100	99	97	87	74	60	91
Women								
No natural teeth	1	0	1	3	15	29	49	12
Fewer than 10	-	0	2	6	10	12	16	6
Between 10 and 19	2	2	6	10	16	21	13	10
20 or more	98	97	91	82	60	38	22	73
<i>All with teeth</i>	99	100	99	97	85	71	51	88
All adults								
No natural teeth	1	0	1	3	14	27	46	10
Fewer than 10	-	0	3	5	8	14	15	6
Between 10 and 19	1	3	8	14	19	22	17	11
20 or more	98	96	88	77	59	37	22	73
<i>All with teeth</i>	99	100	99	97	86	73	54	90
<i>Bases (weighted):</i>								
<i>Men</i>	339	383	380	420	362	251	173	2309
<i>Women</i>	324	376	414	454	382	287	263	2500
<i>All adults</i>	663	760	795	874	744	539	435	4809
<i>Bases (unweighted):</i>								
<i>Men</i>	170	228	346	409	364	385	224	2126
<i>Women</i>	227	329	474	498	442	388	326	2684
<i>All adults</i>	397	557	820	907	806	773	550	4810

Table 2.3 Dental health problems, 2012, by age and sex

<i>Aged 16 and over</i>								2012
Self-assessed dental health	Age							Total
	16-24	25-34	35-44	45-54	55-64	65-74	75+	
	%	%	%	%	%	%	%	%
Men								
Toothache								
Yes	15	17	10	16	8	7	6	12
No	84	82	89	80	78	67	54	79
No natural teeth	1	0	1	3	13	26	40	9
Gum Bleeding								
Yes, often	5	8	6	7	2	1	2	5
Yes, occasionally	24	27	31	27	23	15	6	24
No	71	64	62	63	62	58	52	63
No natural teeth	1	0	1	3	13	26	40	9
Difficulty chewing								
Yes, often	2	2	3	5	2	3	4	3
Yes, occasionally	6	12	14	12	7	10	7	10
No	91	86	83	80	78	62	49	78
No natural teeth	1	0	1	3	13	26	40	9
Women								
Toothache								
Yes	24	15	13	13	9	7	6	13
No	76	85	86	84	76	64	45	76
No natural teeth	1	0	1	3	15	29	49	12
Gum Bleeding								
Yes, often	5	8	7	7	4	1	1	5
Yes, occasionally	21	32	29	27	21	16	7	23
No	74	60	62	62	60	54	43	60
No natural teeth	1	0	1	3	15	29	49	12
Difficulty chewing								
Yes, often	2	4	3	5	4	3	2	3
Yes, occasionally	8	9	8	8	8	9	8	8
No	90	87	88	84	73	59	41	77
No natural teeth	1	0	1	3	15	29	49	12

Table 2.3 - Continued

<i>Aged 16 and over</i>								<i>2012</i>
Self-assessed dental health	Age							Total
	16-24	25-34	35-44	45-54	55-64	65-74	75+	
	%	%	%	%	%	%	%	%
All adults								
Toothache								
Yes	19	16	12	15	9	7	6	13
No	80	83	87	82	77	66	49	77
No natural teeth	1	0	1	3	14	27	46	10
Gum Bleeding								
Yes, often	5	8	7	7	3	1	1	5
Yes, occasionally	22	29	30	27	22	15	6	23
No	72	62	62	62	61	56	47	61
No natural teeth	1	0	1	3	14	27	46	10
Difficulty chewing								
Yes, often	2	3	3	5	3	3	3	3
Yes, occasionally	7	11	11	10	7	9	8	9
No	90	86	86	82	75	61	44	78
No natural teeth	1	0	1	3	14	27	46	10
<i>Bases (weighted):</i>								
<i>Men</i>	339	383	380	420	362	251	173	2309
<i>Women</i>	324	376	414	454	382	287	263	2500
<i>All adults</i>	663	760	795	874	744	539	435	4809
<i>Bases (unweighted):</i>								
<i>Men</i>	170	228	346	409	364	385	224	2126
<i>Women</i>	227	329	474	498	442	388	326	2684
<i>All adults</i>	397	557	820	907	806	773	550	4810



Chapter 3

Alcohol consumption

3 ALCOHOL CONSUMPTION

Stephen Hinchliffe

SUMMARY

- In 2012, adults in Scotland drank an average of 11.3 units of alcohol per week (15.2 units for men and 7.6 units for women).
- Average unit consumption for adults fell from 14.1 to 11.3 units between 2003 and 2012 although levels did not change significantly in the most recent year (11.1 units in 2011 and 11.3 in 2012).
- In 2012, men drank an average of 4.6 units less per week than in 2003 (19.8 units in 2003 and 15.2 units in 2012). Average unit consumption for women declined from 9.0 units per week in 2003 to 7.6 units in 2012.
- A quarter of men and 18% of women drank at hazardous or harmful levels (more than 21 units per week for men and more than 14 units for women) in 2012.
- The proportion of adults drinking at hazardous or harmful levels has declined since 2003 (from 33% of men and 23% of women to 25% of men and 18% of women in 2012) but again there has been no change in the most recent year (2011 figures were identical to 2012).
- In 2012, men drank an average of 5.6 units of alcohol on their heaviest drinking day in the last week and women drank an average of 2.8 units.
- On their heaviest drinking day, 42% of men and 30% of women exceeded the recommended daily amount (4 units for men and 3 units for women). A quarter of men and 15% of women drank twice the recommended daily amount.
- Average unit consumption on the heaviest drinking day declined between 2003 and 2012 from 6.5 to 5.6 units for men and from 3.6 to 2.8 units for women. There has also been a decline in the proportion of men and women exceeding the recommended daily amount on their heaviest drinking day (from 45% in 2003 to 42% in 2012 for men and from 37% to 30% for women). The proportion exceeding twice the recommended daily amount has also declined slightly for men (from 29% to 25%) and women (from 19% to 15%).
- In 2003, 53% of men and 42% of women drank outwith the weekly and/or daily consumption guidelines. By 2012, 47% of men and 35% of women exceeded the recommended levels.
- In 2012, men drank on an average of 2.8 days in the previous week and women drank on an average of 2.5 days, a reduction since 2003, when men drank on an average of 3.3 days and women on 2.7 days.
- Since 2003 there has been a decline in the proportion of adults drinking on more than 5 days in the previous week from 17% to 12% in 2012. The drop has been steeper for men (from 20% to 13%) than women (13% to 10%).
- In 2012, based on AUDIT scores, one in five (19%) adults exhibited signs of an alcohol use disorder (25% of men and 13% of women).
- Alcohol use disorder (AUD) prevalence varied significantly by NS-SEC for men but not for women. Men in self-employed households were most likely to be identified as having an alcohol use disorder (35% compared with 14% to 26% of men in other NS-SEC groups).

- Men in the lowest income households were more likely to display more serious alcohol-related behaviour (harmful drinking or possible alcohol dependence) based on AUDIT scores (11% compared with only 2% of men in the highest income quintile).
- AUD prevalence did not vary significantly across SIMD quintiles although men in the most deprived quintile were significantly more likely than those in the least deprived quintile to exhibit signs of an AUD (32% compared with 21%).
- Multivariate analysis was conducted to identify factors independently associated with alcohol use disorder (AUD), identified as an AUDIT score of 8 or more. Among both men and women, those who were younger and those who were cohabiting had higher odds of an AUD. In addition, among men, those living in intermediate households had lower odds of displaying an AUD. Among women, the odds were higher for those who were single and separated or divorced; lower for those in the second income quintile; and lower for those who were mothers living with a child under the age of 16.

3.1 INTRODUCTION

Misuse of alcohol contributes to a wide range of health problems, including high blood pressure, chronic liver disease and cirrhosis, pancreatitis, some cancers, mental ill-health, and accidents, as well as social problems such as antisocial behaviour and violent crime. A report published in 2009 attributed 5% of deaths in Scotland to alcohol.¹ The World Health Organization cites alcohol as being the second largest risk factor for ill-health in wealthy countries, behind only tobacco use, and ahead of obesity and high blood pressure.² Alcohol-related morbidity and mortality are not evenly distributed throughout the population and the burden is greatest among those living in the most deprived areas.^{3,4}

Taking into account not only the costs to the health care system but also expenditure on social care, the costs of crime, losses in productivity, and wider societal costs, the annual costs of excessive alcohol consumption in Scotland are estimated to be £3.6 billion.⁵ For example, more than 100,000 GP and practice nurse visits, and around 39,000 hospital discharges, each year, are for alcohol-related problems.^{6,7} An estimated 1.5 million working days are lost to reduced efficiency in the workplace due to the effects of alcohol, and a similar number are lost due to alcohol-related absence.⁵ It is estimated that between 36,000 and 51,000 children in Scotland live with a parent or guardian with an alcohol problem.⁸ Half the respondents to a survey of Scottish prisoners reported being drunk at the time of their offence.⁹

Each year, accompanying the most up-to-date data on alcohol consumption, the Scottish Health Survey (SHeS) annual report also provides a brief account of the key recent legislative and policy developments in relation to alcohol consumption. These include:

- The Licensing (Scotland) Act 2005, which came into full force in September 2009.
- The 2009 publication and subsequent implementation of *Changing Scotland's Relationship with Alcohol: A Framework for Action*.¹⁰

- The notable new powers contained within the Alcohol etc. (Scotland) Act 2010 passed by the Scottish Parliament in November 2010 and which came into force in October 2011.¹¹ The Act included new powers to: ban quantity discounts (such as '3 for 2' deals) in off-sales (complementing the restrictions on irresponsible promotions in the Licensing Act for on-sales) limit price promotions and restrict the display of alcohol promotions in off-sales establishments, and introduce a mandatory 'Challenge 25' age verification scheme for all licensed premises.¹²

The February 2012 progress report on the Framework for Action¹³ provides a comprehensive overview of all the policies being pursued, and associated funds being invested, to support the 41 actions set out in the Framework. It highlights, for example, the £155 million that had been committed to tackle alcohol misuse between 2008-9 and 2011-2; the establishment of 30 Alcohol and Drug Partnerships that bring together representatives from local authorities, health boards, voluntary agencies and the police to develop strategies and commission services at the local level; the launch of new health behaviour change campaigns (including one targeted specifically at women); and the provision of refreshed advice for parents and carers to support them to talk to young people about alcohol consumption. These examples illustrate the wide range of actions being taken, and the extent of joint-working required to make progress on the Framework's actions.

In addition to the kinds of steps outlined above, significant new legislation is to be implemented. The Alcohol (Minimum Pricing) (Scotland) Bill was introduced to parliament in October 2011, and was passed into law in June 2012.¹⁴ The implementation date is currently uncertain due to an ongoing legal challenge led by the Scotch Whisky Association. The Act allows for a price to be set for a unit of alcohol, below which it cannot be sold. Following two amendments to the Bill, the Act contains a 'sunset clause' imposing a six year time limit on the policy, unless the Scottish Parliament make further provisions to continue its operation, and a requirement to evaluate the effect of the legislation after five years (the review clause).¹⁵ Informed by modelling carried out by the University of Sheffield¹⁶ - which draws on SHeS alcohol consumption data - Scottish Ministers have indicated their preference for a minimum unit price of 50p for at least the first two years. It estimated that ten years after implementation of the policy, when it is considered to have reached full effectiveness, there would be at least 300 fewer alcohol-related deaths each year, and 6,500 fewer hospital admissions. The Act's provisions around evaluation, and the fact that SHeS data were used in the modelling that informed the preferred unit pricing level, mean that the alcohol consumption estimates provided by the survey will continue to perform an important monitoring role should the policy be implemented.

The estimates of alcohol consumption discussed in this chapter are based on self-reported data collected in the survey. It is, however, important to note that surveys often obtain lower consumption estimates than those implied by alcohol sales data. The disjuncture can largely be explained by participants' under-reporting of consumption, but there is also some evidence that survey non-responders are more likely than responders to engage in risky health behaviours, including hazardous alcohol use.^{17,18,19} The most recently available

annual estimates of alcohol sales in Scotland show that 10.9 litres (21.0 units per adult per week) of pure alcohol per person aged 16 and over were sold in 2012 (the equivalent figure for England and Wales was 9.2 litres (17.6 units per adult per week)).²⁰ This volume is sufficient for every adult aged 16 and over in Scotland to drink at the weekly maximum consumption level recommended for men - 21 units. Although self-reported survey estimates are typically lower than estimates based on sales data, surveys can provide valuable information about the social patterning of individuals' alcohol consumption which sales data cannot. The evaluation of the implementation of minimum pricing will use evidence from the SHeS to help assess the impact on consumption patterns across different groups in society.

Overall responsibility for the evaluation of Scotland's alcohol strategy lies with NHS Health Scotland, through the Monitoring and Evaluating Scotland's Alcohol Strategy (MESAS) work programme. The second annual MESAS report, published in December 2012, concluded that, although alcohol consumption and incidences of alcohol-related harm fell slightly between 2009 and 2011, Scotland still has higher levels of alcohol-related harm than the rest of the UK and Western and Central Europe. The report also noted that the fall in alcohol-related harm actually began before 2009, and that it was too early to draw conclusions as to the reasons for any improvements.⁴ A more recent MESAS report considers weekly sales data for the 12 months since the Alcohol etc. (Scotland) Act came into force.²¹ These figures show a fall of 2.6% in off-trade alcohol sales, largely driven by a 4% fall in wine sales. No such fall was seen in the corresponding figures for England and Wales, which led the authors of the report to conclude that the data support the hypothesis that the Act would lead to a fall in consumption.

This chapter updates the key trends for weekly and daily alcohol consumption presented in previous SHeS reports.²² It also provides, for the first time, discussion of the associations between excessive alcohol use or dependence, as measured by the Alcohol Use Disorders Identification Test (AUDIT) and key socio-demographic characteristics, such as age, sex, household income and the Scottish Index of Multiple Deprivation (SIMD).

3.2 METHODS AND DEFINITIONS

3.2.1 Definitions used in this chapter

The recommended sensible drinking guideline in the UK is that women should not regularly drink more than 2 to 3 units of alcohol per day and men should not regularly exceed 3 to 4 units per day. In addition, the Scottish Government recommends that everyone should aim to have at least two alcohol-free days per week.

It is also recommended that, over the course of a week women and men should not exceed 14 units and 21 units respectively. Men who consume over 21 and up to 50 units per week and women who consume over 14 and up to 35 units are usually classed as 'hazardous' drinkers, while those who consume more than 50/35 units a week are

considered to be drinking at 'harmful' levels.²³ The term 'harmful drinking' is used to describe drinking at a level which is already causing physical, social or psychological harm. People whose drinking is not currently causing clear evidence of harm, but which may cause harm in the future are described as 'hazardous' drinkers.²⁴

Hazardous drinking can also be defined according to scores on the AUDIT questionnaire. Guidance on the tool, which is primarily intended to screen respondents for levels of alcohol dependency or high-risk use, has been published by the World Health Organization. Section 3.2.3 includes a fuller description of the tool.²⁵

There is no standard definition of 'binge' drinking in the UK. To enable comparisons between other major surveys of alcohol consumption in Britain, SHeS uses the definition used by the Health Survey for England and the General Lifestyle Survey. Both these surveys define binge drinking as consuming more than 6 units on one occasion for women and more than 8 units for men.

An additional measure of people's adherence to the daily and weekly drinking advice set out above is also reported in this chapter. The two key groups of interest are:

- People who adhere to the guidelines, that is:
 - women who drink no more than 14 units per week, and no more than 3 units on their heaviest drinking day
 - men who drink no more than 21 units per week, and no more than 4 units on their heaviest drinking day.
- People who do not adhere to the guidelines, that is:
 - women who drink more than 14 units per week, and/or more than 3 units on their heaviest drinking day
 - men who drink more than 21 units per week, and/or more than 4 units on their heaviest drinking day.

3.2.2 Data collection in the 2008-2012 surveys

The way in which alcohol consumption is estimated in SHeS was changed significantly in 2008. The revisions made then are detailed extensively in the alcohol consumption chapter of the 2008 report²⁶ so are not repeated here. The following outlines the methods now used to collect and analyse the alcohol consumption data on the survey.

Three aspects of alcohol consumption are measured: usual weekly consumption, daily consumption on the heaviest drinking day in the previous week, and indicators of potential problem drinking (including physical dependence).

To estimate weekly consumption, participants (aged 16 and over) were asked preliminary questions on whether they drank alcohol at all. For those who reported that they drank, these were followed by questions

on how often during the past 12 months they had drunk each of six different types of alcoholic drink:

- normal beer, lager, cider and shandy
- strong beer, lager and cider
- sherry and martini
- spirits and liqueurs
- wine
- alcoholic soft drinks (alcopops).

From these questions, the average number of days a week the participant had drunk each type of drink was estimated. A follow-up question asked how much of each drink type they had usually drunk on each occasion. These data were converted into units of alcohol and multiplied by the amount they said they usually drank on any one day (see below for discussion of this process).²⁷

As the questions ask about usual behaviour, responses are unlikely to reflect occasions of heavier drinking. Nevertheless, survey estimates provide useful comparisons of the consumption of different population groups and enable change over time to be monitored.

Daily consumption was measured by asking participants about drinking in the week preceding the interview with actual consumption on the heaviest drinking day in that week examined. Participants were asked whether they had drunk alcohol in the past seven days. If they had, they were asked on how many days and, if on more than one, whether they had drunk the same amount on each day or more on one day than others. If they had drunk more on one day than others, they were asked how much they drank on that day. If they had drunk the same on several days, they were asked how much they drank on the most recent of those days. If they had drunk on only one day, they were asked how much they had drunk on that day. In each case, participants were asked for details on the amounts consumed for each of the six types of drink listed above, rather than asking participants to give a direct estimate of units consumed. This part of the process was therefore similar to the one used to estimate weekly drinking.

Prior to 2012, the CAGE questionnaire was included in the survey to screen for potential alcohol problems. In 2012, it was replaced by the AUDIT questionnaire, which is widely considered to be the best screening tool for detecting problematic alcohol use. AUDIT comprises ten indicators of problem drinking, including three indicators of consumption, four of use of alcohol considered harmful to oneself or others, and three of physical dependency on alcohol. These questions were administered in self-completion format due to their (potentially) sensitive nature (see Section 3.2.4 for further discussion of the AUDIT tool).

3.2.3 Unit calculations and conversion factors

In the UK, a standard unit of alcohol is 10 millilitres or around 8 grams of ethanol. As described earlier, the majority of advice given in relation to safe alcohol consumption refers to units. The need for accurate estimates of units consumed is therefore paramount. There are, however, numerous difficulties associated with calculating units at population level, not least of which are the variability of alcohol strengths and the fact that these have changed over time.

As described above, information on both the volume of alcohol drunk in a typical week and on the heaviest drinking day in the week preceding the survey was collected from participants. The volumes reported were not validated but in response to growing concerns about the reliability of consumption estimates from studies such as this, and the increasing consumption of wine – especially amongst women – extra efforts have been made to measure wine glass sizes since 2008. This was done in two ways. Firstly, participants who reported drinking any wine were asked what size of glass they had been drinking from. Secondly, showcards depicting glasses with 125ml, 175ml and 250ml of liquid were used to help people make more accurate judgements.

The following table outlines how the volumes of alcohol reported on the survey were converted into units (the 2008 report provides full information about how this process has changed over time).²⁶

Alcohol unit conversion factors

Type of drink	Volume reported	Unit conversion factor
Normal strength beer, lager, stout, cider, shandy (less than 6% ABV)	Half pint	1.0
	Can or bottle	Amount in pints multiplied by 2.5
	Small can (size unknown)	1.5
	Large can/bottle (size unknown)	2.0
Strong beer, lager, stout, cider, shandy (6% ABV or more)	Half pint	2.0
	Can or bottle	Amount in pints multiplied by 4
	Small can (size unknown)	2.0
	Large can/bottle (size unknown)	3.0
Wine	250ml glass	3.0
	175ml glass	2.0
	125ml glass	1.5
	750ml bottle	1.5 x 6
Sherry, vermouth and other fortified wines	Glass	1.0
Spirits	Glass (single measure)	1.0
Alcopops	Small can or bottle	1.5
	Large (700ml) bottle	3.5

3.2.4 Alcohol Use Disorders Identification Test (AUDIT) scale

As outlined in Section 3.2.1, the AUDIT questionnaire was primarily designed to screen for levels of alcohol dependency or high-risk use. In line with the World Health Organisation guidelines on using the tool, responses to each of the ten AUDIT questions were assigned values of between 0 and 4. Scores for the ten questions were summed to form a scale (from 0 to 40) of alcohol use. The questions, and possible responses for the tool are summarised in the following table.

AUDIT questionnaire

Questions	0	1	2	3	4
1. How often do you have a drink containing alcohol?	Never	Monthly or less	2-4 times a month	2-3 times a week	4 or more times a week
2. How many drinks containing alcohol do you have on a typical day when you are drinking?	1 or 2	3 or 4	5 or 6	7 to 9	10 or more
3. How often do you have six or more drinks on one occasion?	Never	Less than monthly	Monthly	Weekly	Daily or almost daily
4. How often during the last year have you found that you were not able to stop drinking once you had started?	Never	Less than monthly	Monthly	Weekly	Daily or almost daily
5. How often during the last year have you failed to do what was normally expected of you because of drinking?	Never	Less than monthly	Monthly	Weekly	Daily or almost daily
6. How often during the last year have you needed a first drink in the morning to get yourself going after a heavy drinking session?	Never	Less than monthly	Monthly	Weekly	Daily or almost daily
7. How often during the last year have you had a feeling of guilt or remorse after drinking?	Never	Less than monthly	Monthly	Weekly	Daily or almost daily
8. How often during the last year have you been unable to remember what happened the night before because of your drinking?	Never	Less than monthly	Monthly	Weekly	Daily or almost daily
9. Have you or someone else been injured because of your drinking?	No		Yes, but not in the last year		Yes, during the last year
10. Has a relative, friend, doctor, or other health care worker been concerned about your drinking last year?	No		Yes, but not in the last year		Yes, during the last year

World Health Organization guidelines,²⁵ on interpreting scores on the scale is as follows:

- 0 to 7 – low-risk drinking behaviour, or abstinence
- 8 to 15 - medium level of alcohol problems, with increased risk of developing alcohol-related health or social problems
- 16 to 19 - high level of alcohol problems, for which counselling is recommended
- 20 or above - warrants further investigation for possible alcohol dependence.

The following conventions are used when referring to AUDIT scores:

- 8 or above: indicator of an alcohol use disorder (AUD)
- scores of 8 to 15: hazardous drinking behaviour, although this group tends not to be considered in isolation.
- scores of 16 to 19: harmful drinking behaviour, and again this group tends not to be discussed in isolation.

3.3 WEEKLY ALCOHOL CONSUMPTION LEVELS

3.3.1 Trends in weekly alcohol consumption since 2003

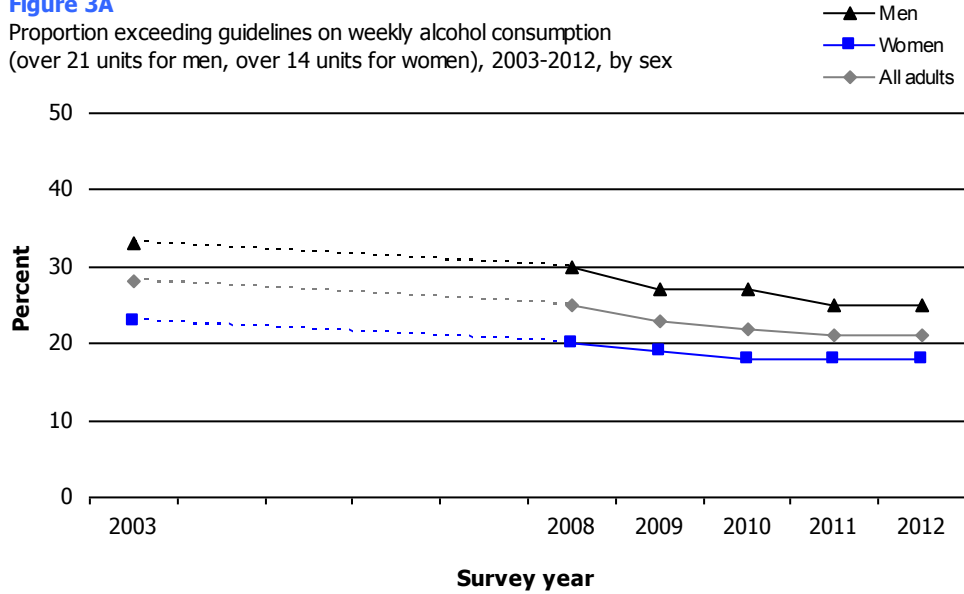
Alcohol consumption at the population level can be measured in a number of different ways, several of which are recorded in Table 3.1. On all of these measures, 2012 consumption figures, for both men and women, were very close to 2011 levels.

In 2012, 12% of men (aged 16 and above) said that they did not drink alcohol. This represents a significant increase from 2003, when 8% were non-drinkers, and from 2008 and 2009, when 10% did not drink. Around one in six (17%) women (aged 16 and above) in 2012 reported that they did not drink alcohol. This is an increase on the 13% who described themselves as a non-drinker in 2003 and 2008 but is similar to the 2010 and 2011 figures.

As discussed in Section 3.2, moderate weekly consumption is defined as no more than 21 units for men, and no more than 14 units for women. Those who exceed the moderate consumption guidelines are commonly referred to as hazardous or harmful drinkers. Prevalence of hazardous or harmful drinking declined between 2003 and 2012 (Figure 3A). In 2003, a third of men were classified as drinking at hazardous or harmful levels. This fell to a quarter in 2011, where it remained in 2012. Twenty-three percent of women were drinking at hazardous or harmful levels in 2003; by 2011 this had fallen to 18% and remained at this level in 2012.

Figure 3A

Proportion exceeding guidelines on weekly alcohol consumption (over 21 units for men, over 14 units for women), 2003-2012, by sex



There has also been a decline in the average number of units consumed per person since 2003 (from 14.1 to 11.3 units in 2012). In 2003, men consumed an average of 19.8 units per week, only just below the recommended weekly limit for men. By 2012, mean unit consumption for men had fallen to 15.2 units. The average number of units consumed by women in 2003 was 9.0. By 2012, this had fallen to 7.6 units, although the figure has changed little since 2009.

Figure 3A, Table 3.1

3.3.2 Weekly alcohol consumption, 2012, by age and sex

In 2012, women were significantly more likely than men to report not drinking any alcohol (17% compared with 12%). The proportion of men and women describing themselves as a non-drinker varied significantly by age. Among men, over a quarter (28%) of those aged 75 and above described themselves as a non-drinker, compared with 10 to 14% of 25 to 74 year olds, and just 5% of those aged between 16 and 24. Four in ten (41%) women aged 75 or over were non-drinkers as were 22% of those aged 65-74. For women under the age of 65, non-drinking prevalence ranged between 10% and 16%.

Hazardous or harmful drinking was more common among men than women in 2012 (25% and 18% respectively). With the exception of the oldest age group (those aged 75 and over), the proportion of men drinking to hazardous or harmful levels varied very little by age (ranging between 24% and 28% compared with 11% for those aged 75 and over). For women, the pattern was more obvious with the proportions demonstrating hazardous or harmful behaviour decreasing with increasing age. More than a quarter (28%) of those aged 16 -24 drank above the recommended weekly limits, compared with 18% to 21% of those aged 25 to 64, 13% of those aged 65-74, and just 5% of those aged 75 and above.

The pattern for mean unit consumption per week was similar to that for drinking above the recommended weekly limits. On average, men consumed more units per week than women (15.2 compared with 7.6). For men, those aged 75 and above drank, on average, half the amount of alcohol per week consumed by those in the other age groups (7.6 units, compared with between 14.7 and 16.5). For women, those aged 75 and above consumed an average of only 2.4 units per week. This is around a fifth of the average amount consumed by women aged 16 to 24 (11.8 units per week), and a third of the average amount consumed by women in the other age groups (6.0 to 8.6 units per week). **Table 3.2**

3.4 ESTIMATED DAILY CONSUMPTION

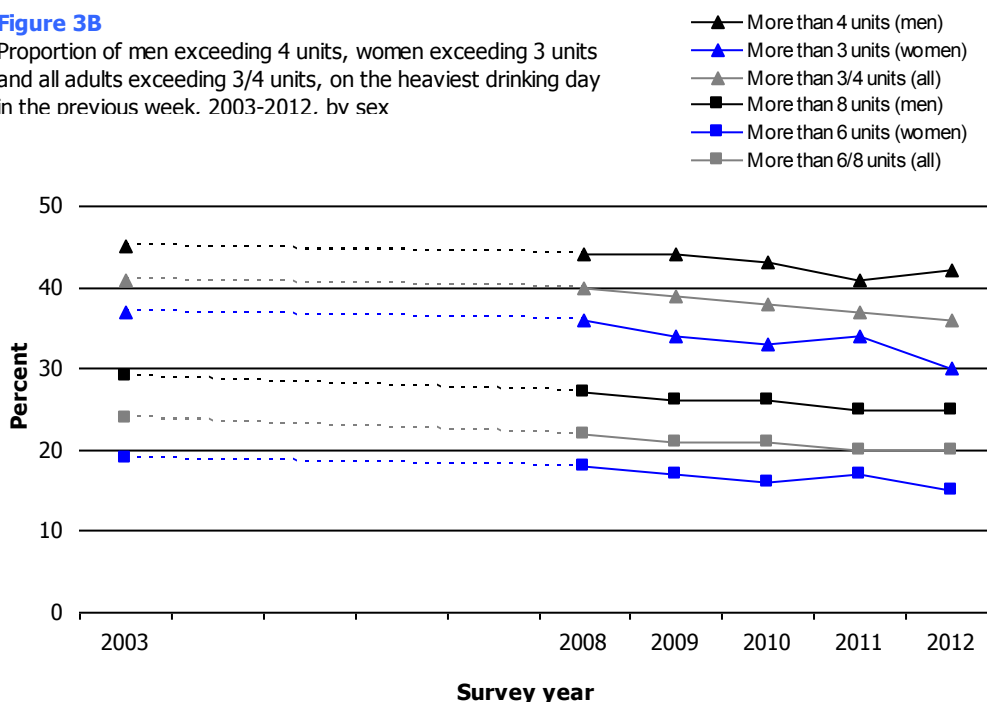
3.4.1 Trends in alcohol consumption on the heaviest drinking day since 2003

Data were collected on the amount of alcohol consumed on the heaviest drinking day in the week prior to interview. This allows estimates to be produced for the proportion of the population exceeding recommended daily limits during the last week, and the proportion of the population binge drinking during the last week to be produced. These data are presented in Table 3.1 for 2003 onwards.

Trends in alcohol consumption on the heaviest drinking day are shown in Figure 3B from 2003 to 2012. In 2003, 45% of the adult male population exceeded the recommended limit of four units in any one day. This decreased significantly to 42% in 2012. A quarter of men consumed more than twice this limit (classified as binge drinking) in 2012, also down from 29% in 2003. Thirty percent of women drank more than three units on their heaviest drinking day in the past week in 2012, down from 37% in 2003. Binge drinking prevalence among women (more than six units a day) was approximately half of this level (15%) and has followed a similar trend over time.

Figure 3B

Proportion of men exceeding 4 units, women exceeding 3 units and all adults exceeding 3/4 units, on the heaviest drinking day in the previous week. 2003-2012. by sex



Trends in mean unit consumption on the heaviest drinking day followed similar patterns to the other measures of consumption discussed earlier. In 2003, men consumed an average of 6.5 units on their heaviest drinking day in the previous week. By 2012 this had fallen to 5.6 units still in excess of the recommended limit of four units. In this same period, average daily consumption for women fell from a mean of 3.6 units to 2.8 units – just under the three unit limit.

Figure 3B, Table 3.1

3.4.2 Alcohol consumption on the heaviest drinking day, 2012, by age and sex

In 2012, women were less likely than men to exceed their recommended daily limits. While three in ten women drank more than 3 units on their heaviest drinking day in the previous week, just over four in ten (42%) men drank over four units.

Consumption on the heaviest drinking day was lowest among older people. As shown in Figures 3C and 3D, only 11% of men aged 75 and over consumed more than four units on the heaviest drinking day in the past week, and only 4% consumed more than eight (binge drinking). In contrast, between 44% and 49% of men aged 16 to 54 drank more than four units on the heaviest drinking day and between 25% and 33% of this age group drank more than eight. For women, the proportion consuming more than three units peaked at 39% of those aged 35 to 44, and fell to just 7% of those aged 75 and above. The proportion classified as binge drinking (consuming more than six units in any one day), was greatest for those aged 16-24 (26%).

Figure 3C

Proportion of men who drank more than 4 units, & more than 8 units, on heaviest drinking day (HDD) in the past week, 2012

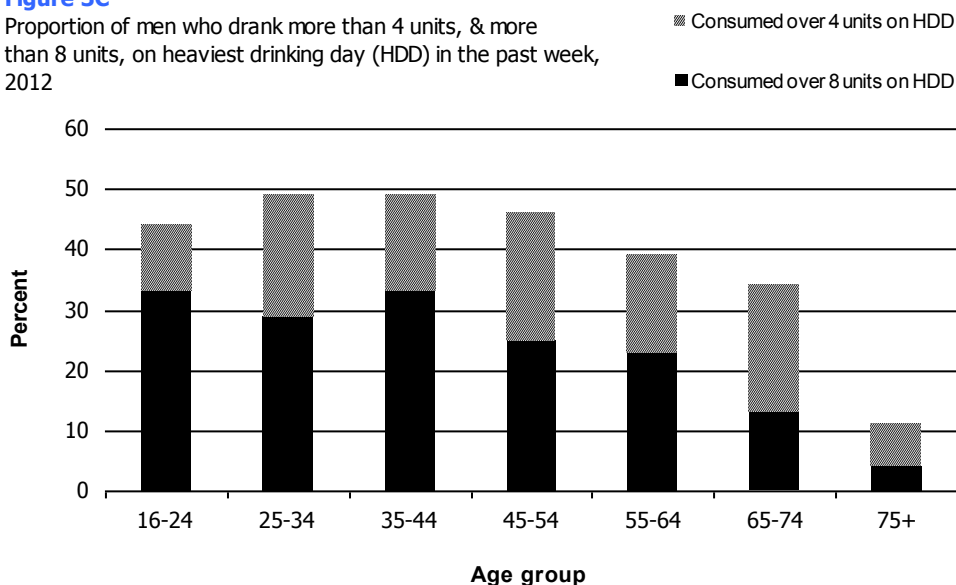
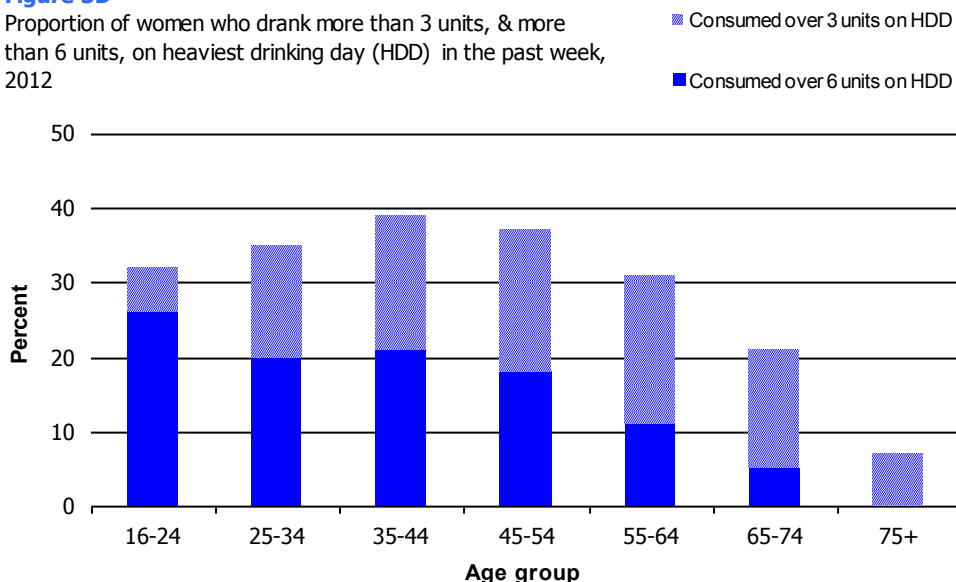


Figure 3D

Proportion of women who drank more than 3 units, & more than 6 units, on heaviest drinking day (HDD) in the past week, 2012



On average, men drank twice the number of units of alcohol as women on their heaviest drinking day in the previous week (5.6 and 2.8 units respectively).

Mean unit consumption also varied by age. Men aged 16 to 44 drank between 6.8 and 7.0 units on their heaviest drinking day, equivalent to a little over three pints of beer or lager (4% ABV) or three-quarters of a bottle of wine (12.5% ABV). From age 45 onwards, there was a steady decrease in consumption, to a mean of 1.7 units for those aged 75 and above. There was a similar age-related pattern for women, with those aged 16 to 54 consuming an average of 3.3 to 3.8 units, falling to 0.7 units for those aged 75 and above.

Figure 3C, Figure 3D, Table 3.2

3.5 ADHERENCE TO WEEKLY AND DAILY DRINKING ADVICE

3.5.1 Trends in adherence to weekly and daily drinking advice since 2003

Given that there has been a trend of increased adherence to guidance on weekly alcohol consumption (see Section 3.3), and a trend of increased adherence to guidance on daily alcohol consumption (see Section 3.4) it is not surprising to find a decline in the proportion of adults exceeding the recommended levels of alcohol consumption. In 2003, 53% of men and 42% of women exceeded either the daily and/or weekly recommended maximum amounts. By 2012 the equivalent figures were 47% and 35% respectively.

The decline in people drinking outwith the recommended guidelines was not coupled with a significant increase in adherence to the guidelines (42% in 2003 and 44% in 2012). Instead, the proportion of adults classing themselves as ex-drinkers increased. In 2003, 4% of men said they no longer drank. This increased to 6% in 2008, and was at 7% by 2012. The percentage of women who stopped drinking alcohol also increased steadily from 5% in 2003 to 9% in 2012. **Table 3.1**

3.5.2 Adherence to weekly and daily drinking advice, 2012, by age and sex

In line with findings from previous years, in 2012, men were more likely than women to drink outwith the recommended guidelines on weekly and daily drinking (47% compared with 35%). Adherence levels varied by age for both genders. The percentage of men drinking outwith the guidelines increased with age, peaking at 35-44 (55%), then steadily declined to 42% for 65-74 year olds before dropping sharply to 15% of those aged 75 or above. Among women, those aged 16 to 54 were most likely to drink outwith the recommended daily and weekly levels (between 40% and 43%), while those aged 75 or over were least likely to do so (10%). **Table 3.2**

3.6 NUMBER OF DAYS ALCOHOL WAS CONSUMED IN PAST WEEK

3.6.1 Trends in number of days alcohol was consumed in past week since 2003

The average number of days per week on which adults consumed alcohol decreased from 3.0 to 2.7 days between 2003 and 2012. In 2003, male drinkers drank on an average of 3.3 days. By 2012, this had fallen to 2.8 days. In 2003, one in five male drinkers drank on at least six out of seven days. This had fallen to 13% in 2012. Female drinkers drank on an average of 2.7 days in 2003, falling to 2.5 days in 2008 and remaining at that level for all subsequent years. Thirteen percent of female drinkers drank on at least six days per week in 2003. Since 2008 the equivalent figure has been between 9% and 10% (10% in 2012).

Table 3.1

3.6.2 Number of days alcohol was consumed in past week, 2012, by age and sex

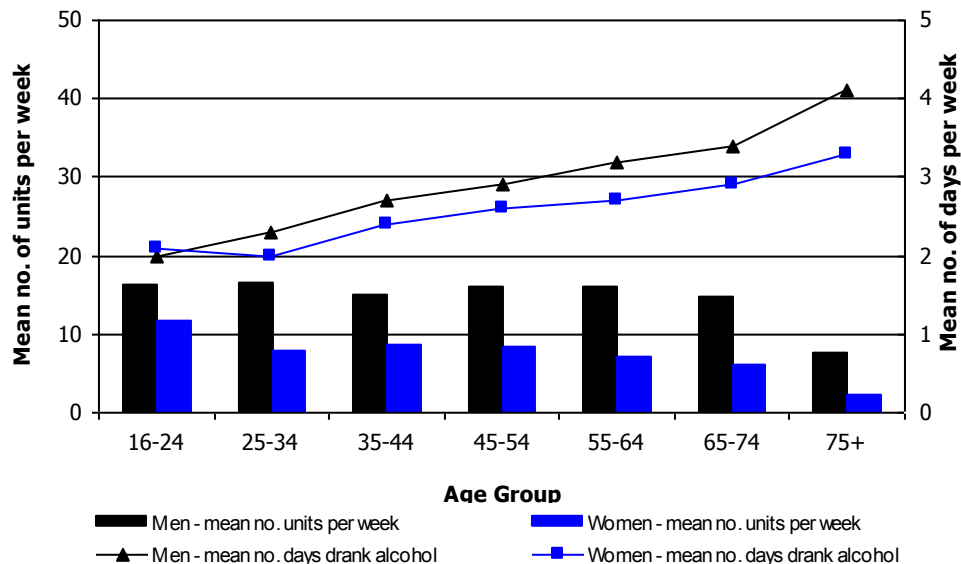
In 2012, men consumed alcohol on an average of 2.8 days per week; the equivalent figure for women was significantly lower at 2.5 days. There was a significant association between the number of days on which alcohol was consumed and age, increasing from 2.1 days for those aged 16-24 to 3.7 days for those aged 75 or above. The age-related pattern was true for both men and women. Male drinkers aged 16-24 drank on an average of 2.0 days per week, with just 3% drinking on at least six days out of seven. Frequency increased by age and at age 75 or over, men (who drank alcohol) drank on an average of 4.1 days with four in ten drinking on at least six days per week. Similarly among female drinkers, 16-24 year olds drank on an average of 2.1 days per week, with just 2% drinking on at least six of the seven days, compared with those aged 75 or above who drank on 3.3 days on average and over a quarter (28%) of whom drank on at least six out of seven days.

As shown in Figure 3E, this pattern is in contrast to other measures of alcohol consumption, which showed that actual consumption is lowest among the oldest age groups. Older drinkers, however, consume small amounts, but regularly, whereas younger drinkers are more likely than older drinkers to consume larger quantities, albeit less frequently than them.

Figure 3E, Table 3.2

Figure 3E

Mean number of units of alcohol consumed per week (all adults), and mean number of days on which alcohol was consumed (drinkers only), 2012, by age and sex



3.7 AUDIT SCORES BY SOCIO-DEMOGRAPHIC FACTORS

3.7.1 AUDIT scores, 2012, by age and sex

Scores calculated from responses to the alcohol use disorder identification test (AUDIT) provide an alternative way of assessing hazardous and harmful drinking to daily and weekly alcohol consumption. Details of the AUDIT questionnaire, including guidance on scoring, are discussed in detail in Section 3.2.4.

In 2012, eight in ten (81%) adults (aged 16 and above) had an AUDIT score between 0 and 7, indicating that they either did not drink or were classified as low-risk drinkers. Women were more likely than men to fall into this category (87% compared with 75%).

Audit scores varied by age for both men and women. While three-quarters of all men were classified as either abstinent or low-risk drinkers, the proportion varied from 61% of 16-24 year olds to 96% of those aged 75 or above. The proportion of women classified as low risk or abstinent ranged from 68% (16-24 year olds) to 100% (aged 75 or over).

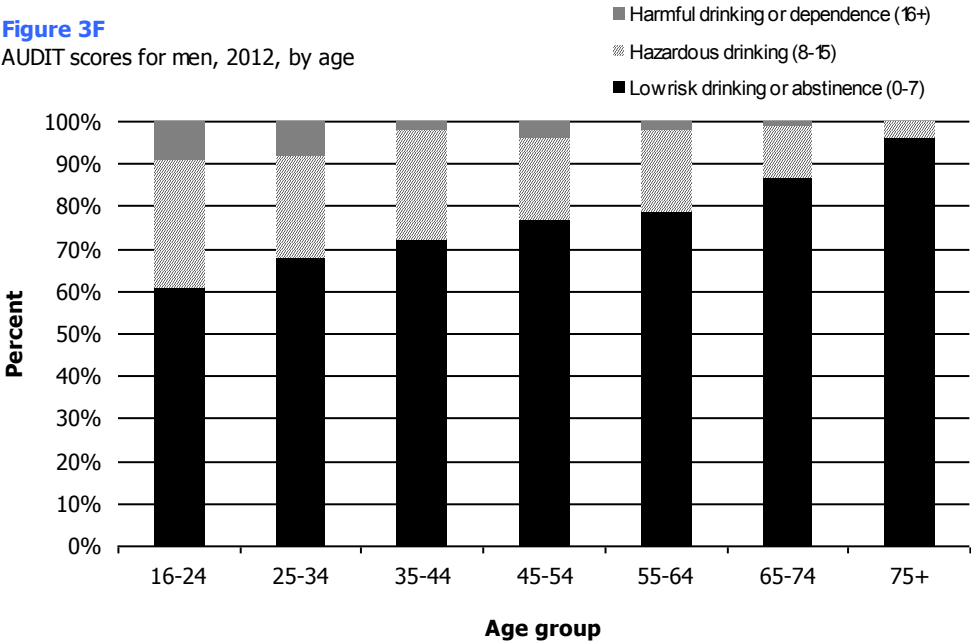
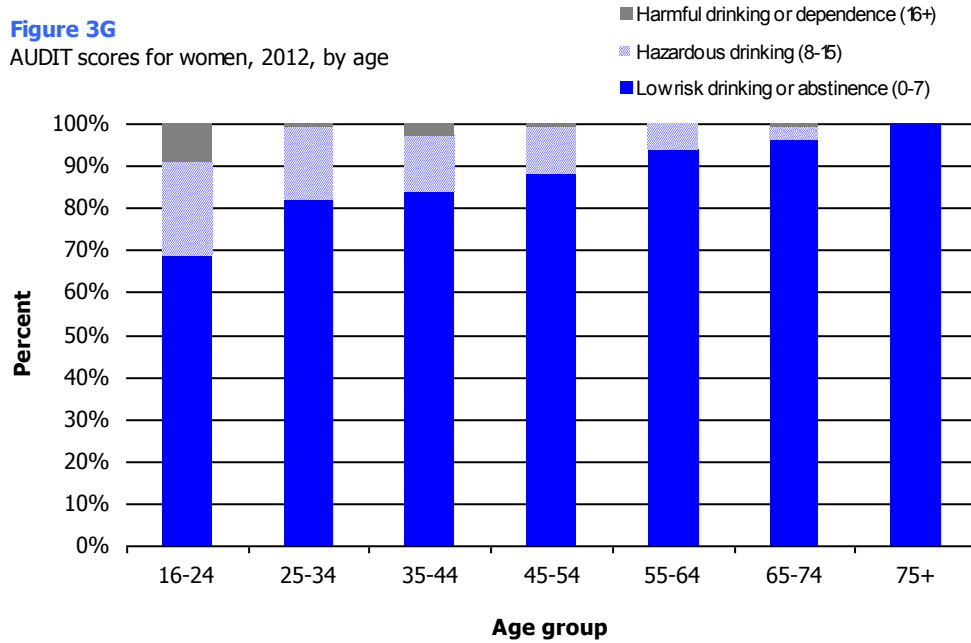


Figure 3G

AUDIT scores for women, 2012, by age



Around one in five men (21%) and one in ten women (11%) were classed as hazardous drinkers (AUDIT score of between 8 and 15) in 2012. Hazardous drinking decreased by age for men, ranging from 30% of those aged 16 to 24 to 4% of those aged 75 and over. Similarly, less than 0.5% of women aged 75 and above were hazardous drinkers compared with 22% of those aged 16-24.

An AUDIT score of between 16 and 19 is indicative of harmful drinking behaviour. In 2012, 3% of men and 1% of women fell into this group. Harmful drinking behaviour varied by age for both genders. While none of those aged 75 and above were drinking harmfully, 8% of men and 5% of women aged 16-24 were doing so. One percent of men and women displayed behaviours associated with possible alcohol dependence (AUDIT score of 20 or above).

A score of 8 or more on the AUDIT tool indicates an alcohol use disorder (AUD). Two in ten (19%) adults had an AUD in 2012. The proportion of men with an AUD (25%) was exactly the same as the proportion drinking at hazardous or harmful levels as measured by unit consumption (See Section 3.3.2). Thirteen percent of women exhibited signs of an alcohol use disorder according to AUDIT, whereas 18% were drinking at hazardous or harmful levels according to their unit consumption.

The majority of those exhibiting either harmful drinking behaviour or possible alcohol dependence (an AUDIT score of 16 or above) were men aged 16-24 (9% of this age group), men aged 25-34 (8%), and women aged 16-24 (9%). No more than 4% of any other age group displayed signs of harmful drinking behaviour or possible alcohol dependence.

The age-related pattern is more apparent when examining AUDIT data than consumption data. The difference is possibly a reflection of the ways in which alcohol is consumed by men and women in different age groups.

Figure 3F, Figure 3G, Table 3.3

3.7.2 AUDIT scores (age-standardised), 2012, by NS-SEC of household reference person and sex

AUDIT scores, by socio-economic classification (NS-SEC of the household reference person) are presented in Table 3.4. A description of NS-SEC is provided in the glossary to this report. To ensure that the comparisons presented are not confounded by the different age profiles of the groups the data have been age-standardised. Age-standardisation allows comparisons to be made across groups which are not confounded by their different age profiles (see the Glossary at the end of this Volume for a detailed description of age-standardisation).

Among adults there was no clear pattern to drinking behaviour by NS-SEC. Those in intermediate households were most likely to be non-drinkers or low-risk drinkers (87% compared with between 77% and 82% in all other household types) and least likely to exhibit signs of an alcohol use disorder (AUD) (12% compared with 23% of small employers and own-account workers). Those in small employer and own-account worker households were most likely to have a score of 8+ (23%) and 16+ (6%).

There was a significant association between AUD prevalence and NS-SEC for men but not for women. Men in self-employed households were most likely to display signs of possible alcohol use disorder (35%) while those in intermediate households were least likely to (14%). The proportion of men in other types of household with an AUDIT score of 8 or more was between 24% and 26%. Six percent of men in self-employed households scored 20 or more (indicating a risk of alcohol dependence) on the AUDIT scale compared with 1% of all men.

Table 3.4

3.7.3 AUDIT scores (age-standardised), 2012, by equivalised household income and sex

Differences in drinking behaviour according to equivalised household income were not linear. For both men and women, those in the highest and lowest income households displayed similar prevalence of an alcohol use disorder (AUDIT score of 8+).

Over a quarter (28%) of men in the highest income quintile, and 29% in the lowest income quintile showed indications of an alcohol use disorder. However, men in the lowest income quintile were much more likely than others to display more serious alcohol-related behaviour (harmful drinking or possible alcohol dependence). One in ten of this group scored 16 or more on the AUDIT scale, compared to just 2% of those in the highest income quintile.

Among women, 16% in the highest income quintile and 17% in the lowest showed indications of an alcohol use disorder (AUDIT score of 8+) with lower prevalence (8% to 13%) in the middle three quintiles. However, similar to men, women in the lowest quintile are more likely to display more serious behaviours (harmful drinking, or possible alcohol dependence)(4% compared with 1% to 2% in the other groups). The overall association between having a score of 16 or more and income quintile was not, however, significant for women. **Table 3.5**

3.7.4 AUDIT scores (age-standardised), 2012, by Scottish Index of Multiple Deprivation and sex

The overall association between AUDIT scores and SIMD was not statistically significant for either men or women. In each quintile, between 11% and 15% of women displayed indications of an alcohol use disorder. Men in the most deprived quintile were, however, significantly more likely than those in the least deprived quintile to have an AUD (32% compared with 21%).

Table 3.6

3.8 FACTORS ASSOCIATED WITH ALCOHOL USE DISORDERS (AUD)

Multivariate logistic regression was used to examine the independent effect of a range of socio-demographic factors associated with an alcohol use disorder (an AUDIT score of 8 or more).

The factors investigated include the key socio-economic factors considered in Tables 3.3 to 3.6: age, socio-economic classification (in terms of the NS-SEC of the household reference person, area deprivation (as measured by SIMD), and equivalised household income. Other factors included were: parental socio-economic classification, economic status, educational attainment, marital status, and being a parent of any child in the household.

The odds ratios for displaying signs of an alcohol use disorder are presented in Table 3.7. The odds of a reference group (shown in the table with a value of 1) are compared with that of the other categories for each of the individual factors. An odds ratio of greater than 1 indicates that the group in question has increased odds of an alcohol use disorder (AUD), compared with the reference category. An odds ratio of less than 1 indicates decreased odds. By simultaneously controlling for a number of factors in the model, the independent association each factor has with the dependent variable (alcohol use disorder) can be established. For more information about logistic regression, and how to interpret the results, see the glossary.

Age and marital status, for both men and women, were the only factors displaying significant independent associations with alcohol use disorder. For men, the NS-SEC of the household reference person also demonstrated a significant independent association. For women, equivalised household income, and being the mother of someone under the age of 16 in the household were also significant.

The odds of a man over the age of 55 displaying signs of an alcohol use disorder were less than half those of a man aged 16-24 (odds ratios of 0.07 to 0.45). Similarly, the odds of a woman over the age of 45 displaying such signs were half or less of those of a woman aged 16-24 (odds ratios of 0.01 to 0.50). The pattern of the association indicated by the logistic regression confirms that shown in Table 3.3, with the odds of alcohol use disorder decreasing as age increases.

Marital status was the other variable to be associated with alcohol use disorder for both men and women. Compared with being married or in a civil partnership, cohabiting men and women both had increased odds of an alcohol use disorder (odds ratio 2.02 for men, and 1.83 for women). In addition, single and separated or divorced women also had increased odds (odds ratio 2.41 and 2.51 respectively).

For men, the odds of those in intermediate households (clerical, sales or service) displaying an alcohol use disorder were less than half of those in managerial or professional households (odds ratio 0.47). The overall pattern confirms that shown in Table 3.4, although other differences are not significant.

Compared with other women, mothers who lived with a child under the age of 16 had lower odds of exhibiting an alcohol use disorder (odds ratio 0.62). The association with fatherhood was in the same direction, but was not statistically significant.

No significant associations were seen for the following factors: socio-economic classification of one's parents (when aged 14), area deprivation, economic status and highest educational qualification (see footnote to Table 3.7).

References and notes

- ¹ Grant, I., Springbett, A., and Graham, L. *Alcohol attributable mortality and morbidity: alcohol population attributable fractions for Scotland*, 2009. ISD Scotland/Scottish Public Health Observatory.
<www.scotpho.org.uk/downloads/scotphoreports/scotpho090630_alcoholfractions_rep.pdf>
- ² Mathers, C., Stevens, G. and Mascarenhas, M. *Global health risks: mortality and burden of disease attributable to selected major risks*. Geneva: World Health Organization; 2009.
<http://www.who.int/healthinfo/global_burden_disease/GlobalHealthRisks_report_full.pdf>
- ³ Beeston C., Robinson M., Craig, N and Graham, L. *Monitoring and Evaluating Scotland's Alcohol Strategy. Setting the Scene: Theory of change and baseline picture*. Edinburgh: NHS Health Scotland; 2011. <www.healthscotland.com/documents/5072.aspx>
- ⁴ Beeston, C., McAuley, A., Robinson, M., Craig, N., and Graham, L (on behalf of the MESAS project team). *Monitoring and Evaluating Scotland's Alcohol Strategy. 2nd Annual Report*. Edinburgh: NHS Health Scotland; 2012. <www.healthscotland.com/documents/6182.aspx>
- ⁵ York Health Economics Consortium. *The Societal Cost of Alcohol Misuse in Scotland for 2007*. Scottish Government; 2010. <www.scotland.gov.uk/Publications/2009/12/29122804/21>
- ⁶ Information Services Division. *Alcohol Statistics Scotland 2011*. Edinburgh: ISD Scotland; 2010.
<http://www.alcoholinformation.isdscotland.org/alcohol_misuse/1407.html>
- ⁷ *Alcohol-related Hospital Statistics Scotland 2011/12*. May 2013. Edinburgh: Information Services Division, NHS Scotland. Available from:
<http://www.alcoholinformation.isdscotland.org/alcohol_misuse/files/alcohol_stats_bulletin_2011.pdf>
- ⁸ *Framework for Action: Changing Scotland's Relationship with Alcohol – Final business and regulatory impact assessment for minimum price per unit of alcohol as contained in Alcohol (Minimum Pricing) (Scotland) Bill*. June 2012. Edinburgh: Scottish Government. Available from:
<<http://www.scotland.gov.uk/Topics/Health/Services/Alcohol/minimum-pricing/Impact-Assessment>>
- ⁹ Carnie, J. and Broderick, R. *Prisoner Survey 2011*. Edinburgh: Scottish Prison Service.
<<http://www.sps.gov.uk/Publications/Publication-3696.aspx>>
- ¹⁰ *Changing Scotland's Relationship with Alcohol: A Framework for Action*. Edinburgh: Scottish Government, 2009.
- ¹¹ See: <www.scottish.parliament.uk/s3/bills/34-AlcoholEtc/index.htm>
- ¹² See: <www.scottish.parliament.uk/s3/bills/34-AlcoholEtc/AlcoholBillsummary.pdf>
- ¹³ *Changing Scotland's Relationship with Alcohol : A Framework for Action - Progress Report*. February 2012. Edinburgh: Scottish Government. Available from:
<<http://www.scotland.gov.uk/Topics/Health/Services/Alcohol>>
- ¹⁴ Alcohol (Minimum Pricing) (Scotland) Act 2012. See:
<<http://www.scottish.parliament.uk/parliamentarybusiness/Bills/43354.aspx>>
- ¹⁵ SPICe Briefing 12/34. 17 May 2012. *Alcohol (Minimum Pricing) (Scotland) Bill: Stage 3*. Scottish Parliament Information Centre. Available from:
<<http://www.scottish.parliament.uk/parliamentarybusiness/Bills/43354.aspx>>

- ¹⁶ Meier, P., Meng, Y., Hill-McManus, D. and Brennan, A. *Model-Based Appraisal Of Alcohol Minimum Pricing And Off-Licensed Trade Discount Bans In Scotland Using The Sheffield Alcohol Policy Model (V 2):- Second Update Based On Newly Available Data*. University of Sheffield; 2012 Available from: <www.shef.ac.uk/polopoly_fs/1.156503!/file/scotlandjan.pdf>
- ¹⁷ Maclennan B, Kypri K, Lamgley J, Room R. Non-response bias in a community survey of drinking, alcohol-related experiences and public opinion on alcohol policy. *Drug Alcohol Depend* 2012; 126 (1-2):189-94
- ¹⁸ Caetano R. (2001) Non-response in alcohol and drug surveys: a research topic in need of further attention. *Addiction* 96:1541–5.
- ¹⁹ Fartein Ask Torvik, Kamilla Rognum, Kristian Tambs Alcohol use and mental distress as predictors of non-response in a general population health survey: the HUNT study. *Soc Psychiatry Psychiatr Epidemiol*. 2012 May; 47(5): 805–816. Published online 2011 May 5. doi: 10.1007/s00127-011-0387-3
- ²⁰ Robinson, M., Beeston, C.. *Monitoring and Evaluating Scotland's Alcohol Strategy (MESAS) – An update of alcohol sales and price band analyses*. Edinburgh: NHS Health Scotland; 2013. Available from: <www.healthscotland.com/documents/21782.aspx>
- ²¹ Robinson, M., Geue, C., Lewsey, J., Mackay, D., McCartney, G., Curnock, E., Beeston, C. *Monitoring and Evaluating Scotland's Alcohol Strategy: The impact of the Alcohol Act on off-trade alcohol sales in Scotland*. Edinburgh: NHS Health Scotland; 2013. <<http://www.healthscotland.com/documents/21101.aspx>>
- ²² The Alcohol Consumption chapters from previous Scottish Health Survey reports are available via the Scottish Government website at <www.scotland.gov.uk/Topics/Statistics/Browse/Health/scottish-health-survey/Publications>
- ²³ See for example the North West Public Health Observatory's Local Alcohol Profiles for England, which use these definitions - <www.nwph.net/alcohol/lape/>
- ²⁴ Drummond, C., Deluca, P., Oyefeso, A., Rome, A., Scafton, S., Rice, P. *Scottish Alcohol Needs Assessment*. London: Institute of Psychiatry, King's College; 2009.
- ²⁵ Babor, T.F., Higgins-Biddle, J.C., Saunders, J.B. and Monteiro, M.G. *AUDIT – The Alcohol Use Disorders Identification Test – Guidelines for Use in Primary Care, Second Edition*. Geneva: World Health Organization; 2001.
- ²⁶ Reid, S. (2009). Chapter 3: Alcohol consumption. In Bromley, C., Bradshaw, P. and Given, L. [eds.] *The 2008 Scottish Health Survey – Volume 1: Main Report*. Edinburgh: Scottish Government. <www.scotland.gov.uk/Publications/2009/09/28102003/0>
- ²⁷ For participants aged 16 and 17, details on alcohol consumption were collected as part of a special smoking and drinking self-completion questionnaire. Some 18 and 19 year olds also completed the self-completion if the interviewer felt it was appropriate. For all other adult participants, the information was collected as part of the face-to-face interview. The method of estimating consumption follows that originally developed for use in the General Household Survey and is also used in the Health Survey for England. For six types of alcoholic drink (normal strength beer/lager/cider/shandy, strong beer/lager/cider, spirits/liqueurs, fortified wines, wine, and alcoholic soft drinks), participants were asked about how often they had drunk each one in the past twelve months, and how much they had usually drunk on any one day. The amount given to the latter question was converted into units of alcohol, with a unit equal to half a pint of normal strength beer/lager/cider/alcoholic soft drink, a single measure of spirits, one glass of wine, or one small glass of fortified wine. A half pint of strong beer/lager/cider was equal to 1.5 units. The number of units was then multiplied by the frequency to give an estimate of weekly consumption of each type of drink. The frequency multipliers were:

Drinking frequency	Multiplying factor
Almost every day	7.0
5 or 6 times a week	5.5
3 or 4 times a week	3.5
Once or twice a week	1.5
Once or twice a month	0.375
One every couple months	0.115
Once or twice a year	0.029

The separate consumption figures for each type of drink were rounded to two decimal places and then added together to give an overall weekly consumption figure. The results were then banded, using the same bands as the ones used in the 1995 Scottish Health Survey and in all years of the Health Survey for England. The bandings for men are as follows:

- 1 Under 1 unit (less than or equal to 0.50 units)
- 2 1-10 units (over 0.50 units, but less than or equal to 10.00 units)
- 3 Over 10-21 units (over 10.00 units, but less than or equal to 21.00 units)
- 4 Over 21-35 units (over 21.00 units, but less than or equal to 35.00 units)
- 5 Over 35-50 units (over 35.00 units, but less than or equal to 50.00 units)
- 6 Over 50 (over 50.00 units)

The bands for women were similar, but with breaks at 7, 14, 21 and 35 units, instead of 10, 21, 35 and 50.

Table list

Table 3.1	Estimated usual weekly alcohol consumption level, units consumed on heaviest drinking day, adherence to weekly and daily drinking advice, and number of days on which drank alcohol in the past week, 2003 to 2012
Table 3.2	Estimated usual weekly alcohol consumption level, units consumed on heaviest drinking day, adherence to weekly and daily drinking advice, and number of days on which drank alcohol in the past week, 2012, by age and sex
Table 3.3	AUDIT scores, 2012, by age and sex
Table 3.4	AUDIT scores (age standardised), 2012, by NSSEC and sex
Table 3.5	AUDIT scores (age standardised), 2012, by income
Table 3.6	AUDIT scores (age standardised), 2012, by SIMD
Table 3.7	Estimated odds ratios for hazardous or harmful drinking behaviour or possible alcohol dependence (AUDIT score 8+)

Table 3.1 Estimated usual weekly alcohol consumption level, units consumed on heaviest drinking day, adherence to weekly and daily drinking advice, and number of days on which drank alcohol in the past week, 2003 to 2012

	<i>2003 to 2012</i>					
	<i>Aged 16 and over</i>	2003	2008	2009	2010	2011
Alcohol units per week^a / alcohol units per day^b / adherence to weekly and daily drinking advice^{c,d} / % who drank on >5 days / mean number of days drank alcohol in last week^e						
	%	%	%	%	%	%
Men						
Estimated usual weekly alcohol consumption level^a						
Non-drinker	8	10	10	12	11	12
Moderate	58	59	63	61	64	63
Hazardous/Harmful	33	30	27	27	25	25
Mean units per week	19.8	18.0	17.5	16.0	15.0	15.2
SE of the mean	0.62	0.53	0.75	0.50	0.42	0.59
Units consumed on heaviest drinking day						
Consumed over 4 units on HDD ^b	45	44	44	43	41	42
Consumed over 8 units on HDD	29	27	26	26	25	25
Mean units on HDD	6.5	6.2	5.9	6.0	5.5	5.6
SE of the mean	0.18	0.19	0.17	0.21	0.15	0.21
Adherence to weekly and daily drinking advice						
Never drunk alcohol	4	4	4	6	5	5
Ex drinker	4	6	6	7	6	7
Drinks within government guidelines ^c	39	39	41	39	42	41
Drinks outwith government guidelines ^d	53	51	49	49	46	47
Number of days on which drank alcohol in the past week^e						
Drank on >5 days	20	17	14	15	13	13
Mean number of days	3.3	3.1	2.9	2.9	2.8	2.8
SE of the mean	0.05	0.05	0.04	0.05	0.05	0.06

Continued...

Table 3.1 - Continued*Aged 16 and over**2003 to 2012*

	2003	2008	2009	2010	2011	2012
Alcohol units per week^a / alcohol units per day^b / adherence to weekly and daily drinking advice^c / % who drank on >5 days / mean number of days drank alcohol in last week^e						
	%	%	%	%	%	%
Women						
Estimated usual weekly alcohol consumption level^a						
Non-drinker	13	13	16	17	17	17
Moderate	64	67	66	65	65	65
Hazardous/Harmful	23	20	19	18	18	18
Mean units per week	9.0	8.6	7.8	7.6	7.4	7.6
SE of the mean	0.31	0.34	0.24	0.24	0.23	0.33
Units consumed on heaviest drinking day						
Consumed over 3 units on HDD ^b	37	36	34	33	34	30
Consumed over 6 units on HDD	19	18	17	16	17	15
Mean units on HDD	3.6	3.5	3.2	3.1	3.2	2.8
SE of the mean	0.10	0.14	0.09	0.09	0.09	0.11
Adherence to weekly and daily drinking advice						
Never drunk alcohol	9	7	8	9	9	9
Ex drinker	5	6	7	8	9	9
Drinks within government guidelines ^c	45	47	47	45	44	47
Drinks outwith government guidelines ^d	42	40	38	38	38	35
Number of days on which drank alcohol in the past week^e						
Drank on >5 days	13	10	9	10	10	10
Mean number of days	2.7	2.5	2.5	2.5	2.5	2.5
SE of the mean	0.05	0.05	0.04	0.04	0.05	0.06

Continued...

Table 3.1 - Continued*Aged 16 and over**2003 to 2012*

	2003	2008	2009	2010	2011	2012
Alcohol units per week^a / alcohol units per day^b / adherence to weekly and daily drinking advice^c / % who drank on >5 days / mean number of days drank alcohol in last week^e						
	%	%	%	%	%	%
All Adults						
Estimated usual weekly alcohol consumption level^a						
Non-drinker	11	12	13	15	14	15
Moderate	61	63	64	63	64	64
Hazardous/Harmful	28	25	23	22	21	21
Mean units per week	14.1	13.1	12.4	11.6	11.1	11.3
SE of the mean	0.36	0.34	0.40	0.29	0.27	0.35
Units consumed on heaviest drinking day						
Consumed over 3/4 units on HDD ^b	41	40	39	38	37	36
Consumed over 6/8 units on HDD	24	22	21	21	20	20
Mean units	4.9	4.8	4.5	4.5	4.3	4.1
SE of the mean	0.12	0.13	0.10	0.12	0.10	0.13
Adherence to weekly and daily drinking advice						
Never drunk alcohol	7	6	6	7	7	7
Ex drinker	5	6	7	7	8	8
Drinks within government guidelines ^c	42	43	44	42	43	44
Drinks outwith government guidelines ^d	47	45	43	43	42	41
Number of days on which drank alcohol in the past week^e						
Drank on >5 days	17	14	11	13	12	12
Mean number of days	3.0	2.8	2.7	2.7	2.7	2.7
SE of the mean	0.04	0.04	0.03	0.04	0.04	0.05

Continued...

Table 3.1 - Continued

Aged 16 and over

2003 to 2012

	2003	2008	2009	2010	2011	2012
Alcohol units per week^a / alcohol units per day^b / adherence to weekly and daily drinking advice^c / % who drank on >5 days / mean number of days drank alcohol in last week^e						
<i>Bases (weighted):</i>						
Men: alcohol units per week	3791	3011	3576	3388	3551	2253
Men: alcohol units per day	3819	3015	3521	3386	3549	2264
Men: adherence to weekly and daily drinking advice	3769	2981	3519	3355	3520	2234
Men: number of days drank alcohol in last week	2762	2160	2497	2307	2406	1551
Women: alcohol units per week	4215	3319	3912	3711	3874	2464
Women: alcohol units per day	4254	3320	3865	3710	3860	2460
Women: adherence to weekly and daily drinking advice	4203	3296	3862	3675	3827	2442
Women: number of days drank alcohol in last week	2472	1953	2199	2070	2152	1283
All adults: alcohol units per week	8006	6330	7488	7098	7425	4717
All adults: alcohol units per day	8073	6335	7385	7096	7409	4724
All adults: adherence to weekly and daily drinking advice	7972	6277	7381	7030	7347	4677
All adults: number of days drank alcohol in last week	5234	4113	4696	4377	4557	2834
<i>Bases (unweighted):</i>						
Men: alcohol units per week	3558	2796	3276	3064	3239	2095
Men: alcohol units per day	3580	2801	3244	3066	3242	2104
Men: adherence to weekly and daily drinking advice	3543	2778	3242	3042	3222	2085
Men: number of days drank alcohol in last week	2590	1967	2266	2057	2174	1405
Women: alcohol units per week	4482	3579	4232	4076	4220	2657
Women: alcohol units per day	4507	3579	4202	4083	4217	2659
Women: adherence to weekly and daily drinking advice	4469	3560	4199	4055	4192	2643
Women: number of days drank alcohol in last week	2609	2053	2346	2200	2256	1361
All adults: alcohol units per week	8040	6375	7508	7140	7459	4752
All adults: alcohol units per day	8087	6380	7446	7149	7459	4763
All adults: adherence to weekly and daily drinking advice	8012	6338	7441	7097	7414	4728
All adults: number of days drank alcohol in last week	5199	4020	4612	4257	4430	2766

a Non-drinker: no units per week; Moderate: >0 units and up to 21 units for men / 14 units for women; Hazardous/harmful: more than 21 units for men / 14 units for women

b HDD = Heaviest drinking day during previous week

c Drank no more than 4 units (men) or 3 units (women) on heaviest drinking day, and drank no more than 21 units (men) or 14 units (women) in usual week

d Drank more than 4 units (men) or 3 units (women) on heaviest drinking day, and/or drank more than 21 units (men) or 14 units (women) in usual week

e Of those who drank alcohol in the last week

Table 3.2 Estimated usual weekly alcohol consumption level, units consumed on heaviest drinking day, adherence to weekly and daily drinking advice, and number of days on which drank alcohol in the past week, 2012, by age and sex

<i>Aged 16 and over</i>								<i>2012</i>
Alcohol units per week^a / alcohol units per day^b	Age							Total
	16-24	25-34	35-44	45-54	55-64	65-74	75+	
adherence to weekly and daily drinking advice^{c,d} / % who drank on >5 days / mean number of days drank alcohol in last week^e	%	%	%	%	%	%	%	%
Men								
Estimated usual weekly alcohol consumption level^a								
Non-drinker	5	12	10	12	14	13	28	12
Moderate	70	64	65	62	59	61	61	63
Hazardous/Harmful	25	24	24	27	28	27	11	25
Mean units per week	16.2	16.5	15.0	16.1	16.1	14.7	7.6	15.2
SE of the mean	2.08	2.00	0.99	1.16	1.36	1.14	0.88	0.59
Units consumed on heaviest drinking day								
Consumed over 4 units on HDD ^b	44	49	49	46	39	34	11	42
Consumed over 8 units on HDD	33	29	33	25	23	13	4	25
Mean units on HDD	6.8	7.0	6.8	5.4	5.0	3.8	1.7	5.6
SE of the mean	1.01	0.65	0.43	0.32	0.35	0.27	0.24	0.21
Adherence to weekly and daily drinking advice								
Never drunk alcohol	5	9	4	2	3	4	9	5
Ex drinker	-	3	6	9	11	9	20	7
Drinks within government guidelines ^c	47	37	34	36	42	45	57	41
Drinks outwith government guidelines ^d	48	51	55	52	45	42	15	47
Number of days on which drank alcohol in the past week^e								
Drank on >5 days	3	5	10	14	19	21	40	13
Mean number of days	2.0	2.3	2.7	2.9	3.2	3.4	4.1	2.8
SE of the mean	0.17	0.15	0.13	0.14	0.14	0.15	0.26	0.06

Table 3.2 - Continued

Aged 16 and over 2012

Alcohol units per week ^a / alcohol units per day ^b	Age							Total
	16-24	25-34	35-44	45-54	55-64	65-74	75+	
adherence to weekly and daily drinking advice^{c,d} / % who drank on >5 days / mean number of days drank alcohol in last week^e	%	%	%	%	%	%	%	%
Women								
Estimated usual weekly alcohol consumption level^a								
Non-drinker	10	16	14	11	16	22	41	17
Moderate	62	65	66	70	66	65	54	65
Hazardous/Harmful	28	20	21	19	18	13	5	18
Mean units per week	11.8	7.8	8.6	8.5	7.1	6.0	2.4	7.6
SE of the mean	1.64	0.71	0.79	0.61	0.56	0.57	0.32	0.33
Units consumed on heaviest drinking day								
Consumed over 3 units on HDD ^b	32	35	39	37	31	21	7	30
Consumed over 6 units on HDD	26	20	21	18	11	5	0	15
Mean units on HDD	3.8	3.3	3.6	3.3	2.5	1.8	0.7	2.8
SE of the mean	0.52	0.33	0.24	0.21	0.17	0.14	0.08	0.11
Adherence to weekly and daily drinking advice								
Never drunk alcohol	9	7	7	4	7	10	24	9
Ex drinker	2	9	7	7	9	12	17	9
Drinks within government guidelines ^c	47	45	43	49	47	53	49	47
Drinks outwith government guidelines ^d	42	40	43	40	37	25	10	35
Number of days on which drank alcohol in the past week^e								
Drank on >5 days	2	4	5	10	12	19	28	10
Mean number of days	2.1	2.0	2.4	2.6	2.7	2.9	3.3	2.5
SE of the mean	0.17	0.16	0.10	0.12	0.13	0.19	0.31	0.06

Continued...

Table 3.2 - Continued

Aged 16 and over 2012

Alcohol units per week ^a / alcohol units per day ^b adherence to weekly and daily drinking advice ^{c,d} / % who drank on >5 days / mean number of days drank alcohol in last week ^e	Age							Total
	16-24	25-34	35-44	45-54	55-64	65-74	75+	
	%	%	%	%	%	%	%	%
All Adults								
Estimated usual weekly alcohol consumption level^a								
Non-drinker	8	14	12	11	15	18	36	15
Moderate	66	64	65	66	62	63	57	64
Hazardous/Harmful	27	22	22	23	23	19	7	21
Mean units per week	14.0	12.2	11.7	12.1	11.5	10.1	4.5	11.3
SE of the mean	1.42	1.10	0.64	0.66	0.76	0.68	0.44	0.35
Units consumed on heaviest drinking day								
Consumed over 3/4 units on HDD ^b	38	42	44	41	35	27	9	36
Consumed over 6/8 units on HDD	29	25	27	21	16	9	2	20
Mean units	5.3	5.2	5.2	4.3	3.7	2.7	1.1	4.1
SE of the mean	0.57	0.38	0.24	0.19	0.21	0.16	0.11	0.13
Adherence to weekly and daily drinking advice								
Never drunk alcohol	7	8	6	3	5	7	18	7
Ex drinker	1	6	6	8	10	11	18	8
Drinks within government guidelines ^c	47	41	39	43	44	49	52	44
Drinks outwith government guidelines ^d	45	46	49	46	41	33	12	41
Number of days on which drank alcohol in the past week^e								
Drank on >5 days	3	5	8	12	16	20	34	12
Mean number of days	2.1	2.2	2.5	2.8	3.0	3.2	3.7	2.7
SE of the mean	0.15	0.11	0.09	0.10	0.11	0.13	0.21	0.05

Continued...

Table 3.2 - Continued

<i>Aged 16 and over</i>								2012
Alcohol units per week^a / alcohol units per day^b adherence to weekly and daily drinking advice^{c,d} / % who drank on >5 days / mean number of days drank alcohol in last week^e	Age							Total
	16-24	25-34	35-44	45-54	55-64	65-74	75+	
<i>Bases (weighted):</i>								
<i>Men: alcohol units per week</i>	298	378	373	419	361	251	172	2253
<i>Men: alcohol units per day</i>	301	381	377	420	361	251	173	2264
<i>Men: adherence to weekly and daily drinking advice</i>	282	378	372	418	361	251	172	2234
<i>Men: number of days drank alcohol in last week</i>	213	263	279	291	256	176	73	1551
<i>Women: alcohol units per week</i>	299	370	411	453	382	287	263	2464
<i>Women: alcohol units per day</i>	286	375	414	454	382	287	263	2460
<i>Women: adherence to weekly and daily drinking advice</i>	277	370	411	453	382	287	263	2442
<i>Women: number of days drank alcohol in last week</i>	156	183	232	279	215	144	73	1283
<i>All adults: alcohol units per week</i>	597	748	784	872	743	538	435	4717
<i>All adults: alcohol units per day</i>	586	756	792	874	743	539	435	4724
<i>All adults: adherence to weekly and daily drinking advice</i>	559	748	783	871	743	538	435	4677
<i>All adults: number of days drank alcohol in last week</i>	369	447	511	570	471	319	146	2834

Continued...

Table 3.2 - Continued

<i>Aged 16 and over</i>								2012
Alcohol units per week^a/alcohol units per day^b adherence to weekly and daily drinking advice^c / % who drank on >5 days/mean number of days drank alcohol in last week^e	Age							Total
	16-24	25-34	35-44	45-54	55-64	65-74	75+	
<i>Bases (unweighted):</i>								
<i>Men: alcohol units per week</i>	152	224	341	408	363	384	223	2095
<i>Men: alcohol units per day</i>	153	227	343	409	363	385	224	2104
<i>Men: adherence to weekly and daily drinking advice</i>	144	224	340	407	363	384	223	2085
<i>Men: number of days drank alcohol in last week</i>	105	160	253	280	260	255	92	1405
<i>Women: alcohol units per week</i>	210	325	470	497	442	387	326	2657
<i>Women: alcohol units per day</i>	203	328	474	498	442	388	326	2659
<i>Women: adherence to weekly and daily drinking advice</i>	196	325	470	497	442	387	326	2643
<i>Women: number of days drank alcohol in last week</i>	107	155	263	317	249	186	84	1361
<i>All adults: alcohol units per week</i>	362	549	811	905	805	771	549	4752
<i>All adults: alcohol units per day</i>	356	555	817	907	805	773	550	4763
<i>All adults: adherence to weekly and daily drinking advice</i>	340	549	810	904	805	771	549	4728
<i>All adults: number of days drank alcohol in last week</i>	212	315	516	597	509	441	176	2766

^a Non-drinker: no units per week; Moderate: >0 units and up to 21 units for men / 14 units for women; Hazardous/harmful: more than 21 units for men / 14 units for women

^b HDD = Heaviest drinking day

^c Drank no more than 4 units (men) or 3 units (women) on heaviest drinking day, and drank no more than 21 units (men) or 14 units (women) in usual week

^d Drank more than 4 units (men) or 3 units (women) on heaviest drinking day, and/or drank more than 21 units (men) or 14 units (women) in usual week

^e Of those who drank alcohol in the last week

Table 3.3 AUDIT scores, 2012, by age and sex

<i>Aged 16 and over</i>								2012
AUDIT	Age							Total
	16-24	25-34	35-44	45-54	55-64	65-74	75+	
	%	%	%	%	%	%	%	%
Men								
Low risk drinking or abstinence (0-7)	61	68	72	77	79	86	96	75
Hazardous drinking (8-15)	30	24	26	19	19	12	4	21
Harmful drinking (16-19)	8	6	1	2	1	0	-	3
Possible alcohol dependence (20+)	2	2	1	2	1	1	-	1
8+	39	32	28	23	21	14	4	25
16+	9	8	2	4	2	1	-	4
Women								
Low risk drinking or abstinence (0-7)	68	82	84	88	94	96	100	87
Hazardous drinking (8-15)	22	17	13	11	6	3	0	11
Harmful drinking (16-19)	5	0	1	0	0	1	-	1
Possible alcohol dependence (20+)	4	0	2	0	-	0	-	1
8+	32	18	16	12	6	4	0	13
16+	9	1	3	1	0	1	-	2

Continued...

Table 3.3 - Continued

Aged 16 and over

AUDIT	Age							2012 Total
	16-24	25-34	35-44	45-54	55-64	65-74	75+	
	%	%	%	%	%	%	%	%
All Adults								
Low risk drinking or abstinence (0-7)	64	75	78	83	87	92	99	81
Hazardous drinking (8-15)	26	20	19	15	12	7	1	16
Harmful drinking (16-19)	6	3	1	1	1	1	-	2
Possible alcohol dependence (20+)	3	1	1	1	0	0	-	1
8+	36	25	22	17	13	8	1	19
16+	9	4	3	2	1	1	-	3
<i>Bases (weighted):</i>								
<i>Men</i>	292	337	338	384	326	224	134	2033
<i>Women</i>	274	344	377	407	350	259	219	2232
<i>All adults</i>	566	680	715	791	676	483	353	4265
<i>Bases (unweighted):</i>								
<i>Men</i>	149	199	312	377	325	341	174	1877
<i>Women</i>	192	300	434	452	406	349	275	2408
<i>All adults</i>	341	499	746	829	731	690	449	4285

Table 3.4 AUDIT scores (age standardised), 2012, by NSSEC and sex

<i>Aged 16 and over</i>		<i>2012</i>				
AUDIT	NS-SEC of household reference person					
	Managerial & Professional	Intermediate	Small employers & own account workers	Lower supervisory & technical	Semi-routine & routine	
	%	%	%	%	%	
Men						
Low risk drinking or abstinence (0-7)	76	86	65	74	74	
Hazardous drinking (8-15)	21	13	25	22	20	
Harmful drinking (16-19)	2	0	3	2	4	
Possible alcohol dependence (20+)	1	-	6	3	2	
8+	24	14	35	26	26	
16+	3	0	9	5	6	
Women						
Low risk drinking or abstinence (0-7)	87	88	92	87	86	
Hazardous drinking (8-15)	10	10	7	9	13	
Harmful drinking (16-19)	1	2	0	2	1	
Possible alcohol dependence (20+)	1	1	1	1	1	
8+	13	12	8	13	14	
16+	2	2	1	3	1	
All Adults						
Low risk drinking or abstinence (0-7)	82	87	77	80	80	
Hazardous drinking (8-15)	16	11	17	16	16	
Harmful drinking (16-19)	2	1	2	2	2	
Possible alcohol dependence (20+)	1	0	4	2	1	
8+	18	13	23	20	20	
16+	3	2	6	4	4	
<i>Bases (weighted):</i>						
<i>Men</i>	<i>856</i>	<i>143</i>	<i>199</i>	<i>202</i>	<i>588</i>	
<i>Women</i>	<i>874</i>	<i>264</i>	<i>166</i>	<i>181</i>	<i>705</i>	
<i>All adults</i>	<i>1729</i>	<i>407</i>	<i>365</i>	<i>383</i>	<i>1293</i>	
<i>Bases (unweighted):</i>						
<i>Men</i>	<i>738</i>	<i>131</i>	<i>213</i>	<i>210</i>	<i>555</i>	
<i>Women</i>	<i>929</i>	<i>272</i>	<i>208</i>	<i>209</i>	<i>748</i>	
<i>All adults</i>	<i>1667</i>	<i>403</i>	<i>421</i>	<i>419</i>	<i>1303</i>	

Table 3.5 AUDIT scores (age standardised), 2012, by income

<i>Aged 16 and over</i>		<i>2012</i>				
AUDIT	Equivalised annual household income quintile					
	1 st (highest)	2 nd	3 rd	4 th	5 th (lowest)	
	%	%	%	%	%	
Men						
Low risk drinking or abstinence (0-7)	72	79	73	77	71	
Hazardous drinking (8-15)	25	19	22	20	18	
Harmful drinking (16-19)	2	2	2	1	7	
Possible alcohol dependence (20+)	0	0	3	2	4	
8+	28	21	27	23	29	
16+	2	2	5	3	11	
Women						
Low risk drinking or abstinence (0-7)	84	92	90	87	83	
Hazardous drinking (8-15)	15	7	8	11	13	
Harmful drinking (16-19)	1	0	2	1	2	
Possible alcohol dependence (20+)	0	1	1	1	2	
8+	16	8	10	13	17	
16+	1	1	2	2	4	
All Adults						
Low risk drinking or abstinence (0-7)	78	85	82	83	78	
Hazardous drinking (8-15)	20	13	15	15	16	
Harmful drinking (16-19)	1	1	2	1	4	
Possible alcohol dependence (20+)	0	1	2	2	3	
8+	22	15	18	17	22	
16+	2	2	4	2	7	
<i>Bases (weighted):</i>						
<i>Men</i>	431	385	349	298	316	
<i>Women</i>	384	372	371	401	377	
<i>All adults</i>	815	757	720	699	693	
<i>Bases (unweighted):</i>						
<i>Men</i>	384	369	340	298	280	
<i>Women</i>	416	415	413	446	400	
<i>All adults</i>	800	784	753	744	680	

Table 3.6 AUDIT scores (age standardised), 2012, by SIMD

<i>Aged 16 and over</i>		<i>2012</i>				
AUDIT	Scottish Index of Multiple Deprivation quintile					
	5 th (least deprived)	4 th	3 rd	2 nd	1 st (most deprived)	
	%	%	%	%	%	
Men						
Low risk drinking or abstinence (0-7)	79	76	74	77	68	
Hazardous drinking (8-15)	19	20	22	20	24	
Harmful drinking (16-19)	2	3	4	1	4	
Possible alcohol dependence (20+)	0	1	1	2	4	
8+	21	24	26	23	32	
16+	3	4	5	3	7	
Women						
Low risk drinking or abstinence (0-7)	89	87	86	88	85	
Hazardous drinking (8-15)	8	11	12	12	11	
Harmful drinking (16-19)	2	1	1	0	2	
Possible alcohol dependence (20+)	1	0	1	1	1	
8+	11	13	14	12	15	
16+	3	2	2	1	3	
All Adults						
Low risk drinking or abstinence (0-7)	84	82	80	82	78	
Hazardous drinking (8-15)	13	15	17	16	17	
Harmful drinking (16-19)	2	2	2	0	3	
Possible alcohol dependence (20+)	1	1	1	1	2	
8+	16	18	20	18	22	
16+	3	3	3	2	5	

Continued...

Table 3.6 - Continued*Aged 16 and over*

2012

AUDIT	Scottish Index of Multiple Deprivation quintile				
	5 th (least deprived)	4 th	3 rd	2 nd	1 st (most deprived)
<i>Bases (weighted):</i>					
<i>Men</i>	435	436	410	422	338
<i>Women</i>	471	439	450	449	421
<i>All adults</i>	907	875	860	871	759
<i>Bases (unweighted):</i>					
<i>Men</i>	391	442	427	357	260
<i>Women</i>	489	545	534	458	382
<i>All adults</i>	880	987	961	815	642

Table 3.7 Estimated odds ratios for hazardous or harmful drinking behaviour or possible alcohol dependence (AUDIT score 8+)

Aged 16 and over

2012

Independent variables ^a	Men			Women		
	Base (weighted) 2033	Odds ratio	95% CI ^b	Base (weighted) 2232	Odds ratio	95% CI ^b
Age		(p=0.009)			(p<0.001)	
16-24	292	1.00		274	1.00	
25-34	337	0.67	0.34 , 1.31	344	0.90	0.49 , 1.63
35-44	338	0.69	0.34 , 1.39	377	0.90	0.50 , 1.62
45-54	384	0.49	0.24 , 1.01	407	0.50	0.27 , 0.93
55-64	326	0.45	0.21 , 0.97	350	0.26	0.12 , 0.56
65-74	224	0.29	0.12 , 0.70	259	0.15	0.06 , 0.40
75+	134	0.07	0.02 , 0.26	219	0.01	0.00 , 0.06
NS-SEC of household reference person		(p=0.038)			(p=0.300)	
Managerial & professional	857	1.00		876	1.00	
Intermediate	145	0.47	0.25 , 0.87	263	0.70	0.38 , 1.27
Small employers & own account workers	202	1.41	0.89 , 2.24	167	0.49	0.24 , 1.03
Lower supervisory & technical	200	0.89	0.57 , 1.39	181	0.76	0.38 , 1.55
Semi-routine & routine	587	0.90	0.56 , 1.45	704	0.77	0.43 , 1.36
Missing	42	0.56	0.21 , 1.51	41	1.45	0.42 , 4.96

Continued...

Table 3.7 - Continued

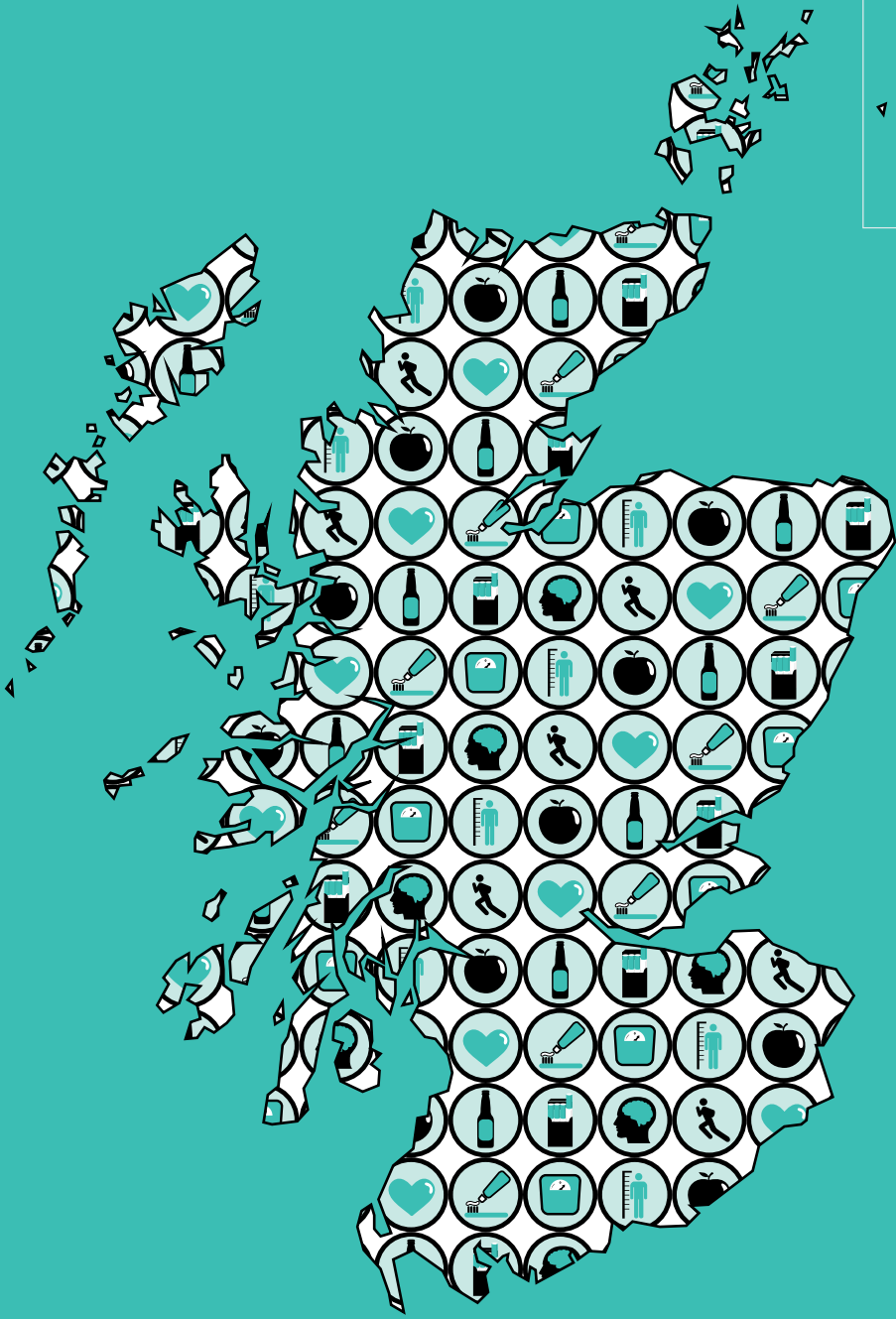
Aged 16 and over

2012

Independent variables ^a	Men			Women		
	Base (weighted) 2033	Odds ratio	95% CI ^b	Base (weighted) 2232	Odds ratio	95% CI ^b
Equivalised Income		(p=0.693)			(p=0.036)	
1st (highest)	430	1.00		392	1.00	
2nd	387	0.84	0.53 , 1.32	376	0.53	0.29 , 0.94
3rd	350	1.12	0.71 , 1.76	369	0.66	0.36 , 1.23
4th	300	0.89	0.50 , 1.59	402	0.84	0.43 , 1.64
5th (lowest)	314	1.02	0.55 , 1.91	376	1.10	0.55 , 2.18
Missing	252	0.65	0.33 , 1.29	316	1.26	0.70 , 2.28
Marital status		(p=0.016)			(p<0.001)	
Married / civil partnership	1027	1.00		1039	1.00	
Living as married	271	2.02	1.34 , 3.04	260	1.83	1.13 , 2.98
Single	547	1.49	0.97 , 2.28	464	2.41	1.65 , 3.53
Separated from married or civil partner / divorced / dissolved civil partnership	118	1.32	0.79 , 2.21	223	2.51	1.54 , 4.07
Widowed / surviving civil partner	70	1.56	0.67 , 3.66	245	1.92	0.75 , 4.92
Parent of any child in household		(p=0.084)			(p=0.010)	
Not parent	1586	1.00		1612	1.00	
Parent	447	0.70	0.46 , 1.05	619	0.62	0.43 , 0.89

a Other factors included in the model which were not significant: area deprivation (SIMD), parental socio-economic classification, economic status and educational attainment

b Confidence interval



Chapter 4

Smoking

4 SMOKING

Linsay Gray and Alastair H Leyland

SUMMARY

- In 2012, one in four adults (aged 16 and above) was a current cigarette smoker. No difference was found between men and women (25% and 24% respectively), although smoking did vary by age, with the highest rate among adults aged 25 to 44 (29%).
- Smoking prevalence among those aged 16 to 64 declined between 1995 and 2012 (from 35% to 27%). The decline has been steeper for women (from 36% to 26%) than for men (from 34% to 28%).
- There has also been a decline in smoking among all adults aged 16 and above since 2003 (from 28% to 25% in 2012).
- Smokers smoked an average of 13.5 cigarettes per day in 2012 (14.7 for men and 12.4 for women). The average number smoked rose with age from 8.9 among those aged 16-24 to 16.0 among those aged 55-64, after which it fell to 11.7 among those aged 75 and over.
- The average number of cigarettes smoked per day has declined over time. In 1995 male smokers (aged 16 to 64) smoked an average of 18.1 per day; by 2012 this was 14.7. The equivalent figures for women were 15.4 and 12.3 respectively.
- The decline in the average number of cigarettes smoked was also evident for all adults aged 16 and above. In 2003 adults smokers smoked an average of 15.3 cigarettes per day; by 2012, this was 13.5.
- In 2012 one in six (17%) non-smoking adults (aged 16 and over) were exposed to second-hand smoke in their own or someone else's home and 16% reported exposure in a public place. Of the public places asked about, reported exposure was greatest outside buildings (e.g. pubs, shops, hospitals) reported by 11% of non-smoking adults.
- There was a decrease in exposure to second-hand smoke in the home among adults aged 16 to 74, from 33% in 1998 to 18% in 2012. Most of this decline occurred between 1998 and 2008, with figures relatively stable since then. The questionnaire was updated in 2012 so trends in second-hand smoke exposure in public places cannot be reported.
- One in five (19%) children under 16 were living in households where someone smokes within the home. This varied with age, with the youngest (those under 2) having the lowest prevalence (8%), compared with around a fifth of those aged between 2 and 15. A lower proportion, 12%, reported being exposed to smoke in the home, indicating that some efforts had been taken to minimise children's direct exposure to smoke.
- In 2012, 13% of adults lived in households where there was no restriction placed on smoking indoors; 15% lived in households where smoking was permitted indoors but only in certain areas or rooms; most (59%) lived in a household where smoking indoors was not permitted; and 13% lived in a household where smoking was not permitted either indoors or outdoors.
- The equivalent figures for children under 16 were: 4% lived in households where there were no restrictions on smoking indoors; 15% in households where smoking was allowed indoors but only in certain areas or rooms; 68% in households where smoking indoors was not permitted; and 13% in

- households where smoking was not allowed indoors or outdoors.
- Almost three in four (73%) smokers reported that they would like to quit. Smokers aged 35 to 54 were the most likely to say they wanted to quit (82 to 84%). 38% of smokers had attempted to quit once or twice in their lifetime and 41% had tried to do this on three or more occasions. The number of quit attempts increased broadly in line with age (from 22% at age 18-24 to half of those aged 55-64).
 - In 2012, four in ten smokers and recent ex-smokers had used NRT during the three months prior to interview. Women were more likely to have used NRT than men (42% and 38% respectively).
 - Of the NRT products used, nicotine skin patches were the most commonly reported (27%). This was followed by nicotine gum (11%) and nasal sprays/nicotine inhalers (10%). Use of lozenges/microtabs and prescription-based treatments was less common (ranging between 2% and 6%).

4.1 INTRODUCTION

Cigarette smoking is the world's leading cause of preventable poor health and premature death.¹ In Scotland, tobacco use is associated with over 13,000 deaths (around a quarter of all deaths) and around 56,000 hospital admissions every year.² Although smoking prevalence in Scotland has decreased gradually over time, from over 30% in 1999 to 23.3% in 2011,³ reducing smoking further remains a priority for improving health in Scotland.

The Scottish Government's refreshed National Performance Framework, published in December 2011, has two indicators relevant to smoking.⁴ There is a specific indicator on reducing the proportion of adults who are current smokers, as well as a more general indicator on reducing premature mortality (deaths from all causes in those aged under 75)⁵ for which smoking is a significant contributory factor.

Recent steps to tackle tobacco use in Scotland include the introduction of a ban on smoking in public places in 2006, the raising of the legal age for buying tobacco from 16 to 18 in 2007, banning the sale of tobacco from automatic vending machines in 2013 and phased banning of tobacco displays in shops from 2013. In addition, one of NHS Scotland's HEAT targets⁶ concerns the provision of smoking cessation services and the achievement of 80,000 successful 'quits', with a particular focus on the 40% most-deprived areas. This target is due for delivery in March 2014.⁷

Most recently, the Scottish Government launched an ambitious five year *Tobacco Control Strategy* in March 2013,⁸ outlining the intention to create a 'tobacco-free generation' (defined as 'a smoking prevalence among the adult population of 5% or lower') by the year 2034. The strategy sets out a range of measures across the themes of:

- Health inequalities – reducing smoking prevalence in the most deprived areas
- Prevention – creating an environment where young people choose not to smoke
- Protection – protecting people from second-hand smoke

- Cessation – helping people to stop smoking

There are 46 actions outlined in the Strategy, including:

- Local authorities and NHS Boards working with partners in the voluntary sector and local communities to develop local tobacco control plans.
- Identification of the most appropriate legislative option for introducing the standardised packaging of tobacco products.
- A pilot of the peer-led ASSIST programme on smoking prevention among young people.
- All NHS Boards implementing and enforcing smoke-free grounds by March 2015.
- A review of smoking cessation services in Scotland which will include the development of specific recommendations on delivering services that are person-centred and that support the needs of people living in deprived areas and other groups where tobacco use plays a key role in unequal health outcomes.
- Development of a successor to the current HEAT target for smoking cessation, which ends in 2014, with a specific focus on inequalities.
- A national awareness campaign about second-hand smoke in enclosed spaces.
- The introduction of advice on creating a smoke-free home as a feature of all ante- and post-natal services and adoption, foster, kinship and residential care services.
- The development of a target for achieving a substantial reduction in children's exposure to second-hand smoke by 2020, using baseline data provided by the 2012 Scottish Health Survey.

Good quality data on smoking behaviour and exposure to second-hand smoke are important to monitoring trends relevant to the Strategy. The SHeS data presented in this chapter complement the data provided by the Scottish Household Survey which is used to measure the current NPF indicator on reducing smoking amongst adults. The chapter presents figures for prevalence of smoking among adults aged 16 and over; for behaviours related to stopping smoking; and for non-smokers' exposure to second-hand smoke. Trends from 1995 onwards and prevalence estimates are presented by sex.

4.2 METHODS AND DEFINITIONS

4.2.1 Questions on smoking

Questions on smoking have been included on SHeS since 1995. The small changes introduced to the questionnaire in 2008 are outlined in the 2008 annual report.⁹

The current questions in the survey focus on:

- current smoking status
- frequency and pattern of current smoking

- the number of cigarettes smoked by current smokers
- ex-smokers' previous smoking history
- exposure to second-hand smoke
- past smoking behaviour
- desire to give up smoking
- medical advice on giving up smoking.

The question about non-smokers' exposure to second-hand smoke was updated in 2012 to ask about exposure outside buildings (e.g. shops, pubs and hospitals), and in cars, while the questions about public transport and pubs were dropped in light of the very low prevalence of exposure reported in these places (following the ban on smoking in these locations). In 2012 a new question was also added on rules relating to smoking within the home (see Section 4.4.4).

Children's exposure to second-hand smoke in the home is presented using two measures. The first reports whether there is someone who regularly smokes inside the accommodation where they live. The second is based on parents' and older children's (aged 13-15) reports of whether children are exposed to smoke at home.

4.2.2 Methods of data collection

Information about cigarette smoking is collected from adults aged 16 and 17 by means of a self-completion questionnaire which offers them the privacy to answer without disclosing their smoking behaviour in front of other household members. For adults aged 20 and over information is collected as part of the main interview. Those aged 18 and 19, at the interviewer's discretion, can answer the questions either in the self-completion booklet or as part of the main interview. The self-completion and main interview questions are mostly similar. However the main self-completion questionnaire for young adults excludes questions on: past smoking behaviour, desire to give up smoking and medical advice to stop smoking.

4.2.3 Definitions

The tables reported in this chapter use the following classifications of smoking status:

- Current smoking status: current smoker, ex-regular smoker, never regular smoker/never smoked at all.
- Mean number of cigarettes smoked by current smokers: this is measured as number per smoker per day.

4.3 SMOKING PREVALENCE

4.3.1 Trends in smoking prevalence since 1995

Estimates for current smoking status – current cigarette smoker, ex-regular cigarette smoker and never regular cigarette smoker/never smoked at all – along with the number of cigarettes smoked per day from 1995 to 2012 are shown in Table 4.1.

Since 1995, smoking prevalence among adults aged 16 to 64 has decreased. Around a third (35%) of adults under the age of 65 were current smokers in 1995, and by 2012 this had fallen to 27%. The proportion of men smoking cigarettes declined from 34% to 28% during this period; the decline for women was steeper (from 36% to 26%). Levels have remained relatively steady for both men and women since 2008, ranging from 27% to 29% for men and 26% to 28% for women during this period.

The decline in smoking prevalence was coupled with an increase in the proportion of adults (aged 16 to 64) who had never smoked or had never been regular smokers. Levels rose from 49% in 1995 to 57% in 2011 and 55% in 2012. There has been little change, over time, in prevalence of ex-regular smokers. The proportion reporting to be an ex-regular smoker in 2012 - one in six (17%) – was the same as in 1995.

The trend in smoking prevalence for all adults (aged 16 years and over) since 2003 was consistent with that discussed above for those under 65. In 2003, 28% of adults smoked and by 2012 this had dropped to 25%. For both men and women, the smoking rate declined by four percentage points over this period (from 29% to 25% and 28% to 24% respectively). Between 2011 and 2012 there was no significant change in smoking prevalence among all adults (23% and 25% respectively).

Along with a drop in the proportion of smokers, the mean number of cigarettes smoked also decreased over the years. For male smokers aged 16 to 64 years, the mean number of cigarettes smoked dropped from 18.1 cigarettes per day in 1995 to 14.7 in 2012. The equivalent figures for women were 15.4 cigarettes in 1995 and 12.3 cigarettes in 2012. The downward trend in mean cigarette consumption was also evident among all adults aged 16 years and over. In 2003, adult smokers smoked an average of 15.3 cigarettes per day. The equivalent figure in 2012 was 13.5 cigarettes with little change seen in more recent years.

Table 4.1

4.3.2 Smoking prevalence, 2012, by age and sex

Table 4.2 and Figures 4A and 4B show 2012 cigarette smoking status estimates for men and women by age. In 2012, one in every four adults was a current cigarette smoker, 22% were ex-regular smokers and 54% had either never smoked cigarettes at all or had never smoked them regularly.

While there was no significant difference in the smoking status of men and women, the proportion of current smokers did vary by age for both genders. Among men, smoking prevalence was highest for those aged 35-44 (32%), while for women, those aged 25-34 (28%) and 55-64 (28%) were the most likely to smoke cigarettes. For both genders, prevalence was lowest for the oldest age group (those aged 75 and over) with 7% of men and 10% of women in this age group classified as current smokers. Prevalence among the key young adult group (those aged 16 to 24) was 25%, in line with the rate for all adults.

As might be expected, older people were most likely to be ex-regular smokers with prevalence rising from 5% among those aged 16-24 to 35% for those aged 75 years and over. In tandem with this, the youngest age groups were most likely to report having never been a regular cigarette smoker (74% of men and 67% of women aged 16-24).

Smokers in 2012 smoked an average of 13.5 cigarettes per day. Male smokers smoked an average of 2.3 cigarettes more per day than female smokers (means of 14.7 and 12.4 cigarettes per day respectively). Mean daily cigarette consumption followed a non-linear pattern across the age groups: those aged 16-24 smoked 8.9 cigarettes per day, rising steadily to 16.0 for those aged 55-64 before falling back to 11.7 cigarettes for those aged 75 and over.

Figure 4A, Figure 4B, Table 4.2

Figure 4A

Men's cigarette smoking status, 2012, by age

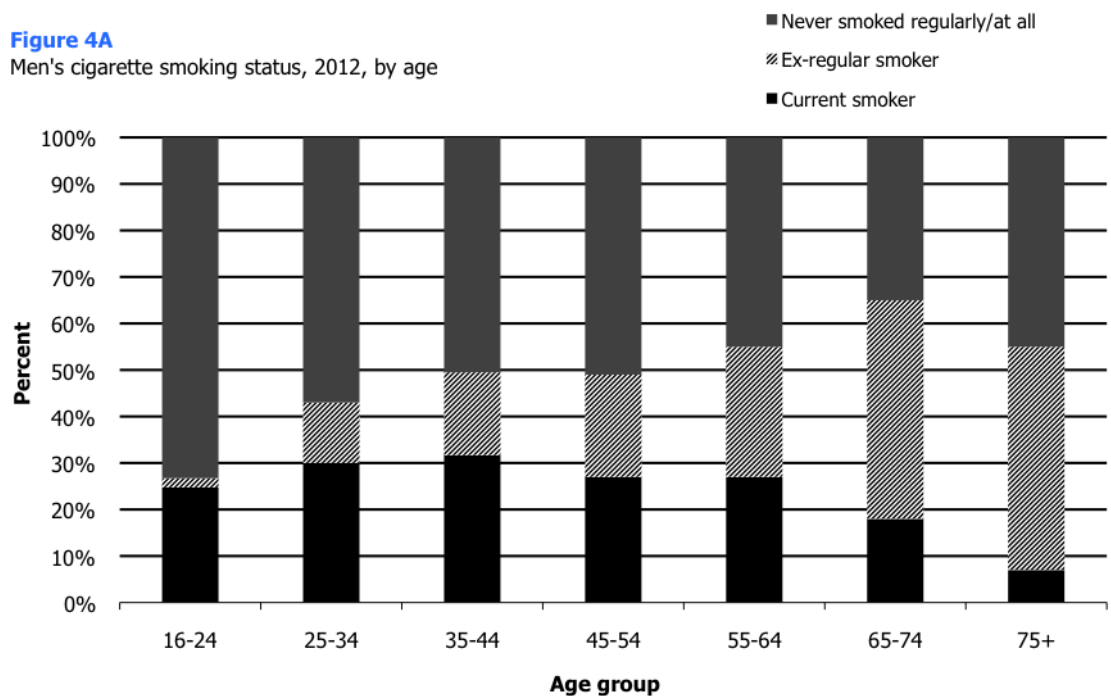
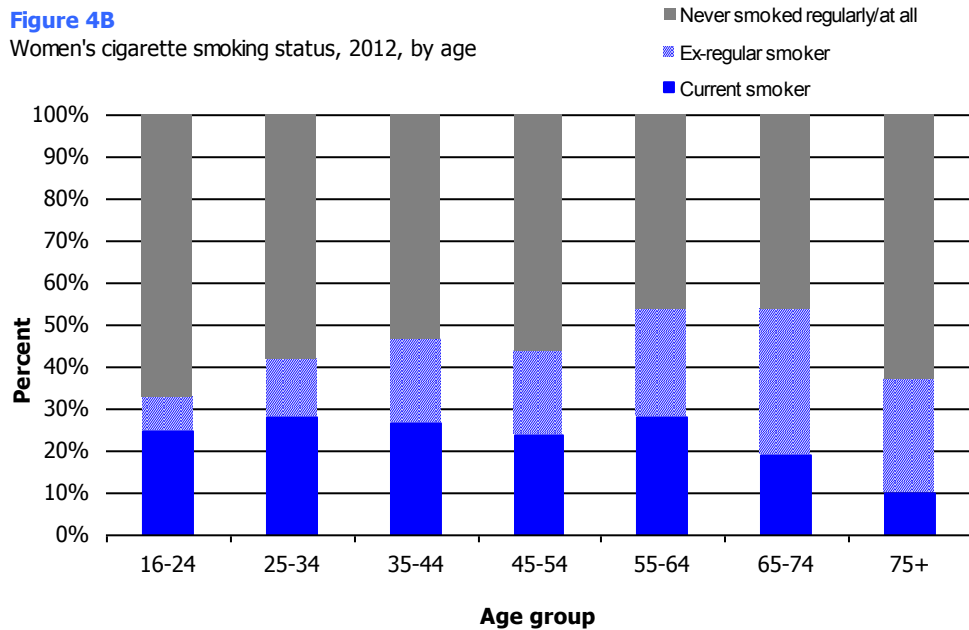


Figure 4B

Women's cigarette smoking status, 2012, by age



4.4 EXPOSURE TO SECOND-HAND SMOKE

4.4.1 Trends in adult exposure to second-hand smoke since 1998

Trends in the proportion of adult non-smokers exposed to second-hand smoke are shown in Table 4.3. Figures are presented for adults aged 16 to 74 from 1998 onwards and for all adults (aged 16 and above) from 2003. As noted in section 4.2, questionnaire changes introduced in 2012 mean that some trends can no longer be reported (though the figures up to 2011 are still reported in Table 4.3).

It is clear that, since 1998, exposure to second-hand smoke (among those aged 16 to 74) has markedly decreased across the range of different environments asked about. In 1998, a third of non-smokers aged 16 to 74 reported being exposed to tobacco smoke in their own or in others' homes but by 2011 this had more than halved to 15%, with a slight, but insignificant, increase in 2012, to 18%. Occupational exposure also fell from 23% for men and 14% for women in 1998 to 6% for men and 3% for women in 2012. Most of the decline in exposure in these areas occurred between 1998 and 2008, with the figures relatively stable since then.

Changes to the questionnaire mean trends in exposure on public transport and in pubs are only available up until 2011. Between 1998 and 2011 public transport exposure fell from 7% for men and 8% for women to less than 0.5%. The trends for exposure in pubs were stark (falling from 44% for men and 30% for women in 1998 to 1% or less for men and women from 2008 onward) with the greatest drop between 2003 and 2008.

The decline in second-hand smoke exposure in any public places among non-smokers aged 16 to 74 between 1998 and 2011 was even more pronounced (from 50% to 8%) than that for exposure to smoke in the home, with the greatest drop observed in 2008 (the first point data were collected after the introduction of the ban on smoking in public places). By 2011, 77% of non-smokers (aged 16 to 74) reported that they were not exposed to second-hand smoke in any of the environments asked about, an increase of 41 percentage points since 1998. This trend does not extend to 2012 due to questionnaire changes. In future years the trend on exposure to smoke in any public place will be based on 2012 onwards.

Overall, since 2003, the trends in exposure to second-hand smoke for all non-smoking adults (aged 16 and over) were very similar to those described above for non-smokers aged 16 to 74 years. Again, the most pronounced decreases in tobacco exposure occurred between 2003 and 2008 (pre and post the introduction of the ban on smoking in public places) with very little change in exposure levels since 2008.

In 2012, 16% of those aged 16 and above were exposed to tobacco in a public place (defined as: own home, other people's homes, in cars/vans, outside buildings, at work, or in other public places).

Table 4.3

4.4.2 Adult exposure to second-hand smoke, 2012, by age and sex

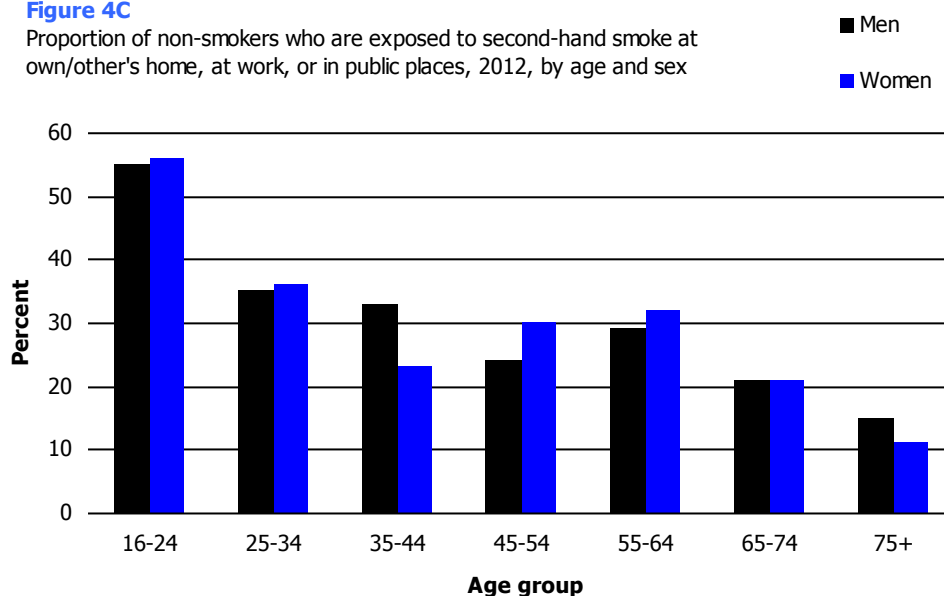
The proportions of non-smoking adults (aged 16 and above) exposed to second-hand smoke in various locations (at their own/other's home, at work, or in public places) in 2012 are shown by age and sex in Table 4.4, and Figure 4C. While the majority (70%) were not exposed to smoke in any of the places asked about, significant minorities still reported being exposed to second-hand smoke in some environments.

In 2012, one in five (17%) non-smoking adults were exposed to second-hand smoke either in their own or someone else's home. A similar proportion (16%) reported exposure in a public place. As mentioned above, in 2012, new options (outside buildings and in cars/vans) were added. Of the public places asked about, reported exposure was greatest outside buildings (e.g. pubs, shops, hospitals) with around one in ten (11%) reporting this (11% of men and 12% of women). Just 2% of adults reported exposure to smoke in cars/vans.

Patterns in exposure to second-hand smoke were generally similar among non-smoking males and females. The workplace was the only location where a consistent difference was apparent, with men twice as likely as women to be exposed to second-hand smoke while at work (6% compared with 3%).

Figure 4C

Proportion of non-smokers who are exposed to second-hand smoke at own/other's home, at work, or in public places, 2012, by age and sex



As in previous years, there were also some variations to non-smokers' exposure to second-hand smoke by age, with exposure generally greater among younger non-smokers. For example, 31% of non-smokers aged 16-24 were exposed to second-hand smoke in some public space, compared with just 4% of those aged 75 and older. Further, 19% in the youngest age group were exposed to second-hand smoke outside buildings such as pubs, shops and hospitals compared with 3% of the oldest non-smokers. Exposure to second-hand smoke in the home (own or someone else's) declined with age, with those aged 16-24 four times more likely than those aged 75 and over to report such exposure (34% compared with 8%).

Although no other strong patterns were apparent, there were some differences by sex within the different age groups; most notably, in the 16-24 age group, the proportion of women exposed to second-hand smoke in their own home was double that for men (20% compared with 10%).

Figure 4C, Table 4.4

4.4.3 Child exposure to second-hand smoke, 2012, by age and sex

Table 4.5 presents two measures of children's exposure to second-hand smoke. The first is based on whether or not anyone smokes inside the child's home. In 2012, the majority (81%) of children (aged 0 to 15) were living in homes where no-one smoked inside. One in five (19%) were, however, living in homes where people smoked (19% of boys and 18% of girls).

The second measure in the table is directly reported exposure to smoke in the home (parents of children aged 0 to 12 reported on their behalf). While 19% of children live in a home where someone regularly smokes inside, a lower proportion, 12%, were reported to be exposed to smoke at home. This suggests that steps had been taken to minimise some children's direct exposure to smoke, although the evidence indicates

that even if smoking does not take place when a child is present, they will still be exposed to environmental pollutants as a result of smoke particles contaminating the air, dust and surfaces of the home.¹⁰ The health consequences of such exposures are, as yet, unclear.¹¹

On both measures of exposure to second-hand smoke in the home varied, by age group, for both boys and girls. The youngest age group (those aged under 2) had the lowest levels of exposure with 8% living in a home where someone smoked inside, and 3% reported to be exposed to second-hand tobacco smoke. Prevalence of both measures was considerably higher among the remaining age groups. Between 18% and 24% of children aged 2 to 15 lived in a house where someone smoked inside, while reported exposure to smoke at home increased from 8%-9% in children aged 2-6, to 16%-17% for those aged 10 and over. **Table 4.5**

4.4.4 Household smoking rules, 2012, by age and sex

In 2012, for the first time, SHeS included a question on smoking rules in the home. The participant who answered the household questionnaire was provided with four different rules around smoking in the home and was asked to select the option that best described the rule that applied in their home. Table 4.6 shows household smoking rules for adults (aged 16 and over) by age and sex, and for children aged 0 to 15, for 2012.

Overall, in 2012, 13% of adults lived in a household with no restrictions placed on smoking indoors; for one in six (15%), smoking was permitted indoors but only in certain areas or rooms; while the majority (59%) lived in households in which smoking indoors was not permitted. For the remaining 13% smoking was not allowed indoors or outdoors.

Rules varied somewhat by sex and age, but with no obvious pattern. For instance, men were slightly more likely than women to live in homes with no restrictions on where people could smoke (15% compared with 11%). Those aged 75 and over were most likely to live in homes with no restrictions on smoking (19% compared with 10% to 16% for other age groups). However, this age group were also most likely to live in homes where smoking was not permitted indoors or outdoors (18%). Those aged 25 to 44 were most likely to live in homes where smoking indoors was prohibited (63% to 64%).

In 2012, 4% of children under 16 lived in a household with no restrictions placed on smoking indoors. For 15%, smoking was permitted indoors but only in certain areas or rooms. Most (68%) lived in households where smoking indoors was not permitted. Smoking was not allowed indoors or outdoors for the remaining 13%. **Table 4.6**

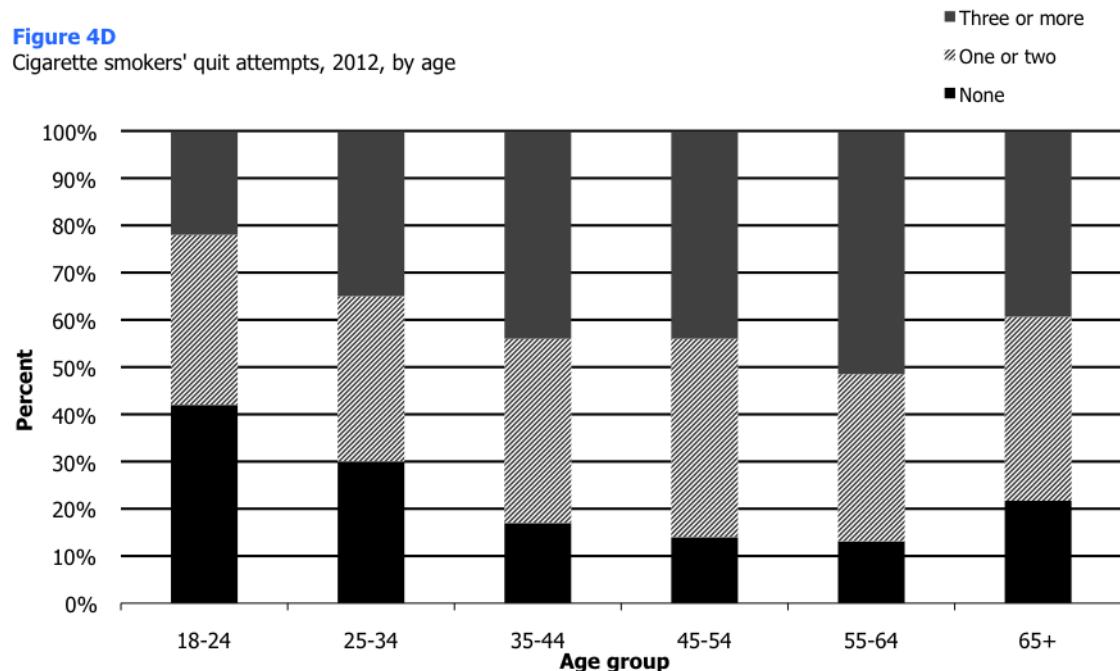
4.5 SMOKING CESSATION STATUS, 2012, BY AGE AND SEX

Attempts to stop smoking are shown in Figure 4D by age, and in Table 4.7 by age and sex. In 2012, when asked, the majority (73%) of smokers said they would like to quit. Over a third (38%) reported that they had attempted to quit smoking once or twice, while 41% had tried on three or more occasions. There was little variation in male and female smokers' desires to stop smoking or in the number of attempts they had made to quit. There were, however, some varying patterns in cessation status by age.

The desire to quit was greatest among those in the middle age groups (aged 35 to 54) with more than eight in ten (82% to 84%) of this age group reporting that they would like to stop. Those in the youngest and oldest age groups were least likely to want to quit (64% for those aged 18-24 and 59% for those aged 65-74) although the sample sizes for both these groups were quite small.

As might be expected, quit attempts broadly increased in line with age, with half of those aged 55-64 reporting at least three attempts to quit (compared with 22% of those aged 19-24). Younger smokers (under age 35) were most likely to have made no attempt to quit (30% to 42%), although even among this age group, a third had made at least one attempt to quit (35% to 36%).

Figure 4D, Table 4.7



4.6 USE OF NICOTINE REPLACEMENT THERAPY, 2012, BY AGE AND SEX

The 2012 estimates of nicotine replacement therapy (NRT) use among smokers/recent ex-smokers (those who had given up within the previous year) in the three months preceding the interview are shown in Table 4.8 by age and sex. Estimates are given both for use of NRT overall and type of NRT product used.

Overall, four in ten smokers and recent ex-smokers had used NRT during the three months prior to interview, with women significantly more likely than men to have done so (42% and 38% respectively). There was only limited variation in NRT use by age. NRT use was highest among the 45-54 age group (47%) and lowest (32%) among the oldest age group (those aged 75 years and over). Note, however, there is some uncertainty around the estimate for the 75 and over age group because of the low numbers in this age group.

Nicotine skin patches were the most commonly reported type of NRT used (27%). Twenty-four percent of male and 30% of female smokers/recent ex-smokers said they had used a skin patch in the last three months. Nicotine gum and nasal spray/nicotine inhalers were also fairly common (11% and 10% respectively). Use of lozenges/microtabs (4%) and the prescription-based treatments Champix/Varenicline and Zyban/Bupropion (6% and 2%) was lower.

Variation in use of specific types of NRT did not generally follow any particular age-related pattern. The exceptions were nasal spray/nicotine inhalers which tended to be more popular among the younger age groups, and prescription-based treatments which tended to be more common among those aged 45 to 64.

Table 4.8

References and notes

- ¹ Koplan J.P. and Mackay J. (2012). Curtailing tobacco use: first we need to know the numbers. *The Lancet* 380 (9842):629-30.
- ² ScotPHO Smoking Ready Reckoner – 2011 Edition. See: <http://www.scotpho.org.uk/publications/reports-and-papers/868-smoking-ready-reckoner>.
- ³ See: <http://www.scotland.gov.uk/About/Performance/scotPerforms/indicator/smoking>.
- ⁴ See: www.scotland.gov.uk/About/Performance/scotPerforms/indicator/mortality
- ⁵ *National Performance Framework: Changes to the National Indicator Set* Edinburgh: Scottish Government, 2012. www.scotland.gov.uk/About/scotPerforms/Nlchanges See also: www.scotlandperforms.com
- ⁶ The 2007 *Better Health, Better Care* action plan for improving health and health care in Scotland set out how NHS Scotland's HEAT performance management system (based around a series of targets against which the performance of its individual Boards are measured) would feed into the Government's overarching objectives. The HEAT targets derive their name from the four strands in the performance framework: the Health Improvement of the population; Efficiency and Governance Improvements; Access to NHS services and waiting times; and Treatment and quality of services.
- ⁷ See: www.scotland.gov.uk/About/Performance/scotPerforms/partnerstories/NHSScotlandperformance/smokingcessation
- ⁸ *Creating a Tobacco-free Generation: A Tobacco Control Strategy for Scotland*. Edinburgh: Scottish Government, 2013. <http://www.scotland.gov.uk/Resource/0041/00417331.pdf>
- ⁹ Gray, A, & Leyland, A. (2009). Chapter 4: Smoking. In Bromley, C., Bradshaw, P. and Given, L. [eds.] *The 2008 Scottish Health Survey – Volume 1: Main Report*. Edinburgh: Scottish Government. www.scotland.gov.uk/Publications/2009/09/28102003/0
- ¹⁰ Matt G.E., Quintana P.J.E. & Hovell M.F. et al (2004) Households contaminated by environmental tobacco smoke: sources of infant exposures. *Tobacco Control* 13: 29-37. [<www.ncbi.nlm.nih.gov/pmc/articles/PMC1747815/>](http://www.ncbi.nlm.nih.gov/pmc/articles/PMC1747815/)
- ¹¹ Matt, G.E., Quintana, P., Hovell, M. et al. Tobacco Smoke: Emerging Evidence and Arguments for a Multidisciplinary Research Agenda *Environ Health Perspect*. 2011 September; 119(9): 1218–1226. [<www.ncbi.nlm.nih.gov/pmc/articles/PMC3230406/>](http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3230406/)

Table list

Table 4.1	Cigarette smoking status, 1995 to 2012
Table 4.2	Cigarette smoking status, 2012, by age and sex
Table 4.3	Non-smokers' exposure to second-hand smoke, 1998 to 2012
Table 4.4	Non-smokers' exposure to second-hand smoke, 2012, by age and sex
Table 4.5	Children's exposure to second-hand smoke, 2012, by age and sex
Table 4.6	Smoking rules in household, 2012, by age and sex
Table 4.7	Quit attempts by smokers, and whether would like to quit smoking, 2012, by age and sex
Table 4.8	NRT use, 2012, by age and sex

Table 4.1 Cigarette smoking status, 1995 to 2012

<i>Aged 16 and over</i>		<i>1995 to 2012</i>						
Cigarette smoking status	1995	1998	2003	2008	2009	2010	2011	2012
	%	%	%	%	%	%	%	%
Men								
Current cigarette smoker^a								
16-64	34	36	32	29	28	29	27	28
16+	n/a	n/a	29	27	25	26	24	25
Ex-regular cigarette smoker								
16-64	18	18	19	19	19	18	18	17
16+	n/a	n/a	24	24	24	24	23	23
Never regular cigarette smoker/never smoked at all								
16-64	49	46	49	51	53	53	55	55
16+	n/a	n/a	47	49	51	50	52	52
Mean per current smoker per day								
16-64	18.1	17.6	15.9	15.6	15.2	14.6	14.2	14.7
16+	n/a	n/a	15.9	15.7	15.4	14.8	14.3	14.7
Standard error of the mean								
16-64	0.31	0.29	0.35	0.49	0.44	0.46	0.38	0.52
16+	n/a	n/a	0.33	0.46	0.41	0.43	0.35	0.48

Continued...

Table 4.1 - Continued

<i>Aged 16 and over</i>		<i>1995 to 2012</i>						
Cigarette smoking status	1995	1998	2003	2008	2009	2010	2011	2012
	%	%	%	%	%	%	%	%
Women								
Current cigarette smoker^a								
16-64	36	33	31	28	27	28	26	26
16+	n/a	n/a	28	25	25	25	22	24
Ex-regular cigarette smoker								
16-64	16	16	17	19	17	19	17	18
16+	n/a	n/a	20	22	20	21	20	21
Never regular cigarette smoker / never smoked at all								
16-64	49	51	52	53	56	54	58	56
16+	n/a	n/a	53	53	55	54	57	55
Mean per current smoker per day								
16-64	15.4	15.2	14.8	13.6	13.5	13.3	13.2	12.3
16+	n/a	n/a	14.7	13.7	13.4	13.1	13.3	12.4
Standard error of the mean								
16-64	0.21	0.24	0.29	0.33	0.30	0.29	0.33	0.43
16+	n/a	n/a	0.27	0.31	0.27	0.27	0.30	0.40

Continued...

Table 4.1 - Continued

<i>Aged 16 and over</i>		<i>1995 to 2012</i>						
Cigarette smoking status	1995	1998	2003	2008	2009	2010	2011	2012
	%	%	%	%	%	%	%	%
All adults								
Current cigarette smoker^a								
16-64	35	35	31	29	28	28	26	27
16+	n/a	n/a	28	26	25	25	23	25
Ex-regular cigarette smoker								
16-64	17	17	18	19	18	18	17	17
16+	n/a	n/a	22	23	22	23	22	22
Never regular cigarette smoker / never smoked at all								
16-64	49	48	51	52	54	54	57	55
16+	n/a	n/a	50	51	53	52	55	54
Mean per current smoker per day								
16-64	16.7	16.4	15.3	14.6	14.3	13.9	13.7	13.5
16+	n/a	n/a	15.3	14.7	14.4	13.9	13.8	13.5
Standard error of the mean								
16-64	0.19	0.19	0.26	0.31	0.29	0.28	0.28	0.36
16+	n/a	n/a	0.24	0.28	0.26	0.26	0.26	0.34

Continued...

Table 4.1 - Continued

<i>Aged 16 and over</i>	<i>1995 to 2012</i>							
Cigarette smoking status	1995	1998	2003	2008	2009	2010	2011	2012
<i>Bases (weighted):</i>								
<i>Men 16-64</i>	3901	3937	3156	2520	2916	2795	2926	1868
<i>Men 16+</i>	<i>n/a</i>	<i>n/a</i>	3819	3066	3560	3422	3581	2292
<i>Women 16-64</i>	3994	3966	3307	2618	3047	2925	3045	1939
<i>Women 16+</i>	<i>n/a</i>	<i>n/a</i>	4267	3348	3905	3750	3906	2489
<i>All adults 16-64</i>	7895	7903	6463	5138	5962	5720	5971	3807
<i>All adults 16+</i>	<i>n/a</i>	<i>n/a</i>	8086	6413	7465	7173	7487	4780
<i>Bases (unweighted):</i>								
<i>Men 16-64</i>	3523	3356	2749	2072	2387	2273	2409	1510
<i>Men 16+</i>	<i>n/a</i>	<i>n/a</i>	3582	2829	3265	3092	3263	2119
<i>Women 16-64</i>	4406	4194	3442	2679	3198	3067	3162	1963
<i>Women 16+</i>	<i>n/a</i>	<i>n/a</i>	4514	3600	4227	4109	4243	2677
<i>All adults 16-64</i>	7929	7550	6191	4751	5585	5340	5571	3473
<i>All adults 16+</i>	<i>n/a</i>	<i>n/a</i>	8096	6429	7492	7201	7506	4796

a Current cigarette smoker excludes those who reported only smoking cigars or pipes

Table 4.2 Cigarette smoking status, 2012, by age and sex

<i>Aged 16 and over</i>								2012
Cigarette smoking status	Age							Total
	16-24	25-34	35-44	45-54	55-64	65-74	75+	
	%	%	%	%	%	%	%	%
Men								
Current cigarette smoker ^a	25	30	32	27	27	18	7	25
Ex-regular cigarette smoker	2	13	18	22	28	47	48	23
Never regular cigarette smoker/never smoked at all	74	57	51	51	45	35	45	52
Mean per current smoker per day	[8.9]	12.9	15.9	16.3	18.4	15.9	*	14.7
Standard error of the mean	[1.49]	1.16	0.94	0.78	1.04	1.17	*	0.48
Women								
Current cigarette smoker ^a	25	28	27	24	28	19	10	24
Ex-regular cigarette smoker	8	14	20	20	26	35	27	21
Never regular cigarette smoker/never smoked at all	67	58	54	56	46	46	63	55
Mean per current smoker per day	8.9	10.4	12.6	14.7	13.8	13.1	[12.1]	12.4
Standard error of the mean	0.86	0.86	0.87	0.83	0.85	1.20	[1.25]	0.40

Continued...

Table 4.2 - Continued

<i>Aged 16 and over</i>								2012
Cigarette smoking status	Age							Total
	16-24	25-34	35-44	45-54	55-64	65-74	75+	
	%	%	%	%	%	%	%	%
All adults								
Current cigarette smoker ^a	25	29	29	26	27	18	9	25
Ex-regular cigarette smoker	5	14	19	21	27	41	35	22
Never regular cigarette smoker/never smoked at all	70	58	52	54	46	41	56	54
Mean per current smoker per day	8.9	11.7	14.3	15.5	16.0	14.4	[11.7]	13.5
Standard error of the mean	0.98	0.72	0.63	0.58	0.74	0.87	1.05	0.34
<i>Bases (weighted):</i>								
<i>Men</i>	322	383	380	420	362	251	173	2292
<i>Male smokers</i>	78	113	116	110	93	42	13	564
<i>Women</i>	311	376	414	454	383	287	263	2489
<i>Female smokers</i>	74	104	110	109	106	52	26	582
<i>All adults</i>	633	760	795	874	745	539	435	4780
<i>All smokers</i>	151	217	227	219	199	94	39	1146
<i>Bases (unweighted):</i>								
<i>Men</i>	163	228	346	409	364	385	224	2119
<i>Male smokers</i>	43	67	103	111	86	59	15	484
<i>Women</i>	219	329	474	498	443	388	326	2677
<i>Female smokers</i>	52	93	123	117	112	61	30	588
<i>All adults</i>	382	557	820	907	807	773	550	4796
<i>All smokers</i>	95	160	226	228	198	120	45	1072

a Current cigarette smoker excludes those who reported only smoking cigars or pipes

Table 4.3 Non-smokers' exposure to second-hand smoke, 1998 to 2012

<i>Non-smokers aged 16 and over</i>		<i>1998 to 2012</i>					
Exposure to second-hand smoke^a	1998	2003	2008	2009	2010	2011	2012
	%	%	%	%	%	%	%
Men							
In own home							
16-74	18	15	10	9	9	8	7
16+	n/a	14	10	9	8	8	7
In other people's home							
16-74	21	16	12	10	11	10	11
16+	n/a	15	11	9	10	9	10
At work							
16-74	23	16	6	6	6	5	6
16+	n/a	15	5	5	5	5	6
On public transport							
16-74	7	6	1	1	0	0	n/a
16+	n/a	6	1	0	0	0	n/a
In pubs							
16-74	44	42	1	1	1	1	n/a
16+	n/a	39	1	1	1	1	n/a
Outside buildings, e.g. pubs, shops, hospitals							
16-74	n/a	n/a	n/a	n/a	n/a	n/a	12
16+	n/a	n/a	n/a	n/a	n/a	n/a	11
In cars / vans							
16-74	n/a	n/a	n/a	n/a	n/a	n/a	2
16+	n/a	n/a	n/a	n/a	n/a	n/a	2
In other public places							
16-74	25	26	6	5	7	8	8
16+	n/a	25	6	5	6	7	7
In own or other's home							
16-74	31	24	19	18	17	16	17
16+	n/a	24	18	17	16	15	16
In any public place (98-11)^b							
16-74	55	52	7	7	7	8	n/a
16+	n/a	49	7	6	7	8	n/a

Continued...

Table 4.3 - Continued

Non-smokers aged 16 and over

1998 to 2012

Exposure to second-hand smoke^a	1998	2003	2008	2009	2010	2011	2012
	%	%	%	%	%	%	%
Not exposed to smoke in these places (98-11)^c							
16-74	33	37	73	74	75	75	n/a
16+	n/a	39	75	76	76	77	n/a
In any public place (12 onwards)^d							
16+	n/a	n/a	n/a	n/a	n/a	n/a	16
Not exposed to smoke in these places (12 onwards)^e							
16+	n/a	n/a	n/a	n/a	n/a	n/a	69
Women							
In own home							
16-74	18	13	10	8	8	6	9
16+	n/a	13	9	8	8	6	8
In other people's home							
16-74	25	21	13	13	14	10	13
16+	n/a	19	12	12	12	9	11
At work							
16-74	14	9	2	3	2	3	3
16+	n/a	8	2	3	2	2	3
On public transport							
16-74	8	6	0	1	0	0	n/a
16+	n/a	5	0	1	0	0	n/a
In pubs							
16-74	30	32	0	1	0	1	n/a
16+	n/a	28	0	1	0	0	n/a
Outside buildings, e.g. pubs, shops, hospitals							
16-74	n/a	n/a	n/a	n/a	n/a	n/a	13
16+	n/a	n/a	n/a	n/a	n/a	n/a	12
In cars / vans							
16-74	n/a	n/a	n/a	n/a	n/a	n/a	2
16+	n/a	n/a	n/a	n/a	n/a	n/a	2
In other public places							
16-74	28	28	6	6	7	7	8
16+	n/a	26	5	5	6	7	8

Table 4.3 - Continued

	1998 to 2012						
<i>Non-smokers aged 16 and over</i>							
Exposure to second-hand smoke^a	1998	2003	2008	2009	2010	2011	2012
	%	%	%	%	%	%	%
In own or other's home							
16-74	35	29	21	19	19	14	19
16+	n/a	27	19	18	18	14	17
In any public place (98-11)^b							
16-74	46	46	6	7	8	8	n/a
16+	n/a	42	6	6	7	7	n/a
Not exposed to smoke in these places (98-11)^c							
16-74	39	43	75	75	75	78	n/a
16+	n/a	47	77	77	77	79	n/a
In any public place (12 onwards)^d							
16+	n/a	n/a	n/a	n/a	n/a	n/a	16
Not exposed to smoke in these places (12 onwards)^e							
16+	n/a	n/a	n/a	n/a	n/a	n/a	70
All adults							
In own or other's home							
16-74	33	27	20	19	18	15	18
16+	n/a	25	18	17	17	14	17
In any public place (98-11)^b							
16-74	50	48	7	7	7	8	n/a
16+	n/a	45	6	6	7	8	n/a
Not exposed to smoke in these places (98-11)^c							
16-74	36	40	74	75	75	77	n/a
16+	n/a	43	76	76	77	78	n/a
In any public place (12 onwards)^d							
16+	n/a	n/a	n/a	n/a	n/a	n/a	16
Not exposed to smoke in these places (12 onwards)^e							
16+	n/a	n/a	n/a	n/a	n/a	n/a	70

Continued...

Table 4.3 - Continued

<i>Non-smokers aged 16 and over</i>						<i>1998 to 2012</i>	
Exposure to second-hand smoke^a	1998	2003	2008	2009	2010	2011	2012
<i>Bases (weighted):</i>							
<i>Men 16-74</i>	2897	2476	1950	2429	2302	2464	1550
<i>Men 16+</i>	<i>n/a</i>	2695	2137	2655	2524	2707	1709
<i>Women 16-74</i>	3077	2677	2197	2574	2474	2648	1662
<i>Women 16+</i>	<i>n/a</i>	3088	2508	2941	2826	3029	1899
<i>All adults 16-74</i>	5973	5153	4147	5003	4776	5111	3211
<i>All adults 16+</i>	<i>n/a</i>	5783	4645	5596	5350	5736	3608
<i>Bases (unweighted):</i>							
<i>Men 16-74</i>	2552	2299	1771	2146	1991	2166	1403
<i>Men 16+</i>	<i>n/a</i>	2576	2031	2466	2281	2482	1612
<i>Women 16-74</i>	3321	2850	2353	2764	2667	2844	1784
<i>Women 16+</i>	<i>n/a</i>	3284	2724	3199	3089	3292	2080
<i>All adults 16-74</i>	5872	5149	4130	4910	4658	5010	3187
<i>All adults 16+</i>	<i>n/a</i>	5860	4755	5665	5370	5774	3692

a Percentages add to more than 100% as the categories are not mutually exclusive

b Any public place defined as: on public transport, in pubs, or other public places from 1998 to 2011

c These places defined as: in own home, other people's homes, on public transport, in pubs, at work, or in other public places from 1998 to 2011

d Any public place defined as: outside buildings, or in any other public places in 2012

e These places defined as: in own home, other people's homes, in cars/vans, outside buildings, at work, or in other public places in 2012

Table 4.4 Non-smokers' exposure to second-hand smoke, 2012, by age and sex

<i>Non-smokers aged 16 and over</i>								2012
Exposure to second-hand smoke ^a	Age							Total
	16-24	25-34	35-44	45-54	55-64	65-74	75+	
	%	%	%	%	%	%	%	%
Men								
In own home	10	7	7	4	10	5	8	7
In other people's home	25	15	11	9	5	5	-	10
At work	6	10	7	8	4	1	-	6
Outside buildings (e.g. pubs, shops, hospitals)	16	11	12	10	13	10	5	11
In cars/vans etc	4	1	4	2	1	0	-	2
In other public places	21	4	6	5	5	7	2	7
In own or other's home	32	20	17	12	13	8	8	16
In any public place ^b	30	13	15	13	16	13	7	16
Not exposed to smoke in these places ^c	45	65	67	76	71	79	85	69
Women								
In own home	20	6	3	7	11	7	6	8
In other people's home	22	19	10	12	9	5	3	11
At work	5	4	3	3	2	1	-	3
Outside buildings (e.g. pubs, shops, hospitals)	21	16	10	13	12	8	2	12
In cars/vans etc	9	1	1	1	2	0	-	2
In other public places	23	8	3	6	8	4	1	8
In own or other's home	36	22	12	16	18	11	8	17
In any public place ^b	33	20	11	17	17	10	3	16
Not exposed to smoke in these places ^c	44	64	77	70	68	79	89	70

Continued...

Table 4.4 - Continued

<i>Non-smokers aged 16 and over</i>								2012
Exposure to second-hand smoke^a	Age							Total
	16-24	25-34	35-44	45-54	55-64	65-74	75+	
	%	%	%	%	%	%	%	%
All adults								
In own home	15	7	5	6	11	6	7	8
In other people's home	23	17	10	11	7	5	2	11
At work	5	7	5	5	3	1	-	4
Outside buildings (e.g. pubs, shops, hospitals)	19	13	11	11	12	9	3	11
In cars/vans etc	6	1	3	2	1	0	-	2
In other public places	22	6	5	6	7	5	2	7
In own or other's home	34	21	14	14	16	10	8	17
In any public place ^b	31	16	13	15	17	12	4	16
Not exposed to smoke in these places ^c	44	65	72	72	70	79	87	70
<i>Bases (weighted):</i>								
<i>Men</i>	242	268	260	307	265	207	160	1709
<i>Women</i>	234	272	303	344	276	233	237	1899
<i>All adults</i>	476	540	564	650	541	440	397	3608
<i>Bases (unweighted):</i>								
<i>Men</i>	119	160	238	294	272	320	209	1612
<i>Women</i>	164	236	350	380	329	325	296	2080
<i>All adults</i>	283	396	588	674	601	645	505	3692

a Percentages add to more than 100% as the categories are not mutually exclusive

b Any public place defined as outside buildings, or other public places

c In own home, other people's homes, in cars/vans, outside buildings, at work, or in other public places

Tables 4.5 Children's exposure to second-hand smoke, 2012, by age and sex

<i>Aged 0 - 15</i>							<i>2012</i>
Exposure to second-hand smoke in own home	Age						Total
	0-1	2-3	4-6	7-9	10-12	13-15	
	%	%	%	%	%	%	%
Boys							
Whether anyone smokes in accommodation	9	23	18	23	21	17	19
Reported exposure to second-hand smoke in own home	3	9	8	17	17	13	12
Girls							
Whether anyone smokes in accommodation	7	16	17	13	26	27	18
Reported exposure to second-hand smoke in own home	3	8	11	7	17	20	12
All children							
Whether anyone smokes in accommodation	8	19	18	18	24	21	19
Reported exposure to second-hand smoke in own home	3	8	9	12	17	16	12
<i>Bases (weighted):</i>							
<i>Boys</i>	111	125	171	164	165	178	914
<i>Girls</i>	113	123	162	148	178	149	873
<i>All children</i>	224	248	333	312	342	327	1787
<i>Bases (unweighted):</i>							
<i>Boys</i>	115	119	169	159	151	166	879
<i>Girls</i>	123	132	171	159	169	154	908
<i>All children</i>	238	251	340	318	320	320	1787

Table 4.6 Smoking rules in household, 2012, by age and sex

Smoking rules in this house/flat	Age								2012
									Total 16+
	0-15	16-24	25-34	35-44	45-54	55-64	65-74	75+	
	%	%	%	%	%	%	%	%	%
Males									
People can smoke anywhere inside this house/flat	4	16	14	12	14	17	12	21	15
People can only smoke in certain areas or rooms inside this house/flat	16	13	12	14	16	16	12	13	14
People can only smoke in outdoor areas (e.g. gardens/balconies)	67	53	60	60	58	56	63	48	57
People cannot smoke indoors or in outdoor areas of this house/flat	14	18	14	13	12	11	14	18	14
Females									
People can smoke anywhere inside this house/flat	3	11	5	7	11	15	14	18	11
People can only smoke in certain areas or rooms inside this house/flat	15	18	15	17	18	21	16	8	17
People can only smoke in outdoor areas (e.g. gardens/balconies)	70	58	67	66	59	55	57	55	60
People cannot smoke indoors or in outdoor areas of this house/flat	12	13	13	10	12	9	12	18	12

Continued...

Table 4.6 - Continued

<i>Aged 16 and over</i>									2012
Smoking rules in this house/flat	Age								Total
	0-15	16-24	25-34	35-44	45-54	55-64	65-74	75+	
All		%	%	%	%	%	%	%	%
People can smoke anywhere inside this house/flat	4	14	10	10	12	16	13	19	13
People can only smoke in certain areas or rooms inside this house/flat	15	16	14	16	17	18	14	10	15
People can only smoke in outdoor areas (e.g. gardens/balconies)	68	55	64	63	58	55	60	53	59
People cannot smoke indoors or in outdoor areas of this house/flat	13	16	13	12	12	10	13	18	13
<i>Bases (weighted):</i>									
<i>Males</i>	913	338	383	380	419	362	250	172	2305
<i>Females</i>	872	326	376	414	455	382	287	261	2502
<i>All persons</i>	1786	664	760	795	874	744	538	434	4807
<i>Bases (unweighted):</i>									
<i>Males</i>	878	169	228	346	408	363	383	224	2121
<i>Females</i>	907	228	329	473	498	442	388	324	2682
<i>All persons</i>	1785	397	557	819	906	805	771	548	4803

Table 4.7 Quit attempts by smokers, and whether would like to quit smoking, 2012, by age and sex

<i>Aged 18 and over^a</i>								<i>2012</i>
Number of quit attempts and whether would like to quit	Age							Total
	18-24	25-34	35-44	45-54	55-64	65-74	75+	
	%	%	%	%	%	%	%	%
Men								
Number of attempts								
None	[43]	33	19	12	10	19	*	22
One or two	[32]	29	37	44	34	31	*	35
Three or more	[25]	38	44	44	55	50	*	43
Would like to quit								
Yes	[63]	67	84	83	74	63	*	73
No	[37]	33	16	17	26	37	*	27
Women								
Number of attempts								
None	[41]	25	15	16	16	22	[26]	21
One or two	[41]	42	41	40	36	37	[51]	40
Three or more	[18]	32	44	44	48	41	[23]	39
Would like to quit								
Yes	[64]	77	83	81	69	55	[46]	73
No	[36]	23	17	19	31	45	[54]	27

Continued...

Table 4.7 - Continued

Aged 18 and over^a

Number of quit attempts and whether would like to quit	Age							2012
	18-24	25-34	35-44	45-54	55-64	65-74	75+	Total
	%	%	%	%	%	%	%	%
All adults								
Number of attempts								
None	42	30	17	14	13	20	[26]	21
One or two	36	35	39	42	35	35	[49]	38
Three or more	22	35	44	44	51	45	[25]	41
Would like to quit								
Yes	64	71	84	82	72	59	[37]	73
No	36	29	16	18	28	41	[63]	27
<i>Bases (weighted):</i>								
<i>Men</i>	66	115	120	113	97	44	13	568
<i>Women</i>	55	103	111	110	107	54	26	566
<i>All adults</i>	121	218	231	223	204	99	39	1135
<i>Bases (unweighted):</i>								
<i>Men</i>	36	68	108	115	92	65	15	499
<i>Women</i>	40	92	124	118	114	63	30	581
<i>All adults</i>	76	160	232	233	206	128	45	1080

^a These questions were not asked in the self-completion for adults aged 16-17.

Table 4.8 NRT use, 2012, by age and sex

Smokers and recent ex-smokers (<1 year) aged 18 and over^a

NRT use	Age							2012
	18-24	25-34	35-44	45-54	55-64	65-74	75+	Total
	%	%	%	%	%	%	%	%
Men								
NRT used in last 3 months								
Nicotine gum	*	7	13	11	20	10	*	11
Nicotine patches on skin	*	22	25	27	30	27	*	24
Nasal spray/nicotine inhaler	*	4	14	14	8	4	*	10
Lozenge/microtab	*	-	5	5	3	6	*	3
Champix/Varenicline	*	6	5	8	4	10	*	5
Zyban/Bupropion	*	0	-	2	5	-	*	1
Other	*	2	2	-	-	-	*	1
Any NRT used	*	30	42	46	43	36	*	38
Not used NRT	*	70	58	54	57	64	*	62
Women								
NRT used in last 3 months								
Nicotine gum	[8]	12	11	14	7	9	*	11
Nicotine patches on skin	[35]	25	30	37	24	36	*	30
Nasal spray/nicotine inhaler	[20]	7	13	13	7	4	*	10
Lozenge/microtab	[-]	7	5	7	3	3	*	5
Champix/Varenicline	[-]	5	8	11	6	3	*	6
Zyban/Bupropion	[-]	-	3	4	3	1	*	2
Other	[-]	1	-	2	2	9	*	2
Any NRT used	[47]	38	37	48	36	54	*	42
Not used NRT	[53]	62	63	52	64	46	*	58

Continued...

Table 4.8 - Continued

Smokers and recent ex-smokers (<1 year) aged 18 and over^a

2012

NRT use	Age							Total
	18-24	25-34	35-44	45-54	55-64	65-74	75+	
	%	%	%	%	%	%	%	%
All adults								
NRT used in last 3 months								
Nicotine gum	5	9	12	12	13	10	[10]	11
Nicotine patches on skin	20	24	28	31	27	32	[28]	27
Nasal spray/nicotine inhaler	17	6	14	13	7	4	[4]	10
Lozenge/microtab	0	3	5	6	3	4	[2]	4
Champix/Varenicline	-	5	6	9	5	6	[-]	6
Zyban/Bupropion	-	0	1	3	4	1	[-]	2
Other	-	2	1	1	1	5	[4]	2
Any NRT used	36	34	39	47	39	45	[32]	40
Not used NRT	64	66	61	53	61	55	[68]	60
<i>Bases (weighted):</i>								
<i>Men</i>	48	92	104	111	91	39	12	497
<i>Women</i>	39	83	102	98	94	45	19	480
<i>All adults</i>	88	175	206	209	185	84	31	977
<i>Bases (unweighted):</i>								
<i>Men</i>	26	53	98	109	86	56	13	441
<i>Women</i>	32	81	114	107	102	54	22	512
<i>All adults</i>	58	134	212	216	188	110	35	953

^a These questions were not asked in the self-completion for adults aged 16-17.

5 DIET

Shanna Dowling

SUMMARY

- In 2012, adults consumed an average of 3.1 portions of fruit and vegetables per day (3.0 portions for men and 3.2 portions for women).
- One fifth of adults (19% of men and 21% of women) ate the recommended number of portions of fruit and vegetables, 5-a-day, in 2012. One in ten adults consumed no portions of fruit or vegetables.
- There has been very little change in fruit and vegetable consumption among adults since 2003.
- Fruit and vegetable consumption varied significantly by age. In general, older people tended to eat the most fruit and vegetables. Those aged 65-74 consumed an average of 3.4 portions per day, while those aged 16-24 consumed an average 2.8 portions per day.
- The age-related pattern in consumption levels was different for men and women. The pattern by age for women was comparable to that for all adults. Among men, mean consumption in the 16-44 age group was similar (between 2.8 and 2.9 portions), increasing to 3.0 at age 45-54. It continued to rise to 3.4 among those aged 65-74, before decreasing to 3.2 for the oldest age group.
- In 2012, children aged 2-15 consumed an average of 2.7 portions of fruit and vegetables per day. Just one in seven (13%) children aged 2-15 consumed the recommended 5 or more portions of fruit or vegetables per day.
- The proportion of children aged 5-15 meeting the 5-a-day target has not changed significantly since 2003 (12% in 2003 and 11% in 2012).
- Although mean portion consumption for children has remained steady since 2003 (fluctuating between 2.6 and 2.7), a decrease in boys' consumption (from 2.6 in 2003 to 2.4 in 2012) and an increase for girls (from 2.6 to 2.8 portions) resulted in a significant difference between boys and girls consumption in 2012.
- Younger children tended to eat more fruit and vegetables than older children in 2012. Children aged between 2 and 4 ate an average of 3.1 portions per day, compared with those aged 13-15 who consumed an average of 2.5 portions. Similarly, younger children were more likely to meet the 5-a-day target (17% of those aged 2-4, compared with 10%-13% of those in the older age groups).
- There have been few changes to adults' wider eating habits since 2008. The only significant change identified is a reduction in the proportion consuming red meat twice a week or more (from 61% in 2008 to 56% in 2012).

5.1 INTRODUCTION

A lack of fruit and vegetables in people's diet has been shown to be a risk factor in a range of serious health problems, such as heart disease, cancer, type II diabetes, hypertension and obesity. The World Health Organisation (WHO) recommends adults eat at least five varied portions – where a portion is defined as 80g – of fruit and vegetables a day.¹

Scotland's unhealthy diet is widely cited as a factor in its poor health record.² Previous research has shown that children and young people in Scotland follow

a diet that falls short of national recommendations and is less healthy than that of children in other European countries.³

Each year, in addition to presenting the most up-to-date data on diet, the Scottish Health Survey (SHeS) annual report also provides a broad overview of recent policy initiatives and developments relating to diet. In addition to the ongoing commitment to promote the WHO '5-a-day' recommendation, other recent policy initiatives and actions taken by the Scottish Government and NHS Scotland in relation to improving diet in the population have included:

- *Eating for Health: A Scottish Diet Action Plan*,⁴ which outlined the Scottish dietary targets.⁵ (1996)
- The White Paper *Towards a Healthier Scotland*.⁶
- The Scottish Executive's *Improving Health in Scotland – the Challenge* paper.⁷
- The Hungry for Success initiative.⁸
- A framework for implementing the Diet Action Plan: *Eating for Health - Meeting the Challenge*.⁹
- The Scottish Government's *Better Health, Better Care Action Plan*.¹⁰
- *Healthy Eating, Active Living: An action plan to improve diet, increase physical activity and tackle obesity (2008-2011)*.¹¹
- The Scottish Government's Obesity Route Map,¹² and associated *Obesity Route Map Action Plan*.¹³

Detailed measures of fruit and vegetable consumption were introduced to SHeS in 2003 and have been included annually since 2008. This chapter updates adult and child trends in fruit and vegetable consumption since 2003. The trend in adults' wider eating habits since 2008 is also explored.

5.2 METHODS AND DEFINITIONS

5.2.1 Measures of eating habits

Two different modules of questions were used to assess eating habits in the survey. The first module assessed fruit and vegetable consumption, and was designed with the aim of providing sufficient detail to monitor the 5-a-day policy effectively. This module has been asked of all adults since 2003 and children aged 2 and over annually since 2008. The second module, gathering information on eating habits more generally, is asked of children each year (since 2008), and a sub-sample of adults biennially (2008, 2010 and 2012). It uses a modified version of the Dietary Instrument of Nutrition Education (DINE) questionnaire. The DINE questionnaire was developed by the Imperial Cancer Research Fund's General Practice Research Group to assess usual intake of a wide range of nutrients, including protein, starch, fat and fibre.¹⁴

To determine the total number of portions that were consumed in the 24 hours preceding the interview, the fruit and vegetable module included questions about consumption of the following food types: vegetables

(fresh, frozen or canned); salads; pulses; vegetables in composites (e.g. vegetable chilli); fruit (fresh, frozen or canned); dried fruit; and fruit in composites (e.g. apple pie). A portion was defined as the conventional 80g of a fruit or vegetable. As 80g is difficult to visualise, a 'portion' was described using more everyday terms, such as tablespoons, cereal bowls and slices. Examples were given in the questionnaire to aid the recall process, for instance, tablespoons of vegetables, cereal bowls full of salad, pieces of medium sized fruit (e.g. apples) or handfuls of small fruits (e.g. raspberries). In spite of this, there may be some variation between participants' interpretation of a portion. These everyday measures were converted back to 80g portions prior to analysis. The following table shows the definitions of the portion sizes used for each food item included in the survey:

Food item	Portion size
Vegetables (fresh, frozen or canned)	3 tablespoons
Pulses (dried)	3 tablespoons
Salad	1 cereal bowlful
Vegetables in composites, such as vegetable chilli	3 tablespoons
Very large fruit, such as melon	1 average slice
Large fruit, such as grapefruit	Half a fruit
Medium fruit, such as apples	1 fruit
Small fruit, such as plum	2 fruits
Very small fruit, such as blackberries	2 average handfuls
Dried fruit	1 tablespoon
Fruit in composites, such as stewed fruit in apple pie	3 tablespoons
Frozen fruit/canned fruit	3 tablespoons
Fruit juice	1 small glass (150 ml)

Since the 5-a-day policy stresses both volume and variety, the number of portions of fruit juice, pulses and dried fruit was capped so that no more than one portion could contribute to the total number of portions consumed. Interviewers recorded full or half portions, but nothing smaller.

5.3 FRUIT AND VEGETABLE CONSUMPTION

5.3.1 Trends in adult fruit and vegetable consumption since 2003

Data on adult (aged 16 and over) fruit and vegetable consumption from 2003 to 2012 are presented in Table 5.1. The proportion of adults who met or exceeded the recommended daily consumption guideline of at least five portions of fruit and vegetables is presented alongside the proportion failing to eat any. Figures for mean and median portion consumption are also presented in the table.

Average daily fruit and vegetable intake for adults has changed very little since 2003. There was a slight increase, from 3.1 portions in 2003, to 3.3 portions in both 2008 and 2009. By 2012, average mean portion consumption per person had returned to 2003 levels (3.1 portions). The trends in consumption were very similar for both men and women, with

the average portions consumed in 2012 the same as in 2003 for both genders (3.0 portions in 2003 and 2012 for men and 3.2 for women in both years).

The proportion of adults consuming at least 5-a-day, the recommended daily intake, has also remained stable since 2003. In 2012, one in five adults ate at least five portions in the 24 hours prior to interview, similar to the level in 2003 (21%). There was a two percentage point decline between 2011 and 2012 but this was not statistically significant. The lack of change in adherence was evident among both men and women (in 2003 20% of men and 22% women met the target; the equivalent figures in 2012 were 19% and 21% respectively).

There has been little change in the proportion of adults not eating any fruit and vegetables over the years. The proportion who ate no portions in the day prior to interview has consistently stayed at around 10% (ranging between 9% and 10%) since 2003 (10% in 2012). **Table 5.1**

5.3.2 Adult fruit and vegetable consumption, 2012, by age and sex

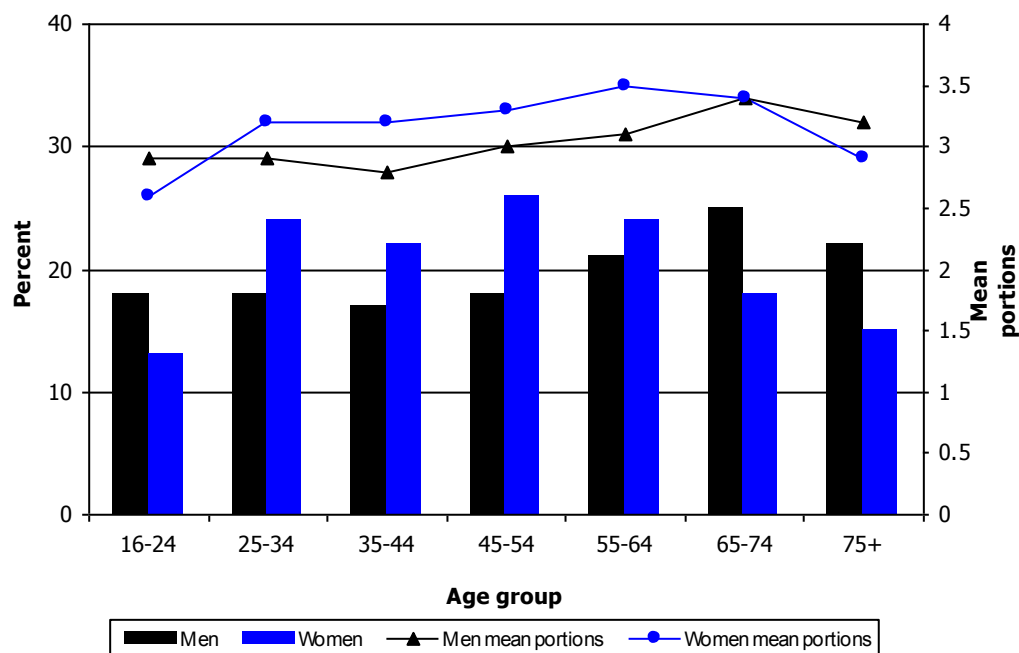
Adult fruit and vegetable consumption in 2012 is broken down by age and sex in Table 5.2. Average portion consumption did not vary significantly between men and women (3.0 portions and 3.2 portions respectively).

Average portion consumption did, however, vary significantly by age, typically increasing in line with age, up to age 65-74. The youngest age group (those aged 16-24) ate fewest portions (an average of 2.8 portions a day). Consumption was higher among those aged 25-54 (between 3.0 and 3.1 portions) and higher still among those aged 55-64 (3.3 portions) and 65-74 (3.4 portions). Those aged 75 and over ate an average of 3.0 portions a day.

Mean portion consumption patterns by age were slightly different for men and women (Figure 5A). For women, the association was similar to that seen for all adults. Consumption was lowest among the youngest age group (2.6 portions) and higher for all the remaining age groups (3.2 to 3.5 portions) with the exception of those aged 75 and over (2.9 portions). For men, average portion consumption among those under the age of 55 was very similar (ranging between 2.8 and 3.0 portions) while those aged 65-74 had the highest consumption levels (3.4 portions).

Figure 5A

Proportions meeting or exceeding recommended daily fruit and vegetable consumption (5 portions per day), and mean portions of fruit and vegetables consumed, 2012, by age and sex



In 2012, there was no significant difference in the proportion of men and women meeting the 5-a-day target (19% and 21% respectively).

One in six (16%) 16-24 year olds ate at least five portions of fruit and vegetables in the day prior to interview. The equivalent figures for 25 to 74 ranged between 20% and 23%. Among the oldest age group, those aged 75 or over, 18% met the target. While the association with age was not significant for all adults, there were some interesting age-related patterns for men and women separately (See Figure 5A). For women, adherence followed a similar pattern to that seen for all adults. Those in the youngest and oldest age groups were least likely to meet the target (13% and 15% respectively) and those aged 45-54 were most likely to eat at least five portions a day (26%). For men, adherence to the target was very similar among those aged 16 to 54 (ranging between 17% and 18%). Men aged 55 and above were more likely than younger men to meet the target with those aged 65-74 most likely to do so (25%).

One in ten adults did not eat any fruit or vegetables in the day prior to interview (11% of men and 9% of women). As with the mean unit consumption pattern, the proportion failing to consume any fruit and vegetables varied significantly with age. Young people (aged 16-24) were most likely to eat no fruit or vegetables (14%) whereas between 5% and 8% of those aged 55 and over ate none. **Figure 5A, Table 5.2**

5.3.3 Trends in child fruit and vegetable consumption since 2003

Data on fruit and vegetable consumption for children are collected in the same way as for adults on the survey. Children aged 13-15 (or a parent

if the child is aged between 2 and 12) are asked a series of questions to determine how many varied portions of fruit and vegetables they have eaten in the 24 hours prior to interview. Prior to 2008, information on fruit and vegetable consumption was not collected for children under the age of five. Therefore trends, since 2003, in proportions consuming the recommended daily amount of fruit and vegetables and mean consumption levels are shown for the 5 to 15 age group only (Table 5.3). Data for children aged 2-15 from 2008 onwards are also shown.

There was very little change in average daily portion consumption among those aged 5-15 between 2003 and 2012 (a mean of 2.6 portions per day in both 2003 and 2012). Since 2003, the average number of portions consumed by boys has declined by 0.2 portions, from 2.6 to 2.4 portions in 2012. For girls, the opposite occurred - an increase from 2.6 portions in 2003 to 2.8 portions in 2012. As a result, a significant difference between boys' and girls' mean portion consumption emerged for the first time in 2012 (see Section 5.3.4). Since 2008, the mean portions consumed by 2 to 15 year olds was typically around 0.1 portions higher than for those aged between 5 to 15 (ranging between 2.6 and 2.8 portions during this period).

In 2012, 11% of 5 to 15 year olds consumed the recommended daily amount of at least five portions per day, similar to the level in 2003 (12%). The proportion of boys and girls meeting the 5-a-day target has not changed significantly over time. Since 2008 there has been similar stability to the proportion of 2 to 15 year olds meeting the 5-a-day recommendation (13% in both 2008 and 2012).

Table 5.3

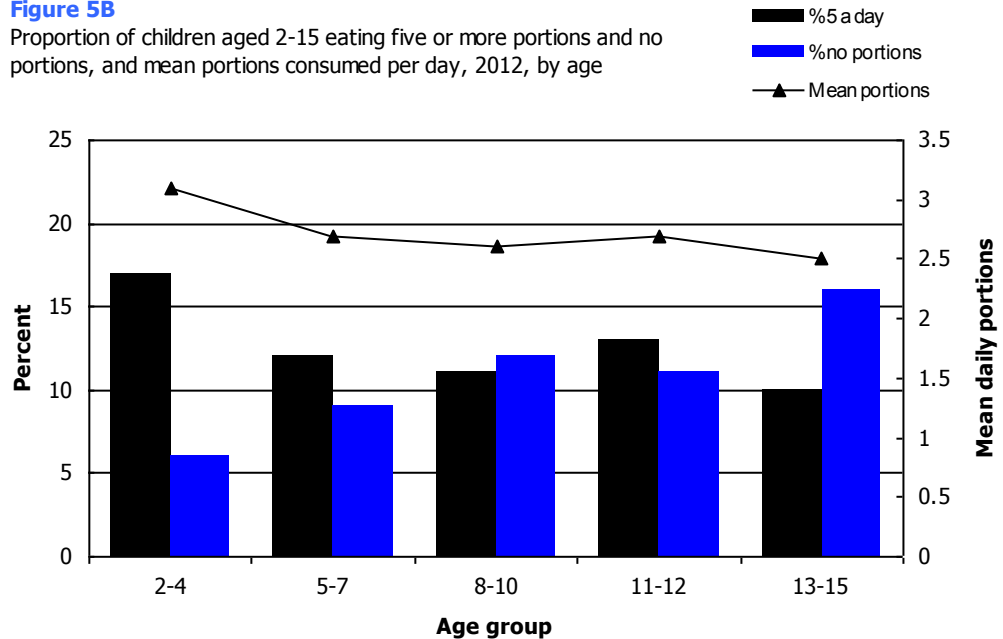
5.3.4 Child fruit and vegetable consumption, 2012, by age and sex

Fruit and vegetable consumption data for children aged 2-15 in 2012 are presented by age and gender in Table 5.4 showing consumption of an average of 2.7 portions of fruit and vegetables per day, considerably lower than the recommended five or more portions. There was a significant difference in average portion consumption for boys and girls, with girls consuming an average of 0.4 portions more per day than boys (2.9 compared with 2.5 portions). This is the first time, since the data have been collected, that a significant difference between boys' and girls' mean portion consumption has emerged. Data from future years will help confirm if this is part of a trend, or simply a one-off finding.

There was also a clear association between fruit and vegetable intake and age in 2012 (Figure 5B). Children aged between 2 and 4 consumed most portions (3.1 portions per day). Average consumption was lower among those aged 5-7 (2.7 portions) and 8-12 (between 2.6 and 2.7 portions). Intake was lowest among older children aged 13-15 (2.5 portions).

Figure 5B

Proportion of children aged 2-15 eating five or more portions and no portions, and mean portions consumed per day, 2012, by age



In 2012, just 13% of children aged 2-15 consumed the daily recommended amount of fruit and vegetables (12% of boys and 14% of girls). In line with average portion intake, younger children (2-4 years old) were most likely to meet the 5-a-day target (17% compared with 10% to 13% for older age groups).

Looking at the other extreme - eating no fruit or vegetables - reinforces the suggestion that older children eat less fruit and vegetables than younger children. One in six (16%) children aged 13-15 did not eat any fruit or vegetables in the 24 hours prior to interview (18% of boys in this age group and 13% of girls). This was particularly striking among boys aged 13-15 who were twice as likely to eat no fruit and vegetables than meet the 5-a-day target (18% compared with 9%).

Figure 5B, Table 5.4

5.4 ADULT EATING HABITS

5.4.1 Trends in adult eating habits since 2008

In addition to questions about fruit and vegetables, adults were also asked a series of questions about their consumption of a variety of other food and drink items. The module was based on the Dietary Instrument of Nutrition Education (DINE), developed by the Imperial Cancer Research Fund's General Practice Research Group.¹⁴ These questions have been asked of adults aged 16 and over biennially since 2008. Trends for consumption of a number of the food and drink items from the DINE questionnaire are presented in Table 5.5.

Sugary foods and snacks

Between 2008 and 2012 there was very little change in adult consumption of sugary foods and snacks. In 2012, consumption of

sweets or chocolates (29%), biscuits (32%) and crisps (17%) once a day or more, ice cream once a week or more (26%), and cakes twice a week or more (35%) were all at similar levels to those recorded in 2008. There were no significant differences between male and female consumption of these items.

Adult consumption of non-diet soft drinks (once a day or more) did not change significantly between 2008 and 2012 (25% in 2012), but men were more likely than women to consume such items on a daily basis (28% versus 22%, in 2012).

Fibre and starch

In 2012, a third (32%) of adults reported that they ate high fibre/low sugar cereals at least five times a week, and four in ten (41%) said they consumed at least two slices of high fibre bread per day. These levels of consumption were very similar to those seen in 2008.

The apparent decrease in the consumption of potatoes, pasta and rice over this period from 55% consuming these starchy foods five times or more a week in 2008 to 51% in 2012 was not statistically significant. The proportion of adults eating chips at least twice a week (31%) has not changed since 2008, and men are still significantly more likely than women to eat chips this frequently (36% and 26% respectively in 2012).

Meat and fish

Levels of fish consumption did not change between 2008 and 2012 for men or women. In 2012, half of adults (51%) ate white fish, 26% consumed oily fish and 30% consumed tuna once a week or more. The observed difference in tuna consumption levels for men and women was not significant (29% and 32% respectively).

Adults' consumption of red meat has decreased since 2008. In 2012, 56% of adults ate red meat at least twice a week compared with 61% in 2008. This decline was observed among both men and women, although over the years, men have consistently consumed red meat more often than women (59% versus 53% in 2012).

Overall, there was very little change in the proportions of adults consuming meat products twice a week or more (28% in both 2008 and 2012), although it has slightly decreased for men (39% to 36%) and slightly increased for women (18% to 21%).

Dairy products

In 2012, the proportion of adults drinking skimmed or semi-skimmed milk was the same as in 2008 (74%). Women remain more likely than men to drink these types of milk (77% compared with 71% in 2012).

Table 5.5

References and notes

- ¹ See: www.who.int/dietphysicalactivity/publications/fruit_vegetables_report.pdf
- ² <http://www.scotland.gov.uk/Resource/Doc/277346/0083283.pdf>
- ³ *Scotland's Health - A Challenge to Us All: The Scottish Diet*. Edinburgh: The Scottish Office, 1993. www.healthscotland.com/documents/1181.aspx
- ⁴ *Eating for Health: A Diet Action Plan for Scotland*. Edinburgh: The Scottish Office, 1996. <http://www.scotland.gov.uk/Topics/Health/Healthy-Living/Food-Health/Eating>
- ⁵ The Scottish Dietary Targets were originally set out in: *Eating for Health: a Diet Action Plan for Scotland*. (The Scottish Office, 1996) and were most recently reaffirmed in: *Healthy Eating, Active Living: An Action Plan to Improve Diet, Increase Physical Activity and Tackle Obesity (2008-2011)*. (Scottish Government, 2008).
- ⁶ *Towards a Healthier Scotland*. Edinburgh: The Scottish Executive, 1999.
- ⁷ *Improving Health in Scotland – The Challenge*. Edinburgh: The Scottish Executive, 2003. www.scotland.gov.uk/Publications/2003/03/16747/19929
- ⁸ *Hungry for Success – A Whole School Approach to School Meals in Scotland*. Edinburgh: The Scottish Executive, 2003.
- ⁹ *Eating for Health – Meeting the Challenge*. Edinburgh: The Scottish Executive, 2004. www.scotland.gov.uk/Publications/2004/07/19624/39995
- ¹⁰ *Better Health, Better Care Action Plan*. Edinburgh: Scottish Government, 2007. <http://www.scotland.gov.uk/Publications/2007/12/11103453/0>
- ¹¹ *Healthy Eating, Active Living: An Action Plan to Improve Diet, Increase Physical Activity and Tackle Obesity (2008-2011)*. Edinburgh: Scottish Government, 2008. <http://www.scotland.gov.uk/Publications/2008/06/20155902/0>
- ¹² *Preventing Overweight and Obesity in Scotland: A Route Map Towards Healthy Weight*. Edinburgh: the Scottish Government, 2010. <http://www.scotland.gov.uk/Publications/2010/02/17140721/0>
- ¹³ *Obesity Route Map: Action Plan – Version 1.0*. Edinburgh: Scottish Government, 2011. www.scotland.gov.uk/Resource/Doc/346007/0115166.pdf
- ¹⁴ Roe, L., Strong, C., Whiteside, C., Neil, A. and Mant, D. (1994). Dietary intervention in primary care: Validity of the DINE method for assessment. *Family Practice* 11: 375-81.

Table list

Table 5.1	Adult fruit and vegetable consumption, 2003 to 2012
Table 5.2	Adult fruit and vegetable consumption, 2012, by age and sex
Table 5.3	Child fruit and vegetable consumption, 2003 to 2012
Table 5.4	Child fruit and vegetable consumption, 2012, by age and sex
Table 5.5	Summary of adult eating habits, 2008, 2010, 2012, by sex

Table 5.1 Adult fruit and vegetable consumption, 2003 to 2012

<i>Aged 16 and over</i>	<i>2003 to 2012</i>					
Portions per day	2003	2008	2009	2010	2011	2012
	%	%	%	%	%	%
Men						
None	11	10	11	12	10	11
5 portions or more	20	20	22	20	20	19
Mean	3.0	3.1	3.1	3.1	3.1	3.0
Standard error of the mean	0.06	0.07	0.05	0.06	0.05	0.08
Median	2.7	2.7	2.8	2.7	2.7	2.7
Women						
None	8	7	7	9	8	9
5 portions or more	22	24	25	23	23	21
Mean	3.2	3.4	3.4	3.3	3.3	3.2
Standard error of the mean	0.05	0.06	0.05	0.05	0.05	0.05
Median	3.0	3.0	3.0	3.0	3.0	2.8
All adults						
None	9	9	9	10	9	10
5 portions or more	21	22	23	22	22	20
Mean	3.1	3.3	3.3	3.2	3.2	3.1
Standard error of the mean	0.05	0.05	0.04	0.04	0.04	0.05
Median	2.7	3.0	3.0	3.0	3.0	2.7
<i>Bases (weighted):</i>						
<i>Men</i>	3835	3087	3594	3465	3606	2309
<i>Women</i>	4279	3375	3926	3775	3931	2502
<i>All adults</i>	8114	6462	7520	7239	7537	4811
<i>Bases (unweighted):</i>						
<i>Men</i>	3590	2840	3283	3112	3275	2126
<i>Women</i>	4526	3621	4241	4127	4260	2686
<i>All adults</i>	8116	6461	7524	7239	7535	4812

Table 5.2 Adult fruit and vegetable consumption, 2012, by age and sex

Aged 16 and over

Portions per day	Age							2012
	16-24	25-34	35-44	45-54	55-64	65-74	75+	Total
	%	%	%	%	%	%	%	%
Men								
None	13	13	13	12	10	4	6	11
Less than 1 portion	6	5	5	4	5	4	4	5
1 portion or more but less than 2	23	21	22	22	19	17	18	21
2 portions or more but less than 3	15	22	18	17	18	20	22	18
3 portions or more but less than 4	16	12	13	16	14	18	15	15
4 portions or more but less than 5	10	9	12	11	12	13	12	11
5 portions or more	18	18	17	18	21	25	22	19
Mean	2.9	2.9	2.8	3.0	3.1	3.4	3.2	3.0
Standard error of the mean	0.24	0.22	0.14	0.13	0.14	0.12	0.15	0.08
Median	2.0	2.3	2.3	2.5	2.7	3.0	2.7	2.7
Women								
None	14	11	9	9	6	6	6	9
Less than 1 portion	4	2	4	5	1	5	6	4
1 portion or more but less than 2	17	16	18	18	19	16	20	18
2 portions or more but less than 3	21	20	21	20	20	16	23	20
3 portions or more but less than 4	22	17	16	14	17	19	17	17
4 portions or more but less than 5	8	10	11	8	13	20	14	12
5 portions or more	13	24	22	26	24	18	15	21
Mean	2.6	3.2	3.2	3.3	3.5	3.4	2.9	3.2
Standard error of the mean	0.16	0.14	0.13	0.12	0.12	0.13	0.12	0.05
Median	2.3	3.0	2.7	2.7	3.0	3.3	2.7	2.8

Continued...

Table 5.2 - Continued

Aged 16 and over

2012

Portions per day	Age							Total
	16-24	25-34	35-44	45-54	55-64	65-74	75+	
	%	%	%	%	%	%	%	%
All adults								
None	14	12	11	10	8	5	6	10
Less than 1 portion	5	4	4	5	3	4	5	4
1 portion or more but less than 2	20	18	20	20	19	16	19	19
2 portions or more but less than 3	18	21	19	18	19	18	23	19
3 portions or more but less than 4	19	14	14	15	16	19	16	16
4 portions or more but less than 5	9	10	11	10	12	17	13	11
5 portions or more	16	21	20	22	23	21	18	20
Mean	2.8	3.1	3.0	3.1	3.3	3.4	3.0	3.1
Standard error of the mean	0.15	0.14	0.10	0.10	0.10	0.10	0.10	0.05
Median	2.3	2.7	2.7	2.7	3.0	3.0	2.7	2.7
<i>Bases (weighted):</i>								
<i>Men</i>	339	383	380	420	362	251	173	2309
<i>Women</i>	324	376	414	455	383	287	263	2502
<i>All adults</i>	663	760	795	875	745	539	435	4811
<i>Bases (unweighted):</i>								
<i>Men</i>	170	228	346	409	364	385	224	2126
<i>Women</i>	227	329	474	499	443	388	326	2686
<i>All adults</i>	397	557	820	908	807	773	550	4812

Table 5.3 Child fruit and vegetable consumption, 2003 to 2012

<i>Aged 2-15</i>		<i>2003 to 2012</i>				
Portions per day	2003	2008	2009	2010	2011	2012
	%	%	%	%	%	%
Boys						
Total 5 - 15						
5 portions or more	12	14	13	11	12	11
Mean	2.6	2.6	2.6	2.5	2.6	2.4
Standard error of the mean	0.07	0.11	0.07	0.10	0.09	0.10
Median	2.0	2.0	2.3	2.3	2.3	2.0
Total 2 - 15						
5 portions or more	n/a	14	14	12	13	12
Mean	n/a	2.7	2.7	2.6	2.7	2.5
Standard error of the mean	n/a	0.09	0.06	0.09	0.08	0.09
Median	n/a	2.3	2.3	2.3	2.5	2.2
Girls						
Total 5 - 15						
5 portions or more	13	14	15	12	11	12
Mean	2.6	2.8	2.8	2.6	2.7	2.8
Standard error of the mean	0.07	0.10	0.09	0.09	0.09	0.10
Median	2.0	2.5	2.4	2.5	2.5	2.7
Total 2 - 15						
5 portions or more	n/a	13	16	13	12	14
Mean	n/a	2.9	2.9	2.7	2.8	2.9
Standard error of the mean	n/a	0.09	0.08	0.08	0.08	0.09
Median	n/a	2.7	2.7	2.5	2.5	2.7

Continued...

Table 5.3 - Continued

<i>Aged 2-15</i>	<i>2003 to 2012</i>					
Portions per day	2003	2008	2009	2010	2011	2012
	%	%	%	%	%	%
All children						
Total 5 - 15						
5 portions or more	12	14	14	12	12	11
Mean	2.6	2.7	2.7	2.6	2.6	2.6
Standard error of the mean	0.05	0.08	0.06	0.07	0.07	0.08
Median	2.0	2.3	2.3	2.3	2.3	2.3
Total 2 - 15						
5 portions or more	n/a	13	15	12	13	13
Mean	n/a	2.8	2.8	2.6	2.7	2.7
Standard error of the mean	n/a	0.07	0.05	0.07	0.06	0.07
Median	n/a	2.5	2.5	2.3	2.5	2.5
<i>Bases (weighted):</i>						
Boys 5 - 15	1225	618	910	621	686	614
Boys 2 - 15	n/a	791	1153	792	881	800
Girls 5 - 15	1166	591	867	591	652	588
Girls 2 - 15	n/a	736	1108	759	835	759
All children 5 - 15	2391	1209	1777	1212	1338	1202
All children 2 - 15	n/a	1527	2261	1551	1716	1559
<i>Bases (unweighted):</i>						
Boys 5 - 15	1152	591	923	629	649	580
Boys 2 - 15	n/a	764	1153	821	855	761
Girls 5 - 15	1170	597	837	532	619	602
Girls 2 - 15	n/a	752	1100	708	833	784
All children 5 - 15	2322	1188	1760	1161	1268	1182
All children 2 - 15	n/a	1516	2253	1529	1688	1545

Table 5.4 Child fruit and vegetable consumption, 2012, by age and sex

Portions per day	Age					2012
	2-4	5-7	8-10	11-12	13-15	Total 2 - 15
	%	%	%	%	%	%
Boys						
None	9	12	11	12	18	12
Less than 1 portion	6	4	4	6	7	6
1 portion or more but less than 2	21	19	22	19	25	22
2 portions or more but less than 3	20	28	27	25	18	23
3 portions or more but less than 4	17	18	18	15	15	17
4 portions or more but less than 5	11	10	6	8	7	9
5 portions or more	16	9	12	14	9	12
Mean	2.8	2.4	2.6	2.6	2.2	2.5
Standard error of the mean	0.17	0.15	0.18	0.18	0.19	0.09
Median	2.5	2.3	2.3	2.3	1.8	2.2
Girls						
None	4	7	13	10	13	9
Less than 1 portion	1	3	2	4	2	2
1 portion or more but less than 2	13	20	18	20	27	19
2 portions or more but less than 3	29	21	22	29	16	23
3 portions or more but less than 4	24	19	18	14	14	18
4 portions or more but less than 5	13	16	16	12	17	15
5 portions or more	18	14	11	12	12	14
Mean	3.3	3.0	2.7	2.7	2.8	2.9
Standard error of the mean	0.15	0.15	0.15	0.20	0.19	0.09
Median	3.0	2.8	2.7	2.5	2.5	2.7

Continued...

Table 5.4 - Continued

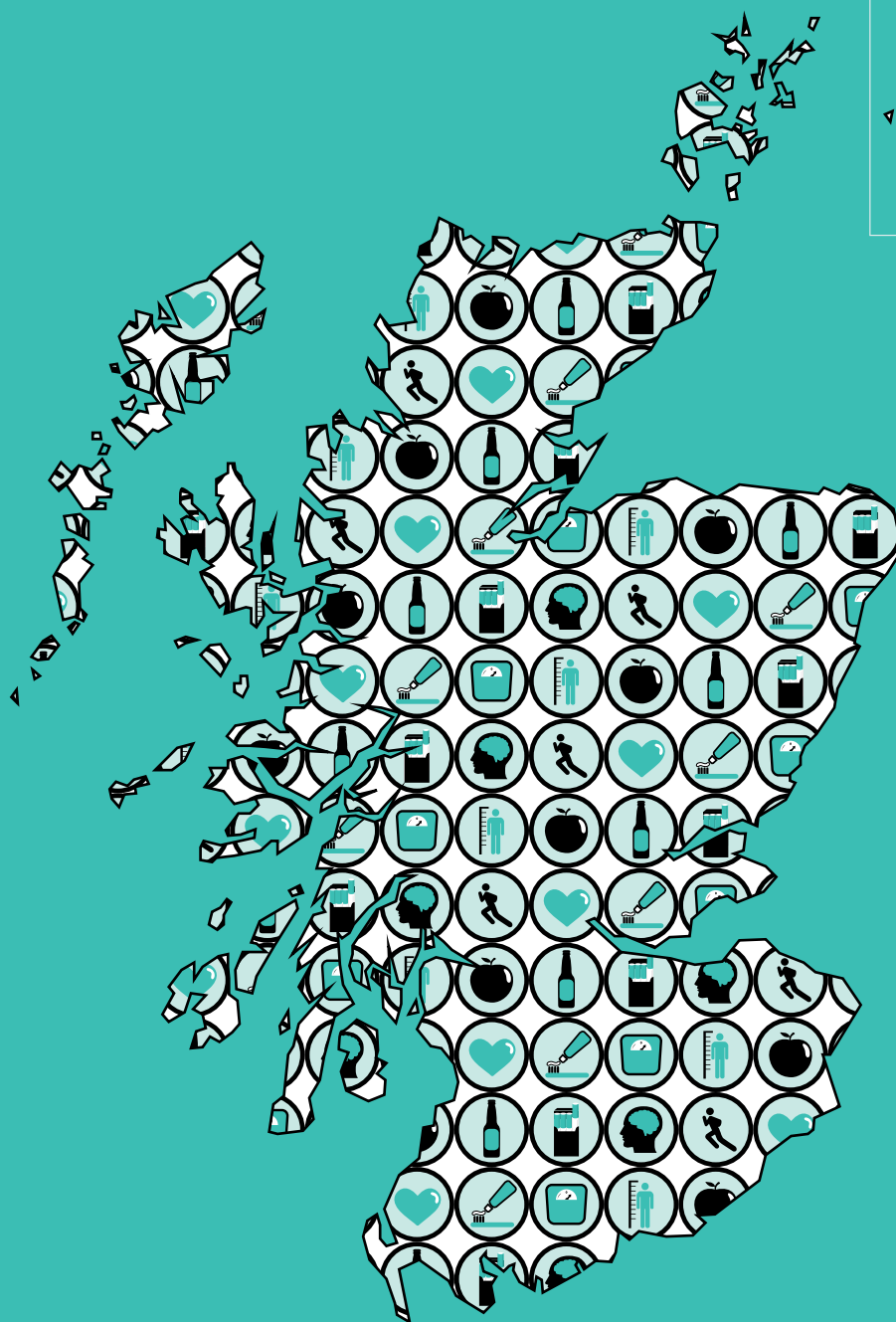
Portions per day	Age					2012
	2-4	5-7	8-10	11-12	13-15	Total 2 - 15
	%	%	%	%	%	%
All children						
None	6	9	12	11	16	11
Less than 1 portion	3	4	3	5	5	4
1 portion or more but less than 2	17	20	20	19	26	21
2 portions or more but less than 3	24	24	25	27	17	23
3 portions or more but less than 4	20	19	18	14	14	17
4 portions or more but less than 5	12	13	11	10	12	12
5 portions or more	17	12	11	13	10	13
Mean	3.1	2.7	2.6	2.7	2.5	2.7
Standard error of the mean	0.13	0.11	0.12	0.14	0.15	0.07
Median	2.8	2.5	2.5	2.3	2.0	2.5
<i>Bases (weighted):</i>						
<i>Boys</i>	186	168	159	110	177	800
<i>Girls</i>	171	170	137	132	149	759
<i>All children</i>	357	338	296	243	326	1559
<i>Bases (unweighted):</i>						
<i>Boys</i>	181	158	153	104	165	761
<i>Girls</i>	182	181	142	125	154	784
<i>All children</i>	363	339	295	229	319	1545

Table 5.5 Summary of adult eating habits, 2008, 2010, 2012, by sex

Food type and frequency	Aged 16 and over								
	Men			Women			All adults		
	2008	2010	2012	2008	2010	2012	2008	2010	2012
	%	%	%	%	%	%	%	%	%
Oily fish once a week or more	23	24	25	26	24	26	25	24	26
White fish once a week or more	50	51	52	52	49	50	51	50	51
Tuna fish once a week or more	27	29	29	33	32	32	30	30	30
Red meat ^a 2+ times a week	64	63	59	59	53	53	61	58	56
Meat products ^b 2+ times a week	39	34	36	18	17	21	28	25	28
Drinks skimmed/semi-skimmed milk	70	73	71	77	77	77	74	75	74
Sweets or chocolates once a day or more	28	26	28	28	24	29	28	25	29
Biscuits once a day or more	36	35	33	33	28	32	34	31	32
Cakes 2+ times a week	36	36	36	33	36	33	34	36	35
Ice-cream once a week or more	29	24	28	28	24	25	28	24	26
Non-diet soft drinks once a day or more	26	29	28	21	23	22	23	26	25
Crisps once a day or more	19	17	18	16	14	16	17	15	17
Chips 2+ times a week	36	35	36	26	24	26	31	29	31
Potatoes, pasta, rice 5+ times a week	55	53	52	54	53	51	55	53	51
At least 2-3 slices of high fibre bread a day	42	41	43	42	43	40	42	42	41
High fibre/low sugar cereal at least 5-6 times a week	29	24	31	31	28	33	30	26	32
<i>Bases (weighted):</i>	<i>1086</i>	<i>1142</i>	<i>1252</i>	<i>1188</i>	<i>1242</i>	<i>1359</i>	<i>2274</i>	<i>2384</i>	<i>2611</i>
<i>Bases (unweighted):</i>	<i>986</i>	<i>1013</i>	<i>1151</i>	<i>1286</i>	<i>1371</i>	<i>1459</i>	<i>2272</i>	<i>2384</i>	<i>2610</i>

a for example beef, lamb or pork

b for example sausages, meat pies, bridies, corned beef, or burgers



Chapter 6

Physical activity

6 PHYSICAL ACTIVITY

Catherine Bromley

SUMMARY

- In 2012, 70% of children aged 2-15 were active for at least 60 minutes a day (*including* school-based activity).
- The proportion of children meeting the physical activity guideline has not changed significantly since 2008 (71%).
- Boys were significantly more likely than girls to meet the physical activity guideline in 2012. (73% compared with 68%).
- Eight in ten children aged 5-7 met the physical activity guideline, by age 13-15 this had dropped to 55%. The drop was most pronounced between the ages of 11-12 (68%) and 13-15 (55%), particularly so for girls for whom there was a 21 percentage point drop in participation levels between these age groups (from 66% to 45%).
- Children's participation in sports and exercise increased between 1998 and 2009 (from 69% to 73%) before declining gradually to 66% in 2012.
- In 2012, 62% of adults (aged 16 and over) were active at the recommended level (150 minutes of moderate activity or 75 minutes of vigorous activity per week).
- There has been no change in the proportion of adults meeting the moderate/vigorous physical activity (MVPA) guideline since 2008.
- Men were more likely than women to meet the MVPA guideline (67% versus 58%).
- The proportion of men who were active at the recommended level declined fairly steadily from 83% at age 16-24 to 56% for those aged 65-74, and then to 31%, at age 75 and over. For women, 64%-68% of those aged 16-54 were active at the recommended level. Adherence dropped to 52%-53% at age 55-74 and then halved to 21% among those aged 75 and over.
- In 2012, just over a quarter (27%) of adults (aged 16 and above) met the new guideline to do activities that strengthen the muscles on at least two days a week (30% of men and 23% of women).
- Adherence to the muscle-strengthening guideline declined steadily with age, from 48% at age 16-24 to just 5% of those aged 75 and over.
- In 2012, just over half (55%) of adults had participated in sport in the previous month (60% of men and 50% of women). There was a fairly linear decline in sports participation with age, from 81% of men and 77% of women aged 16-24, to 30% of men and 19% of women aged 75 and over.
- The four most popular sporting activities in 2012 were working out at a gym (15%), swimming (14%), exercises (13%) and running (12%).
- Sports participation tended to peak at age 16-34 and decline thereafter. This was particularly the case with the more vigorous activities such as football/rugby and running. Golf, hill-walking and bowls participation levels remained broadly steady – or increased – as age increased.
- In 2012, adults (aged 16 and above) reported sitting in their leisure time for a mean of 5.5 hours on weekdays and 6.0 hours on weekend days.
- Reported sedentary leisure time was broadly similar for men and women (5.5 and 5.4 weekday mean hours, respectively, and 6.1 and 5.9 weekend day mean hours).

- Sedentary activity levels varied by age, with those aged 25 to 54 tending to spend the least time sitting both on weekdays and weekend days (mean hours ranging from 4.6 to 4.9 on weekdays and 5.5 to 5.7 hours on weekend days). Older people (aged 65 and over) were the most sedentary on both weekdays (6.5 to 7.5 hours) and weekend days (6.7 to 7.6 hours).

6.1 INTRODUCTION

The health benefits of a physically active lifestyle are well documented and there is abundant evidence that regular activity is related to a reduced incidence of chronic conditions of particular concern in Scotland, such as cardiovascular disease, obesity, and type 2 diabetes.¹ There is also evidence that increased activity can improve mental wellbeing, another key health priority in Scotland. The Royal College of Psychiatrists recommends exercise as a treatment for depression in adults,² and the Scottish Intercollegiate Guidelines Network (SIGN) national clinical guideline for non-pharmaceutical management of depression states that structured exercise programmes may be an option for depressed people.³ Physical activity is also associated with better health and cognitive function among older people, and can reduce the risk of falls in those with mobility problems.⁴

For children, evidence suggests that high activity levels in childhood confer both immediate and longer-term benefits, for example by promoting cognitive skills and bone strength, reducing the incidence of metabolic risk factors such as obesity and hypertension, and setting in place activity habits that endure into adulthood.⁵

In 2008, the World Health Organisation (WHO) estimated that 3.2 million deaths per year could be attributed to low physical activity levels.⁶ In Scotland, it is estimated that low activity contributes to around 2,500 deaths per year and costs the NHS £94 million annually.⁷

Each year, in addition to providing the most up-to-date data on physical activity levels in Scotland, the Scottish Health Survey (SHeS) annual report also provides a brief overview of recent policy developments in this area. Recent actions and initiatives by the Scottish Government and NHS Scotland to promote physical activity as part of a healthy lifestyle have included:

- The 2003 Physical Activity Taskforce publication *Let's Make Scotland More Active: A strategy for physical activity*,⁸ and its five year review, conducted in 2008.⁹
- The Scottish Government's 2008 action plan *Healthy Eating, Active Living: An action plan to improve diet, increase physical activity and tackle obesity (2008-2011)*.¹⁰
- The Scottish Government's *Route Map* for tackling obesity and associated *Obesity Route Map Action Plan*, published in 2011.¹¹ SHeS data is used to monitor the proportion of adults and children who meet the physical activity guidelines. Questions on time spent in front of a screen are used to monitor progress towards the intermediate-term goal to increase energy expenditure.¹²

- The opportunities presented by the 2012 Olympics and 2014 Commonwealth Games to help accelerate progress towards making Scotland more active.
- The revised National Performance Framework (NPF) national indicator to increase physical activity levels among adults is also monitored using SHeS data.¹³
- The Curriculum for Excellence,¹⁴ adopted in schools from August 2010, which sets out a framework for children and young people (aged 3-18) to experience, on a regular basis, a wide range of purposeful, challenging, progressive and enjoyable physical activities in addition to the required 2 hours of PE.
- The Active Schools¹⁵ programme which is designed to encourage young people to be involved in physical activity and sporting opportunities outwith PE lessons.

The role that sport can have in increasing a population's activity levels is currently of particular interest because of the major sporting events happening in Scotland and the rest of the UK in the 2012 to 2014 period. The legacy planning for the 2014 Commonwealth Games includes planned improvements to Scotland's sporting facilities infrastructure as well as the hope that the event will inspire people to be more active. Numerous initiatives, to take place both before and after the Games, are included in the Legacy plan. For example, since 2010, EventScotland has been running a programme giving people the opportunity to try various Commonwealth Games sports, attracting 20,000 participants in its first two years. Infrastructure investments include £150 million per year to develop 152 community sports hubs, due to be open by 2016, almost half of which will be based in schools. A further £10 million has been allocated, via the Legacy 2014 Active Places Fund, for upgrading or building new facilities for sport and other physical activities. In advance of these major sporting events, the Scottish Government has been monitoring sporting participation in both the Scottish Household Survey and SHeS. Questions in the Scottish Household Survey focus specifically on sports whereas SHeS also collects data on a number of other physical activities.

Allied to the above initiatives, SHeS data is also used to monitor the following adult physical activity target (set out in *Let's Make Scotland More Active*):

50% of adults should be meeting the current recommended levels of physical activity by the year 2022

The recommended level of activity for adults, when the 2022 target and the NPF national indicator were set, was that they should do at least 30 minutes of moderate activity on most days of the week (i.e. on at least five), which could be accrued in bouts of at least 10 minutes' duration. In July 2011, drawing on recent evidence about activity and health, the Chief Medical Officers of each of the four UK countries agreed and introduced revised guidelines on physical activity.⁵ The revisions followed new guidance issued by the WHO⁴ and are in line with similar changes recently made to advice on activity levels in both the USA¹⁶ and Canada.¹⁷

The new guidance, tailored to specific age groups over the life course, are as follows:¹⁸

- **Early years (under 5 years)**
 - Physical activity should be encouraged from birth, particularly through floor-based play and water-based activities in safe environments.
 - Children of pre-school age who are capable of walking unaided should be physically active daily for at least 180 minutes (3 hours), spread throughout the day.
 - All under 5s should minimise the amount of time spent being sedentary (being restrained or sitting) for extended periods (except time spent sleeping).
- **Children and young people aged 5 to 18**
 - Should engage in moderate to vigorous activity for at least 60 minutes and up to several hours every day.
 - Vigorous activities, including those that strengthen muscles and bones, should be carried out on at least 3 days a week.
 - Extended periods of sedentary activities should be limited.
- **Adults aged 19 to 64**
 - Should be active daily.
 - Should engage in at least moderate activity for a minimum of 150 minutes a week (accumulated in bouts of at least 10 minutes) – for example by being active for 30 minutes on five days a week.
 - Alternatively, 75 minutes of vigorous activity spread across the week will confer similar benefits to 150 minutes of moderate activity (or a combination of moderate and vigorous activity).
 - Activities that strengthen muscles should be carried out on at least two days a week.
 - Extended periods of sedentary activities should be limited.
- **Adults aged 65 and over**
 - In addition to the guidance set out above for adults aged 19-64, older adults are advised that any amount of physical activity is better than none, and more activity provides greater health benefits.
 - Older adults at risk of falls should incorporate activities to improve balance and coordination on at least two days a week.

Monitoring adherence to the revised guidelines required several changes to be made to the SHeS questions physical activity in 2012. Details of the exact amendments made to the module are outlined and discussed in the methods section of this chapter (Section 6.2). Adult and child adherence to the new guidelines on moderate/ vigorous physical activity (MVPA) in 2012 are highlighted and discussed in this chapter. Adult participation in muscle strengthening activities is also presented, as are the new data on the time adults spent being sedentary. Participation in different sporting activities is presented for both adults and children and trend data, for the latter, are also included.

Guideline and questionnaire changes make the presentation of trend data on physical activity somewhat problematic. In this chapter, the 2008 to 2012

physical activity data have been analysed and presented in two ways. The first involved reanalysing 2008 to 2011 data to provide estimates of adherence to the new guidelines on moderate/vigorous activities during that period. The second approach was to calculate adherence, in 2012, to the old session-based guidelines to aide comparison with results in previous years.

In future reports this chapter will include more detailed information about children's activity levels and sedentary time as well as more detailed results on older adults' activities.

6.2 METHODS AND DEFINITIONS

6.2.1 Adult physical activity questionnaire

Since 1998, the adult physical activity questions included in the survey have been based on the Allied Dunbar National Fitness Survey, a major study of physical activity among the adult population in England conducted in 1990.¹⁹ The module examined:

- The time spent being active
- The intensity of the activities undertaken, and
- The frequency with which activities are performed.

6.2.2 Adult physical activity definitions

Types of activity covered

Four main types of physical activity were asked about:

- Home-based activities (housework, gardening, building work and DIY)
- Walking
- Sports and exercise, and
- Activity at work.

For the first three categories, participants were asked to report any activities that lasted at least 10 minutes and the number of days in the past four weeks in which they had taken part in such activities. For walking, participants were also asked on how many days they had taken more than one walk of at least 10 minutes. Where a participant had taken more than one walk, the total time spent walking for that day was calculated as twice the average reported walk time.

In addition, those in full or part-time employment were asked about activity while at work. These participants were asked to rate how physically active they were in their job (options were: very physically active, fairly physically active, not very physically active and not at all physically active). This question on intensity was used in combination with a new question on sedentary activity at work to produce estimates of the duration of moderate activity at work per week. As this information was not collected prior to 2012, data from this method of

calculating work-based activity is not directly comparable with that from the method used in earlier years. The impact of this change was minor.

Intensity level

The revised activity guidelines advise people to accumulate 150 minutes of moderate activity or 75 minutes of vigorous activity per week. The intensity level of activities mentioned by participants was estimated to help assess adherence to this guideline. The four categories of physical activity 'intensity' were:

- Vigorous
- Moderate
- Light, and
- Inactive.

Most of the discussion of adult physical activity in this chapter focuses on **moderate** and **vigorous** intensity activities, and light activity has been discounted here.

Classifying intensity for different activity types

Home-based activities were classified as either 'moderate' or 'light' depending on their nature. Participants were given examples of types of housework, gardening, building work and DIY which were described as either 'heavy' or 'light.' All cases of 'heavy' home-based activity were classified as being of 'moderate' physical intensity. Light gardening, building work and DIY were all classified as 'light' physical intensity. Due to its very low intensity, light housework was not included in the calculations of physical activity in this report.²⁰

For walking, participants were asked to assess their usual walking pace as 'slow', 'steady average', 'fairly brisk' or 'fast – at least 4mph.' For adults aged 16-64, walks of 10 minutes or more at a brisk or fast pace were classified as being of 'moderate' intensity. Walks at a slow or steady average pace were classified as 'light.' For adults aged 65 and over, walks of 10 minutes or more at a pace described as 'slow' or 'steady average' were also classified as being of 'moderate' intensity if participants said that walking at that pace had resulted in them breathing faster, sweating or feeling warmer.

The intensity levels of different sports and exercises was determined by a combination of (a) the MET level of the activity²¹ and (b) the participant's assessment of the amount of effort it involved. For example, all instances of playing squash, football or rugby were counted as 'vigorous' intensity. Other activities, however, like swimming or cycling, were only counted as 'vigorous' if the participant reported that the effort involved was enough to make them 'out of breath or sweaty;' if not, they were classified as 'moderate' intensity. Similarly, other activities, like yoga/pilates, counted as 'moderate' if they made the participant out of breath or sweaty, but 'light' if not.²²

People who reported being 'very physically active' at work were classified as moderately active and an estimate of the time spent being active per week was derived from the answer to the question about how much they spent sitting on a typical day at work, and their full or part-time working status. All other responses were counted as light or inactive. No one was classified as vigorously active at work. This approach represents a departure from previous years when activities at work were classified using a combination of (a) the participant's assessment of how active they are in their job (described above), and (b) the Standard Occupational Classification (SOC) code assigned to their job type.²³

6.2.3 Child physical activity questionnaire

The questions on child physical activity included in SHeS since 1998 were based on the 1997 Health Survey for England (HSE) children's physical activity module. These questions cover:

- Sports and exercise
- Active play
- Walking, and
- Housework or gardening (children aged 8 and over only)

Information on sport and exercise, active play and walking undertaken as part of school lessons was not collected on the survey prior to 2008. Details of activities undertaken on school premises but not as part of lessons (for example, play or sport at lunchtime or at after-school clubs) were, however, collected. In 2008, an additional set of questions, specifically asking about 'walking, sports, exercise or other active things' undertaken as part of school lessons, were added to the survey.

6.2.4 Child physical activity definitions

Types of activity covered

Details on the information collected in relation to each of the activity types are as follows:

Walking

Information on walks of at least 5 minutes duration was collected. Participants were asked on how many days in the last week they (or their parent/guardian if the child was under the age of 13) had done walks of at least this length (5 minutes), and how long in total they spent walking on each of those days. Children aged 13-15 were also asked about their usual walking pace using the same options as in the adult questionnaire (see Section 6.2.2 for a description of these).

Housework or gardening (aged 8-15 only)

Children aged 8 and over, were asked about any 'housework or gardening that involved pulling or pushing, like Hoovering, cleaning a car, mowing grass or sweeping up leaves.' Only housework or gardening lasting at least 15 minutes was included. Information on the

number of days in the last week they had done such activities, and how long they spent doing this on each day was also collected.

Sports and exercise

This category was intended to cover structured or organised sporting activities, and included things like swimming, football, gymnastics and dance lessons. The interview recorded whether the child had participated in any sport and exercise in the last week, on how many week and weekend days they had participated and the total time spent on sport and exercise at the weekend, and the total time on each weekday. There was no lower time limit for inclusion.

Active play

This category covered less structured activities, like riding a bike, kicking a ball around, running about, playing active games or jumping around. Children were asked whether they had taken part in this kind of 'active play' in the last week, and how many week and weekend days they had done so. The total time spent on active play at the weekend, and each weekday was also collected.

School-based activities

Since 2008, children at school have also been asked about any active things they have done as part of lessons. The number of days they did these kinds of activities in lessons in the last week was collected along with information on how long they spent doing them.

Intensity of activities

Since assessing the intensity of children's activities is more complicated than for adults, no information on intensity was collected for children (with the exception of asking those aged 13-15 about their walking pace). For the purposes of calculating physical activity levels, it is assumed that all reported activities were of at least moderate intensity.

Data on all of the different activities described above have also been summarised to provide an overall measure of child physical activity. This summary measure takes into account both, the average time spent participating in physical activity, and the number of active days in the last week. A child's level of physical activity was assigned to one of three categories:

- Meets guidelines – active for 60 minutes on 7 days in the last week (meeting the recommended level of activity for children and young people)
- Some activity – active for 30 to 59 minutes on 7 days in the last week
- Low activity – active on fewer than 7 days in the last week or for less than 30 minutes a day.

6.2.5 Changes made to the adult and child physical activity questionnaires in 2012

Sports (adult module)

In 2012, the list of sports asked about was increased from around a dozen to over 40 different activities. Although participants were able to mention sports not included on the provided list in the previous version of the questionnaire, presenting people with an extended list of options potentially acts as a prompt, facilitating people to remember and mention sports they might not previously have mentioned. For this reason, the information on sports participation collected from 2012 onwards is not directly comparable with the 2008-2011 measures, in either the Scottish Household Survey or SHeS, though the impact on the latter is likely to have been relatively small.

Muscle strengthening activities (adult module)

Expert advice was used to classify the muscle strengthening potential of sporting activities. Nine sports or activities were defined as definitely muscle strengthening and a further 24 as potentially so.²⁴ Participants who had done any of the potentially muscle strengthening sports were asked a new follow-up question to help establish whether it was sufficiently strenuous to have built their muscles:

During the past four weeks, was the effort of [name of activity] usually enough to make your muscles feel some tension, shake or feel warm?

Balance improving activities for those aged 65 and over (adult module)

Expert advice was also used to classify whether particular sports or activities were balance improving for older people.²⁵ Thirty-two were classified as definitely balance improving. For one activity (exercises e.g. press-ups, sit-ups) further clarification was needed. The follow-up question used to determine if exercises were balance improving was:

Did these exercises involve you standing up and moving about?

Walking exertion for those aged 65 and over (adult module)

In response to concerns that the method for grading the intensity of walking (see section 6.2.2) was underestimating older adults' exertion levels, the following question was added for participants aged 65 and over:

During the past four weeks, was the effort of walking for 10 minutes or more usually enough to make you breathe faster, feel warmer or sweat?

Sedentary activity (adult and child modules)

Since 2003, all participants aged 2 and over have been asked about time spent in front of a screen (e.g. a TV or computer) during leisure time on both weekdays and weekend days. For everyone aged 2 and over, new questions about time spent sitting during leisure time (apart

from in front of a screen) were added in 2012. The examples of time spent sitting that participants were given included eating, reading, studying and (for children) doing homework. For adults in paid work, new questions on time spent sitting during the working day were also added in 2012.

6.3 CHILD PHYSICAL ACTIVITY LEVELS

6.3.1 Trends in summary physical activity levels for children since 1998

The proportion of children meeting the guideline on activity, 60 minutes of activity on every day of the week, is shown in Table 6.1. Separate estimates including and excluding school-based activity are presented.

As the trends for both measures (including and excluding school-based activity) were similar, the discussion here focuses on the more recent estimates which include school-based activities. In 2012, 70% of children aged 2-15 were active at the recommended level. In recent years the figure has fluctuated with no real change since 2008 and 2009 (71% in both years and 73% in 2011). The small decline (from 73% to 70%) observed between 2011 and 2012 was not statistically significant.

The proportion of boys active at the recommended level was generally stable between 2008 (77%) and 2011 (76%), but was lower (73%) in 2012. Although not a statistically significant change, any further declines in this might suggest a decreasing trend. In contrast, while girls' activity levels were consistently lower than boys', the proportion meeting the guidelines increased, from 64% in 2008 to 70% in 2010 and 2011, and then declined (but not significantly) to 68% in 2012. As a result, there has been a narrowing of the gap between boys' and girls' activity levels, from 13 percentage points in 2008 to 5 points in 2012.

Table 6.1

6.3.2 Trends in sports and exercise participation among children since 1998

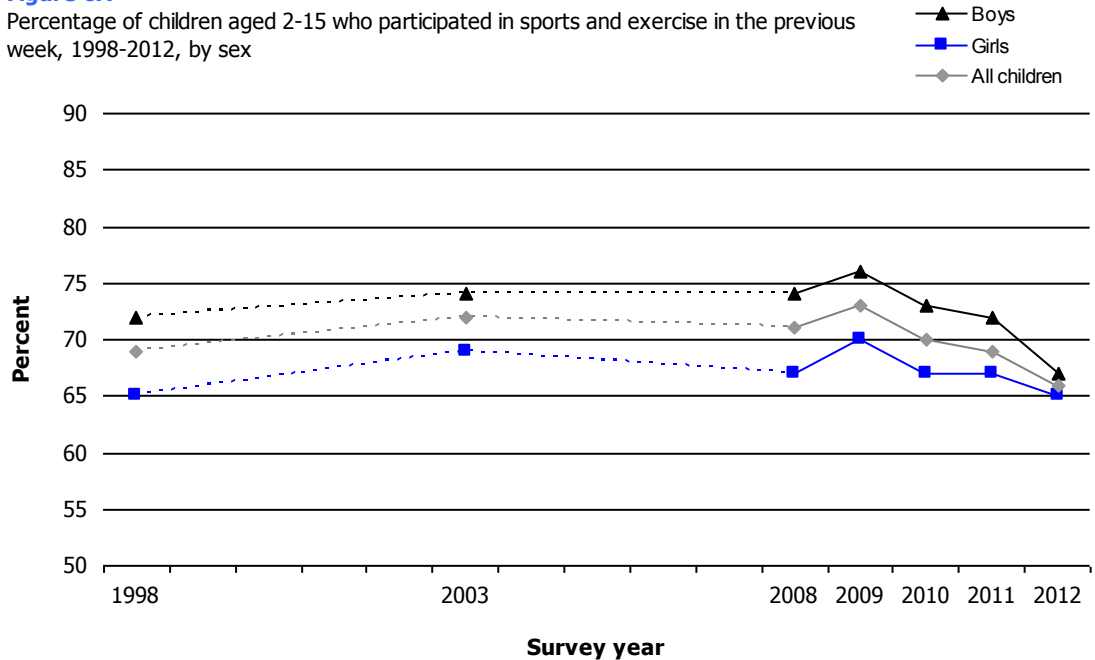
As outlined in Section 6.2.5, children's overall participation in sport and exercise was recorded by providing examples of activities to choose from as opposed to asking about specific sports. The trend, since 1998, in children's (aged 2-15) sporting participation is presented in Table 6.2 and Figure 6A (Note that the scale in Figure 6A has been truncated so differences over time appear magnified).

Participation in sports and exercise increased between 1998 and 2009 (from 69% to 73%) before declining gradually to 66% in 2012. The drop in participation levels since 2009 was statistically significant. The trend for girls tended to follow that observed for all children (increased from 65% to 70% between 1998 and 2009 then gradually declined back to 65% in 2012). Participation levels also increased for boys between 1998 and 2009 before beginning to decline. The drop in boys' participation between 2011 and 2012 was more pronounced than for

girls' (5 percentage points drop versus 2 percentage points for girls). The decline was not, however, statistically significant and future years' data will be needed to determine if boys' and girls' participation in sport and exercise are following different trajectories. **Figure 6A, Table 6.2**

Figure 6A

Percentage of children aged 2-15 who participated in sports and exercise in the previous week, 1998-2012, by sex



6.3.3 Physical activity levels in children, 2012, by age and sex

The proportion of children active at the recommended level (both including and excluding school-based activities) in 2012 is presented by age and sex in Table 6.3. As would be expected, estimates for each of the measures were very similar for children under the age of 5. From age 5 upwards, the proportion meeting the guideline was higher when school-based activities were accounted for.

In 2012, 73% of boys and 68% of girls were active at the recommended level (when school-based activity is accounted for); this difference between the genders was statistically significant. As noted in previous reports, activity levels tend to decline with increasing age. For example, 80% of children aged 5-7 met the physical activity guideline, by age 13-15 this had dropped to 55%. The drop was most pronounced between the ages of 11-12 (68%) and 13-15 (55%), particularly so for girls for whom there was a 21 percentage point drop in participation levels between these age groups (from 66% to 45%).

Figures 6B and 6C illustrate the contribution of school activities to boys and girls' total activity levels. Figure 6B shows that, for boys, the impact of including school-based activities in the total activity measure is similar across all age groups (from 5-7 upwards). The pattern for girls, shown in Figure 6C, is different: while activity levels decline with age using either measure (including/excluding school-based activity), the drop at age 11-12 is steeper on the measure that excludes school

activities. This illustrates the importance of school-based activity for girls' overall activity levels, but also suggests that school activities do not compensate fully for the sharp decline in the time older girls spend being physically active outside school. **Figure 6B, Figure 6C, Table 6.3**

Figure 6B

Percentage of boys meeting the physical activity guideline (at least 60 minutes every day of the week), 2012, by age

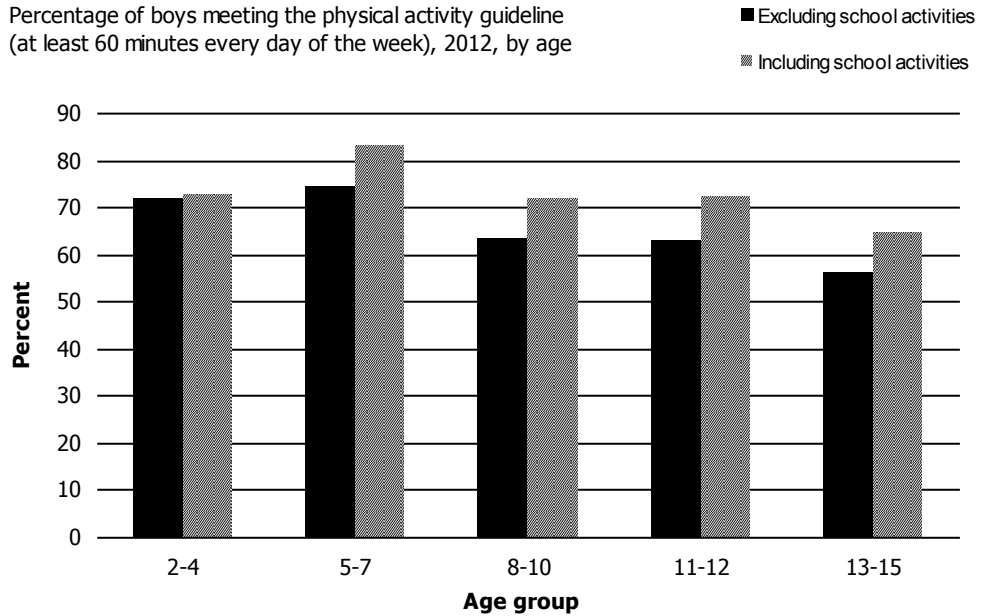
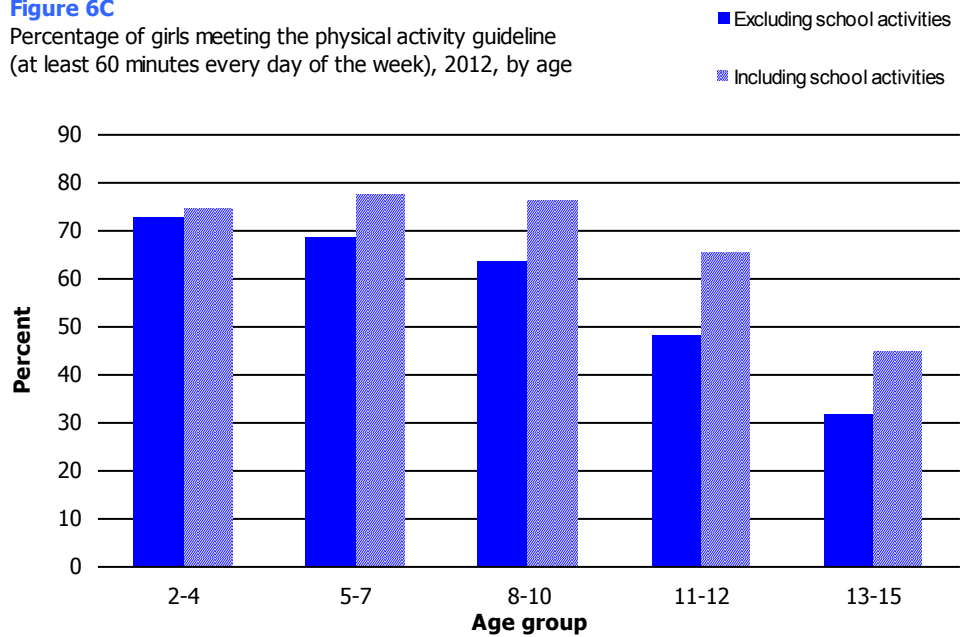


Figure 6C

Percentage of girls meeting the physical activity guideline (at least 60 minutes every day of the week), 2012, by age



6.4 ADULT PHYSICAL ACTIVITY LEVELS

6.4.1 Summary adult physical activity levels, and adherence to the MVPA guideline, 2012, by age and sex

Adults aged 16 and over

Adults' weekly activity levels by age and sex are presented in Table 6.4. Adherence to the revised MVPA guideline (moderate activity for at least 150 minutes, or vigorous activity for 75 minutes, or a combination of both, per week) is also presented. The proportion of men, women and all adults meeting this guideline in 2012 is shown, along with three further groups corresponding to the following activity levels:

- Some activity – 60-<150 mins moderate / 30-<75 mins vigorous
- Low activity – 30-<60 mins moderate / 15-<37.5 mins vigorous
- Very low activity – under 30 mins moderate / under 15 mins vigorous

In 2012, 62% of adults (aged 16 and over) were active at the now recommended level, whereas 21% had very low activity levels. Men were more likely than women to meet the guideline (67% versus 58%). In contrast, the proportions of men and women with very low activity levels were much more closely aligned (19% and 23%, respectively).

As Figures 6D and 6E illustrate, adherence to the revised guideline differed markedly by age for both sexes. The proportion of men who were active at the recommended level declined fairly steadily from 83% at age 16-24 to 56% for those aged 65-74, and then dropped more sharply, to 31%, at age 75 and over. For women, adherence within the 16-54 age group was more stable with 64%-68% active at the recommended level. Adherence dropped to 52%-53% at age 55-74 and then halved to 21% among those aged 75 and over.

This decline, by age, tended to be coupled with corresponding increases in the proportions with very low activity levels. For example, between the ages 65-74 and 75 and over, the proportion of adults meeting the guidelines fell by 29 percentage points (from 54% to 25%). For these same age groups, the proportion with very low activity levels increased by the same amount (from 29% to 58%). These patterns were true for both men and women. **Figure 6D, Figure 6E, Table 6.4**

Figure 6D

Men's summary physical activity levels, 2012, by age

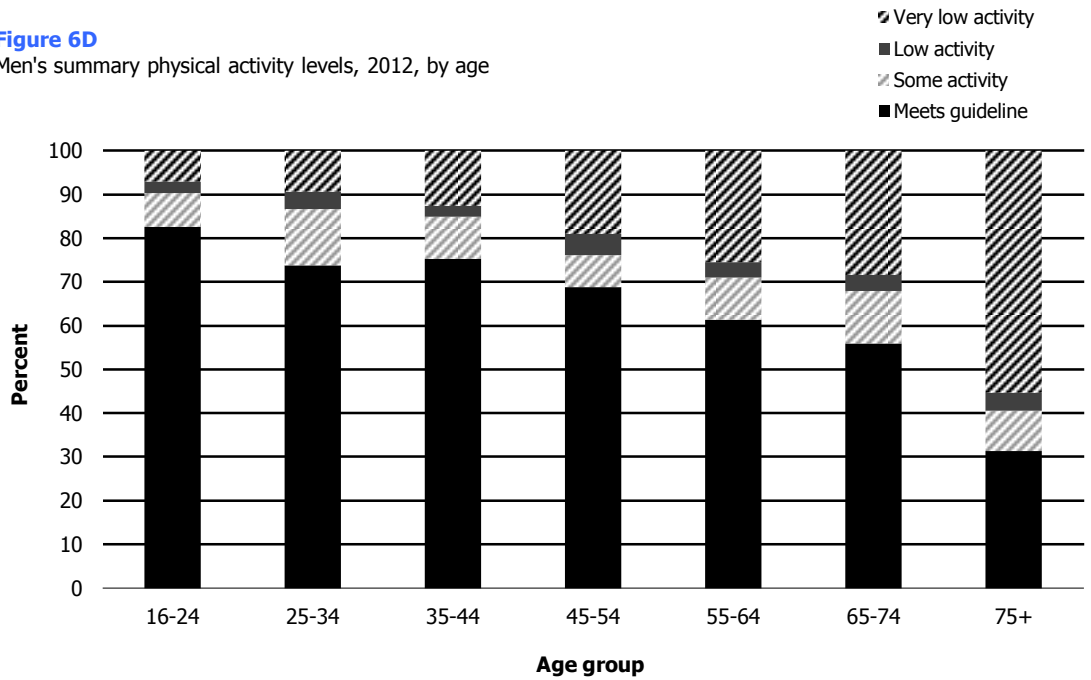
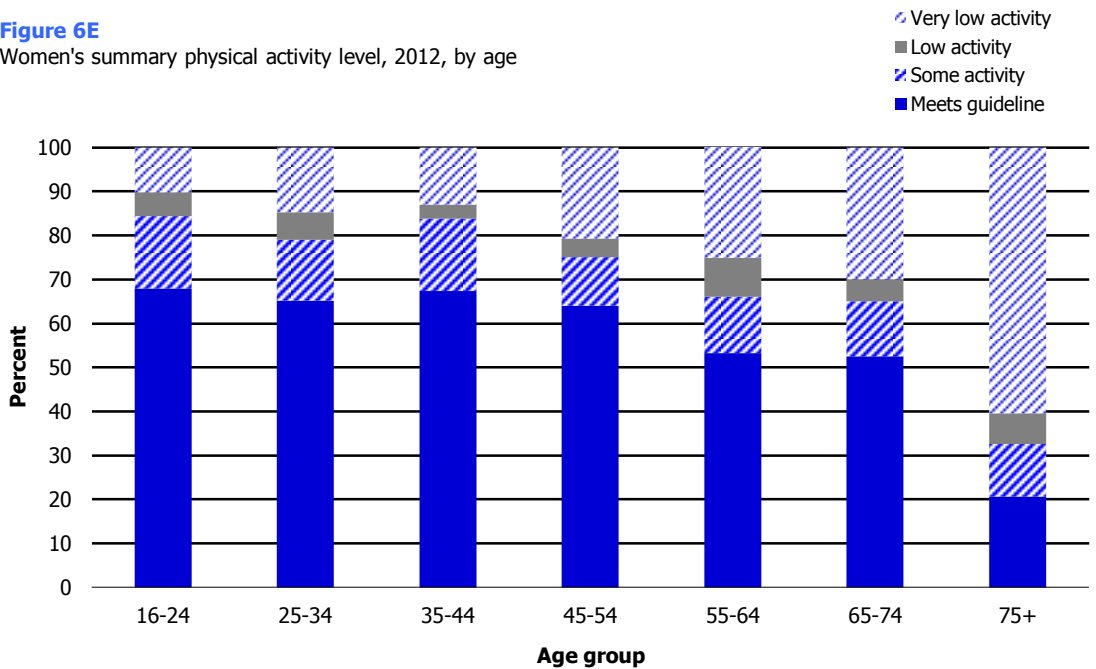


Figure 6E

Women's summary physical activity level, 2012, by age



Adults aged 19 and over

As discussed in Section 6.1, the new guidelines relate to different groups across the lifecourse with adults defined as those aged 19 and over. The UK's four population health surveys, however, have always defined those aged 16 and over as adults, hence the focus in this report on children aged 0-15 and adults aged 16 and over. The following inset table presents the proportion of adults aged 19 and over who met the new guideline on intensity/duration. Since the proportion of the overall sample aged 16-18 was quite small, the overall impact on the estimates is very minimal.

Table A: Proportion of adults aged 19 and over meeting the new CMO MVPA guidelines

	All 19 and over
	%
Men	67
Women	57
All adults	62

6.4.2 Adherence to the muscle strengthening and MVPA guidelines, 2012, by age and sex

As discussed in the introduction, the new guidelines do not just focus on the intensity and duration of activity; adults are also advised to carry out activities that strengthen muscles on at least two days per week. In 2012, just over a quarter (27%) of adults (aged 16 and above) met the new guideline on muscle strengthening (30% of men and 23% of women) (Table 6.5). Adherence to this guideline declined steadily with age, from 48% at age 16-24 to just 5% of those aged 75 and over.

From Table 6.5 it is also possible to identify those following *both* the muscle strengthening and the MVPA guidelines, those who followed just one of them, and those following neither. Most adults who met the muscle strengthening guideline also met the MVPA guideline (26% of all adults met both while 1% met only the muscle guideline). A further 37% met the MVPA guideline, but did not incorporate sufficient muscle strengthening activity to meet that guideline. Another 37% of adults failed to meet either guideline.

Looking at those who met both guidelines, the patterns by age and sex were broadly similar to those seen for adherence to the MVPA guideline alone (See Section 6.4.1). Among all adults, as age increased there was a sharp decline in proportions meeting both guidelines (from 47% at age 16-24 to 4% at age 75 and over). Among those aged 16-44, it was more common for people to meet both the guidelines than to meet neither (for example, 35% of those aged 25-34 met both guidelines while 29% met neither). In contrast, from the age of 45-54 onwards, the proportion meeting neither guideline outweighed the proportion meeting both. For those aged 75 and over, the gap between those who met both guidelines and those who met neither was very pronounced: 4% met both while 75% met neither.

Men were more likely than women to meet both guidelines at almost all ages, with the gap between genders largest in the 16-34 age group. For example, 59% of men aged 16-24 met both guidelines compared with 35% of women. It is also notable that the difference between the proportions of men and women aged 16-24 meeting both guidelines (59% and 35%) was much larger than the equivalent difference found for just meeting the MVPA guideline (see Table 6.4). This is explained by the fact that 72% of young men who met the MVPA guideline also did muscle strengthening activities at least twice a week, compared with 48% of young women (data not shown).

Table 6.5

Among those aged 19 and over, adherence to the new guideline on muscle strengthening was very similar to that discussed above for the population aged 16 and over. In 2012, a quarter (26%) of those aged 19 and over carried out activities to strengthen the muscles on at least two days per week (29% of men and 22% of women) (data not shown).

6.4.3 Trends in summary physical activity levels since 2008

As noted in the introduction, the publication of the revised guidelines in 2011, and the subsequent changes made to the questionnaire to measure these, make the reporting of trends in activity levels somewhat difficult. Three sets of figures are presented in Table 6.6:

- Proportion meeting the new guideline on intensity/duration (MVPA), 2012: uses new sports questions and intensity definitions introduced in 2012, and the new definitions of walking and time spent being very active at work (described in section 6.2.3 and also shown in Table 6.4);
- Proportion meeting the new guideline on intensity/duration, 2008 to 2012: using the 10 sporting activities that were common to all surveys, the old walking definition, and a fixed estimate of time spent being very active at work;²⁶
- Proportion meeting the old session-based guideline on intensity/duration, 2008 to 2012: using the 10 sporting activities that were common to all surveys, the old walking definition, and a fixed estimate of the number of days on which at least 30 minutes of moderate intensity work activity was carried out.²⁷

From 2012 onwards, time-series trends will be based on the first of these estimates. The two other sets of figures are presented here to help assess the impact of both the changes to the guidelines and to the questionnaire. Neither set of time series estimates shows any change, over time, in the proportions of all adults, men or women, meeting the guideline.

Table 6.6

6.4.4 Impact of changes to the physical activity guidelines and to the questionnaire

The most important point to note in Table 6.6 is the much higher proportion meeting the new guideline (62%) compared with the previous, session-based guideline (38%). One possible explanation of this difference is that it is the result of changes made to the questionnaire in 2012. As discussed above (Section 6.2.5), changes included an increase in the range of sporting activities asked about, the inclusion of slower paced walks for adults aged 65 and over (providing they resulted in some exertion), and an improvement to the estimate on time spent being very active at work.

The time series estimate that measures the new guideline using the definitions/measures in place prior to the 2012 questionnaire changes (58%) is, however, clearly much closer to the new estimate (62%) than

to the old one (38%). This suggests that the main drivers behind the increased proportion meeting the guideline were the removal of the stipulation that activity must be carried out on at least five days per week and the new distinction between moderate and vigorous activity. These findings are in line with results from the 2012 Health Survey for England,²⁸ which has undergone similar changes, and the National Health and Nutrition Examination Survey in the USA.²⁹ **Table 6.6**

Figures 6F and 6G help identify whether the changes to the guidelines have impacted equally on the likelihood of all groups in the population meeting the new guideline. The proportions in each age group that met both the old and new guidelines, and the new ones only are presented separately for men and women. There was only one group, men aged 16-24, for whom a clear majority (over 6 in 10) met the previous guideline. Among the remaining age groups, between a quarter and a half of men and women up to the age of 65-74 met the previous guideline, so it was only the change in guideline that resulted in clear majorities in each group being active at the recommended level. Men and women aged 65 and over were more likely to meet the new guideline only than they were to meet both. **Figure 6F, Figure 6G**

Figure 6F

Men's adherence to old and new PA guidelines, 2012, by age

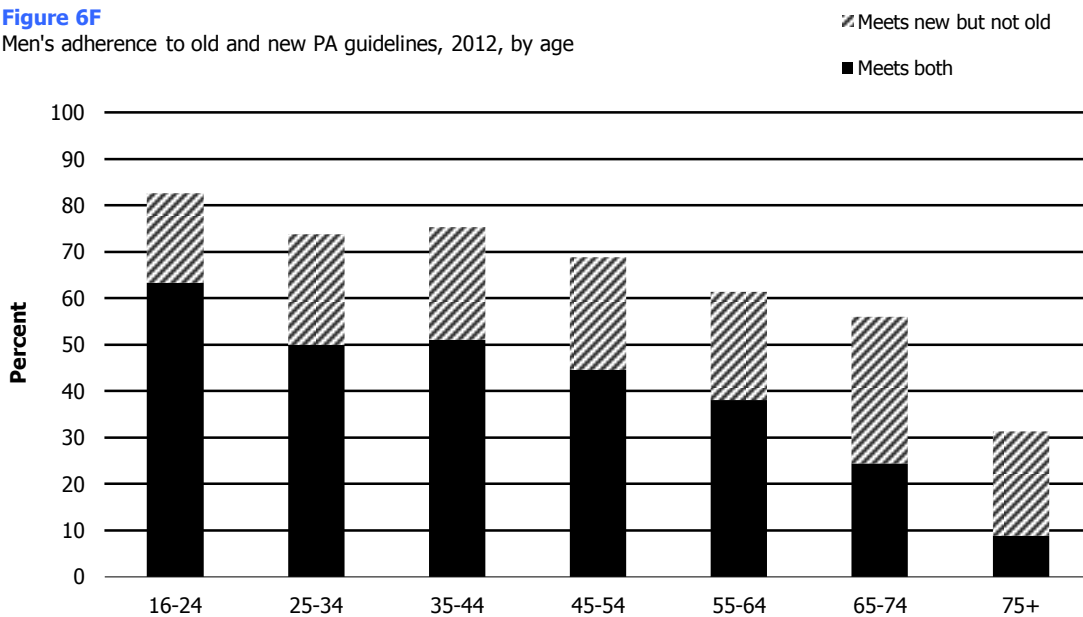
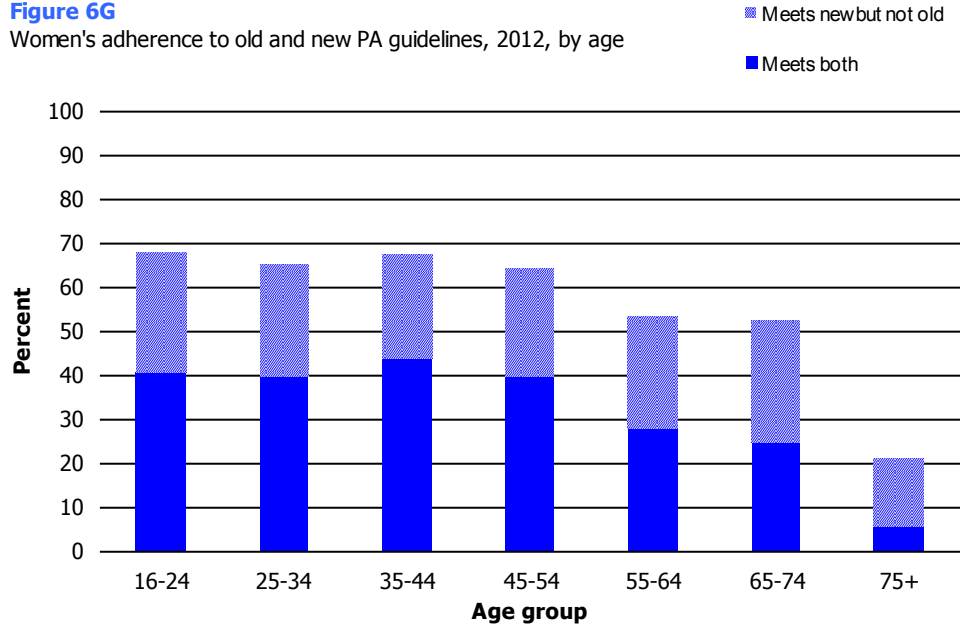


Figure 6G

Women's adherence to old and new PA guidelines, 2012, by age



Unlike other changes made to the questionnaire, the impact of the change to the walking definition in 2012 can be clearly illustrated as both the new and old definitions can be easily applied to the 2012 data. The proportion meeting the new MVPA guideline, when the new definition of walks for older adults is included, is presented, as is the equivalent figure when it is excluded. While the overall impact on the estimate for all adults was minimal (a difference of just 1 percentage point), there was, as might be expected, a more pronounced impact among older age groups. The proportion of those aged 65-74 meeting the guideline was seven percentage points higher when slower paced walks resulting in exertion were included. Among the oldest age group (aged 75 and over), the equivalent impact was a four percentage point increase in the proportion meeting the guideline.

Table B: Proportion of adults meeting the revised MVPA guidelines, including and excluding slower paced walks for those aged 65 and over*

	65-74	75 and over	All 16 and over
All adults	%	%	%
Old walking definition	47	21	61
New walking definition	54	25	62
<i>Difference</i>	7	4	1

*Old definition: only brisk/fast paced walks count towards meeting the guidelines
 New definition: if 65 and over, slow/steady walks also count if the effort resulted in faster breathing/feeling warm (i.e. caused exertion).

6.5 ADULT PARTICIPATION IN SPORT, 2012, BY AGE AND SEX

The proportion of adults (aged 16 and over) participating in sport in the previous month, is presented by age and sex in Table 6.7. Data are presented for sports that were mentioned by at least 0.5% of the population. In 2012, just over half (55%) of adults had participated in sport in the previous month (60% of men and

50% of women). There was a fairly linear decline in sports participation with age, from 81% of men and 77% of women aged 16-24, to 30% of men and 19% of women aged 75 and over.

Of the 28 different types of sport reported in Table 6.7, only four were carried out by more than a tenth of the population, while twelve were reported by just 1%. This illustrates the wide diversity of sporting activities that adults in Scotland do. The four most popular sporting activities included for all adults included ones that require physical infrastructure, such as working out at a gym (15%), and swimming (14%), as well as activities that can be pursued at home or outdoors, such as exercises (13%) and running (12%).

Men and women tended to differ in the kinds of activities they pursued, although there were some exceptions, such as swimming, hill-walking, racquet sports, and lawn bowls, which had similar levels of participation among both sexes. Men were more likely than women to have participated in running (15% versus 8%), cycling (13% versus 6%), football/rugby (12% versus 1%) and golf (11% versus 1%). Women were more likely than men to have been to an aerobics/keep fit/dance class in the past month (14% versus 3%). Gender differences were also evident between specific age groups, even when overall participation rates were very similar for men and women. For example, 2% of men and 1% of women had participated in martial arts/Tai Chi, but this was reported by 8% of men aged 16-24 and just 1% of the youngest women.

The most common age-related pattern was for sports participation to peak at age 16-34 and decline thereafter. This was particularly the case with the more vigorous activities such as football/rugby and running, but was also true of exercises and snooker/billiards/pool, reflecting the way in which activities change as both lifestyle and fitness levels change with age. Golf, hill-walking and bowls were notable exceptions to these general patterns, with participation levels remaining broadly steady – or increasing – as age increased. The rarity of sporting participation among the oldest age groups can be illustrated by the fact that just one of the types of activity (bowls) was reported by at least 5% of adults aged 75 and over, six activities met this threshold among those aged 65-74, as did 12 in the 16-24 age group.

6.6 ADULT SEDENTARY ACTIVITY, 2012, BY AGE AND SEX

The revised guidelines on activity levels advise adults to limit extended periods of sedentary time. Mean and median weekday and weekend sedentary leisure time (in hours) for adults are discussed. In addition, a summary measure (of time in quartiles) is also presented and discussed to help identify the least and most sedentary groups in the population. These summary estimates combine the time people reported spending in front of a screen with the time spent sitting doing other things, such as reading. Sedentary time at work is not included in the summary estimates.

As Table 6.8 illustrates, in 2012, adults (aged 16 and above) reported sitting in their leisure time for a mean of 5.5 hours on weekdays and 6.0 hours on weekend days. Reported sedentary leisure time was broadly similar for men and women (5.5 and 5.4 weekday mean hours, respectively, and 6.1 and 5.9

weekend day mean hours). Sedentary activity levels did vary by age, with those aged 25 to 54 tending to spend the least time sitting both on weekdays and weekend days (mean hours ranging from 4.6 to 4.9 on weekdays and 5.5 to 5.7 hours on weekend days). Older people (aged 65 and over) were the most sedentary on both weekdays (6.5 to 7.5 hours) and weekend days (6.7 to 7.6 hours).

Figure 6H illustrates the weekday patterns, by age and sex, in terms both of mean hours of sedentary activity and in the proportion in the most sedentary quartile. Figure 6I does the same for weekend days. For both sexes, the association between age group and mean hours of sedentary activity on weekdays followed a J-shaped curve, with an initial decline (from 5.6 hours in the 16-24 age group to 4.6 hours at age 35-44) and then an increase to its highest levels among those aged 65 and over (6.5 to 7.5 hours). Figure 6I demonstrates that while the pattern for weekend days was broadly similar, the curve is much flatter than that observed for weekdays.

Proportions in the most sedentary quartile (for weekdays and weekend days) followed a similar pattern by age and sex but with more pronounced gender differences, particularly among the youngest age groups on weekdays, and the 35-44 age group on weekends. Across all age groups, men reported higher activity levels than women, however, for many age groups, men were more likely than women to be in the most sedentary quartile, and therefore to sit for extended periods of time.

Figure 6H, Figure 6I, Table 6.8

Figure 6H

Percentage of adults in the highest weekday sedentary activity quartile, and mean hours sedentary time per weekday, 2012, by age and sex

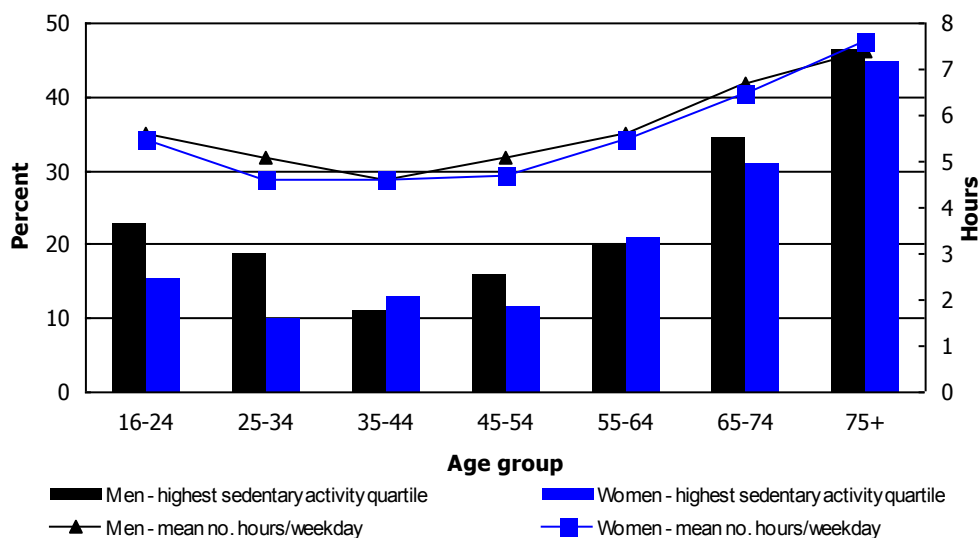
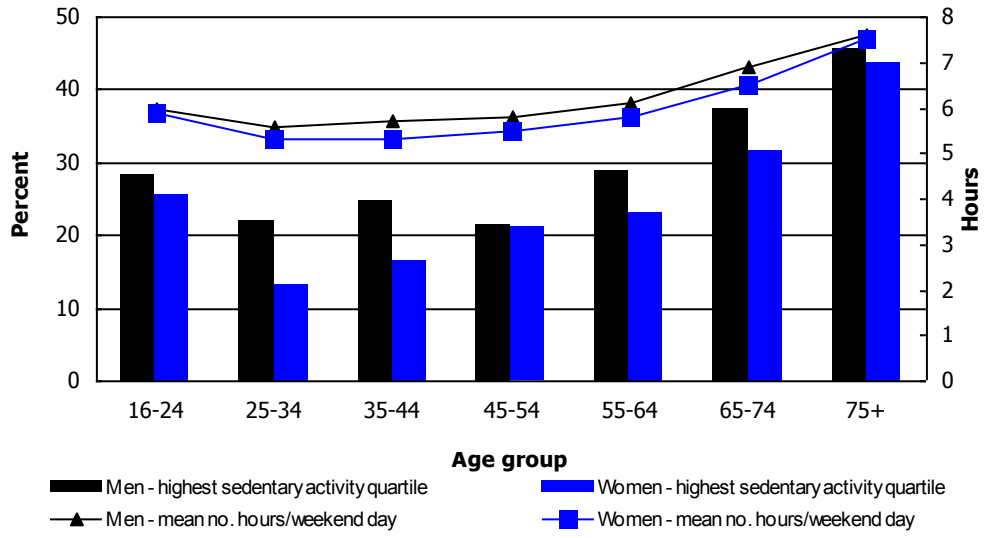


Figure 6I

Percentage of adults in the highest weekend day sedentary activity quartile, and mean hours sedentary time per weekend day, 2012, by age and sex



References and notes

- ¹ Telford, R.D. (2007). Low physical activity and obesity: causes of chronic disease or simply predictors? *Medicine and Science in Sports and Exercise*. **39** (8), 1233-40.
- ² Royal College of Psychiatrists. (2012). *Physical Activity and Mental Health*. Online. Available at: <www.rcpsych.ac.uk/expertadvice/treatmentwellbeing/physicalactivity.aspx>
- ³ Scottish Intercollegiate Guidelines Network. *Non-pharmaceutical management of depression. A national clinical guideline. SIGN guideline no. 114*. Edinburgh: SIGN, 2010.
- ⁴ *Global Recommendations on Physical Activity for Health*. Geneva: World Health Organisation, 2010. <www.who.int/dietphysicalactivity/factsheet_recommendations/en/index.html>
- ⁵ *Start Active, Stay Active – A report on physical activity for health from the four home countries' Chief Medical Officers*. (web only). UK Department of Health, July 2011. <www.dh.gov.uk/en/Publicationsandstatistics/Publications/PublicationsPolicyAndGuidance/DH_128209>
- ⁶ See: <www.who.int/dietphysicalactivity/factsheet_inactivity/en/index.html>
- ⁷ Foster, C and Allender, S. 2012. *Costing the burden of ill health related to physical inactivity for Scotland*. British Heart Foundation Research Group report for SPARCOII. NHS Health Scotland. <www.healthscotland.com/uploads/documents/20437-D1physicalinactivityscotland12final.pdf>
- ⁸ Physical Activity Task Force. (2003). *Let's Make Scotland More Active: A Strategy for Physical Activity*. Crown Copyright. Edinburgh.
- ⁹ *Five-year review of 'Let's Make Scotland More Active' – A strategy for physical activity*. Glasgow: NHS Health Scotland, 2009. <www.healthscotland.com/documents/3223.aspx>
- ¹⁰ *Healthy Eating, Active Living: An action plan to improve diet, increase physical activity and tackle obesity (2008-2011)*. Edinburgh: Scottish Government, 2008.
- ¹¹ *Obesity Route Map: Action Plan – Version 1.0*. Edinburgh: Scottish Government, 2011. <www.scotland.gov.uk/Resource/Doc/346007/0115166.pdf>
- ¹² Health Analytical Services Scottish Government and Information and Statistics Division, NHS National Services Scotland. *Indicators to Monitor Progress of the Obesity Route Map*. Edinburgh: Scottish Government, 2011 <www.scotland.gov.uk/Resource/Doc/346011/0115167.pdf>
- ¹³ See: <www.scotland.gov.uk/About/scotPerforms/indicator/physicalactivity>
- ¹⁴ For more details see: <www.ltscotland.org.uk/curriculumforexcellence/index.asp>
- ¹⁵ For more details see: <http://www.sportscotland.org.uk/sportscotland/schools/Active_Schools/Active_Schools1>
- ¹⁶ U.S. Department of Health and Human Services. *2008 Physical Activity Guidelines for Americans*. [Online] www.health.gov/paguidelines/pdf/paguide.pdf.
- ¹⁷ Canadian Society for Exercise Physiology. 2011. *Canadian Physical Activity Guidelines and Canadian Sedentary Behaviour Guidelines*. [Online] www.csep.ca/english/view.asp?x=949.
- ¹⁸ Note that young people aged 16-18 are treated as adults in SHeS and complete the adult version of the physical activity questionnaire. The different methods used to measure physical activity in adults and children mean that it is not appropriate to combine the data from young people aged 16-18 and those aged 5-15 to provide estimates for the 5-18 age group. The early years recommendations are included for information. The survey does not measure physical activity in children under 2, nor does it ask about children's walking, so the early years recommendations cannot be measured via SHeS.

- ¹⁹ *Allied Dunbar National Fitness Survey*. London: Health Education Authority and Sports Council, 1992.
- ²⁰ **Home activities:**
 Examples of 'heavy' gardening or DIY work classified as *moderate* intensity:
 Digging, clearing rough ground, building in stone/bricklaying, mowing large areas with a hand mower, felling trees, chopping wood, mixing/laying concrete, moving heavy loads, refitting a kitchen or bathroom or any similar heavy manual work.
- Examples of 'heavy' housework classified as *moderate* intensity:
 Walking with heavy shopping for more than 5 minutes, moving heavy furniture, spring cleaning, scrubbing floors with a scrubbing brush, cleaning windows, or other similar heavy housework.
- Examples of 'light' gardening or DIY work classified as *light* intensity:
 Hoeing, weeding, pruning, mowing with a power mower, planting flowers/seeds, decorating, minor household repairs, car washing and polishing, car repairs and maintenance.
- ²¹ MET levels were assigned using the 2011 update to the Compendium of Physical Activities: Ainsworth, B. E., W. L. Haskell, S. D. Herrmann, N. Meckes, D. R. Bassett Jr., C. Tudor-Locke, J. L. Greer, J. Veizina, M. C. Whitt-Glover, And A. S. Leon. 2011. 2011 Compendium of Physical Activities: A Second Update of Codes and MET Values. *Medicine & Science in Sports and Exercise*. Vol. 43, No. 8, pp. 1575–158.
- ²² **Sports and Exercise activities – Intensity:**
Vigorous:
 a) All occurrences of: squash, football, rugby, hockey, shinty, subaqua, backpacking, fives, kick-boxing, lacrosse, marathon running, polo, racket ball, skipping.
 b) Sports coded as vigorous intensity if they had made the participant breathe heavily or sweaty, but otherwise coded as moderate intensity: running/jogging, cycling, aerobics, keep fit, gymnastics, dance for fitness, weight training, swimming, tennis, badminton, exercises (press-ups, sit-ups etc), hillwalking/rambling, aquarobics, athletics, basketball, netball, canoeing/kayaking, climbing, horse riding, ice skating, martial arts inc Tai Chi, powerboating/jet skiing, rowing, sailing/windsurfing, skateboarding/inline skating, skiing/snowboarding, volleyball, American football, boxing, circuit training, field athletics, hiking, Territorial Army.
- Moderate:*
 a) See 'vigorous' category b).
 b) All occasions of: bowls, golf, cricket, surfing/ body boarding, table tennis, waterskiing, curling, abseiling/ parasailing, adventure playground, archery, assault course, baseball/softball, battle re-enactment, croquet, diving, dog training, drumming (in a group), fencing, hitting punch sack, juggling, Kabadi, motor sports (i.e. motor-cross, go-karting, etc.), rounders, skirmishing (war games), skittles, snorkelling, sumo wrestling, swing ball, trampolining, weight lifting, wrestling.
 c) Sports coded as moderate intensity if they had made the participant breathe heavily or sweaty, but otherwise coded as light intensity: fishing/ angling, yoga/pilates, walking on a jogging machine/treadmill.
- Light:*
 a) See 'moderate' category c).
 b) All occasions of: snooker/ billiards/ pool, canal cruising (if resp responsible for working locks), darts, post natal exercise, shooting, toning table/bed.
- ²³ For example, if participants' jobs were among a short list of particularly strenuous occupations (including, for example, miners and construction workers) and they described themselves as 'very physically active' at work, then their jobs were classified as involving 'vigorous' activity. Analysis of this method showed that the SOC code information assisted with the classification of work-based activity in only a very small number of cases, and that few people were classified as being vigorously active at work. As the SOC has undergone major revisions since the method was first devised, it was decided to simplify the classification method and base it solely on participants' assessments.

- ²⁴ We are grateful to Prof Nanette Mutrie (University of Edinburgh), Prof Dawn Skelton (Glasgow Caledonian University) and the Scottish Physical Activity Research Collaboration for providing expert advice on the classification of muscle strengthening and balance improving activities:

Muscle strengthening potential of sporting activities:

Definitely muscle strengthening:

Swimming, athletics, sailing/wind surfing, skiing/snowboarding, horse riding, waterskiing, rowing, canoeing/kayaking, climbing

Potentially muscle strengthening:

Cycling, workout at a gym, aerobics, any other type of dancing, football/rugby, badminton/tennis, squash, exercises, ten pin bowling, yoga/pilates, aquarobics/aquafit, martial arts/tai chi, basketball, netball, lawn bowls, golf, hill walking/rambling, cricket, hockey, curling, ice skating, shinty, surf/body boarding, volleyball

- ²⁵ **Definitely balance improving sporting activities:**

Cycling, workout at a gym, aerobics, any other type of dancing, football/rugby, badminton/tennis, squash, horse riding, aquafit/aquaerobics, jet ski, climbing, lawn bowls, golf, hill walking/rambling, yoga/pilates, athletics, basketball, netball, canoeing/kayaking, cricket, hockey, curling, ice skating, martial arts/tai chi, sailing/wind surfing, shinty, surf/body boarding, skiing/snowboarding, ten pin bowling, table tennis, volleyball, waterskiing

- ²⁶ People in full-time work who said they were very active at work were assigned 1800 minutes (30 hours) per week of moderate activity, part-time workers were assigned 1050 minutes (17.5 hours). These estimates were based on the mean duration of non-sedentary time reported by full-time and part-time workers who were very active at work in the 2012 survey.

- ²⁷ People in full-time work were assigned 20 sessions per month of moderate intensity activity at work, part-time workers were assigned 12 sessions. These estimates have been in use since the session-based recommendations were introduced.

- ²⁸ Scholes, S. and Mindell, J. 2013. *Is the adult population in England active enough? Initial results*. Leeds: Health and Social Care Information Centre.

- ²⁹ Tucker, J., Welk, G., Beyler, N. 2012 Physical Activity in U.S. Adults Compliance with the Physical Activity Guidelines for Americans. *American Journal of Preventative Medicine*. 40(4): 454-461.

Table list

Table 6.1	Proportion of children meeting physical activity guidelines (including and excluding school), 1998 to 2012
Table 6.2	Proportion of children participating in sport, 1998 to 2012
Table 6.3	Proportion of children meeting physical activity guidelines (including and excluding school), 2012, by age and sex
Table 6.4	Adult summary activity levels, 2012, by age and sex
Table 6.5	Adherence to muscle strengthening and MVPA guidelines, adults, 2012, by age and sex
Table 6.6	Adult adherence to old and new activity guidelines, 2008 to 2012
Table 6.7	Adult sport participation, 2012, by age and sex
Table 6.8	Adults' sedentary time, 2012, by age and sex

Table 6.1 Proportion of children meeting physical activity guidelines (including and excluding school), 1998 to 2012

<i>Aged 2 - 15</i>		<i>1998 to 2012</i>					
Proportion meeting recommendations^a	1998	2003	2008	2009	2010	2011	2012
	%	%	%	%	%	%	%
Boys							
Excluding activity at school	72	74	72	69	68	69	66
Including activity at school	n/a	n/a	77	75	75	76	73
Girls							
Excluding activity at school	59	63	56	58	62	62	58
Including activity at school	n/a	n/a	64	66	70	70	68
All Children							
Excluding activity at school	65	69	64	64	65	65	62
Including activity at school	n/a	n/a	71	71	72	73	70
<i>Bases (weighted):</i>							
<i>Boys</i>	1088	1478	776	1142	784	867	791
<i>Girls</i>	1032	1424	721	1096	743	830	748
<i>All children</i>	2120	2903	1497	2237	1527	1697	1539
<i>Bases (unweighted):</i>							
<i>Boys</i>	1972	1428	750	1142	811	841	753
<i>Girls</i>	1881	1444	737	1085	694	826	774
<i>All children</i>	3853	2872	1487	2227	1505	1667	1527

a At least 60 minutes of activity on all 7 days in previous week

Table 6.2 Proportion of children participating in sport, 1998 to 2012

<i>Aged 2 - 15</i>	<i>1998 to 2012</i>						
Participation in any sport during last week	1998	2003	2008	2009	2010	2011	2012
	%	%	%	%	%	%	%
Boys							
Yes	72	74	74	76	73	72	67
No	28	26	26	24	27	28	33
Girls							
Yes	65	69	67	70	67	67	65
No	35	31	33	30	33	33	35
All Children							
Yes	69	72	71	73	70	69	66
No	31	28	29	27	30	31	34
<i>Bases (weighted):</i>							
<i>Boys</i>	1096	1514	790	1155	794	878	802
<i>Girls</i>	1046	1448	736	1110	763	838	759
<i>All children</i>	2142	2961	1526	2265	1556	1716	1561
<i>Bases (unweighted):</i>							
<i>Boys</i>	1987	1462	763	1156	823	853	763
<i>Girls</i>	1905	1467	752	1102	711	835	784
<i>All children</i>	3892	2929	1515	2258	1534	1688	1547

Table 6.3 Proportion of children meeting physical activity guidelines (including and excluding school), 2012, by age and sex

<i>Aged 2 - 15</i>						<i>2012</i>
Proportion meeting recommendations^a	Age					Total
	2-4	5-7	8-10	11-12	13 - 15	
	%	%	%	%	%	%
Boys						
Excluding activity at school	72	74	63	63	56	66
Including activity at school	73	83	72	72	65	73
Girls						
Excluding activity at school	73	68	63	48	32	58
Including activity at school	74	77	76	66	45	68
All Children						
Excluding activity at school	72	71	63	55	45	62
Including activity at school	74	80	74	68	55	70
<i>Bases (weighted):</i>						
<i>Boys</i>	<i>184</i>	<i>166</i>	<i>159</i>	<i>107</i>	<i>175</i>	<i>791</i>
<i>Girls</i>	<i>169</i>	<i>167</i>	<i>135</i>	<i>130</i>	<i>147</i>	<i>748</i>
<i>All children</i>	<i>353</i>	<i>333</i>	<i>294</i>	<i>237</i>	<i>322</i>	<i>1539</i>
<i>Bases (unweighted):</i>						
<i>Boys</i>	<i>180</i>	<i>156</i>	<i>153</i>	<i>101</i>	<i>163</i>	<i>753</i>
<i>Girls</i>	<i>180</i>	<i>179</i>	<i>140</i>	<i>123</i>	<i>152</i>	<i>774</i>
<i>All children</i>	<i>360</i>	<i>335</i>	<i>293</i>	<i>224</i>	<i>315</i>	<i>1527</i>

a At least 60 minutes of activity on all 7 days in previous week

Table 6.4 Adult summary activity levels, 2012, by age and sex

<i>Aged 16 and over</i>								2012
Summary activity levels ^a	Age							Total
	16-24	25-34	35-44	45-54	55-64	65-74	75+	
	%	%	%	%	%	%	%	%
Men								
Meets MVPA guidelines	83	74	75	69	61	56	31	67
Some activity	8	13	10	7	10	12	9	10
Low activity	3	4	2	5	3	4	4	4
Very low activity	7	9	13	19	26	28	55	19
Women								
Meets MVPA guidelines	68	65	67	64	53	52	21	58
Some activity	16	14	16	11	13	13	12	14
Low activity	5	6	3	4	9	5	7	6
Very low activity	10	15	13	21	25	30	60	23
All Adults								
Meets MVPA guidelines	75	70	71	66	57	54	25	62
Some activity	12	13	13	9	11	12	11	12
Low activity	4	5	3	4	6	4	6	5
Very low activity	9	12	13	20	25	29	58	21
<i>Bases (weighted):</i>								
<i>Men</i>	339	383	380	419	361	251	173	2307
<i>Women</i>	326	376	414	455	382	287	263	2505
<i>All adults</i>	665	760	795	875	743	538	435	4811
<i>Bases (unweighted):</i>								
<i>Men</i>	170	228	345	408	362	384	225	2122
<i>Women</i>	228	329	474	499	442	387	326	2685
<i>All adults</i>	398	557	819	907	804	771	551	4807

a Meets moderate/vigorous physical activity (MVPA) guidelines = 150 mins moderate / 75 mins vigorous / combination of both per week; some activity = 60-<150 mins moderate / 30-<75 mins vigorous; low activity = 30-<60 mins moderate / 15-<37.5 mins vigorous; very low activity = under 30 mins moderate / under 15 mins vigorous

Table 6.5 Adherence to muscle strengthening and MVPA guidelines, adults, 2012, by age and sex

Aged 16 and over

2012

Proportion meeting guidelines ^a	Age							Total
	16-24	25-34	35-44	45-54	55-64	65-74	75+	
	%	%	%	%	%	%	%	%
Men								
Meets MVPA & muscle guidelines	59	42	30	27	16	12	6	30
Meets MVPA guidelines only	23	32	46	42	45	44	25	38
Meets muscle guideline only	0	2	1	0	0	0	1	1
Meets neither guideline	17	24	24	31	38	44	68	32
<i>Total meeting muscle guideline</i>	<i>60</i>	<i>44</i>	<i>31</i>	<i>27</i>	<i>17</i>	<i>12</i>	<i>7</i>	<i>30</i>
Women								
Meets MVPA & muscle guidelines	35	27	34	23	15	8	3	22
Meets MVPA guidelines only	33	38	34	41	38	45	18	36
Meets muscle guideline only	1	2	1	0	1	1	-	1
Meets neither guideline	31	33	31	36	46	46	79	41
<i>Total meeting muscle guideline</i>	<i>36</i>	<i>29</i>	<i>35</i>	<i>24</i>	<i>16</i>	<i>9</i>	<i>3</i>	<i>23</i>
All Adults								
Meets MVPA & muscle guidelines	47	35	32	25	16	9	4	26
Meets MVPA guidelines only	28	35	39	41	42	45	21	37
Meets muscle guideline only	1	2	1	0	1	1	0	1
Meets neither guideline	24	29	28	33	42	45	75	37
<i>Total meeting muscle guideline</i>	<i>48</i>	<i>37</i>	<i>33</i>	<i>25</i>	<i>16</i>	<i>10</i>	<i>5</i>	<i>27</i>
<i>Bases (weighted):</i>								
<i>Men</i>	<i>339</i>	<i>383</i>	<i>380</i>	<i>419</i>	<i>361</i>	<i>251</i>	<i>173</i>	<i>2307</i>
<i>Women</i>	<i>326</i>	<i>376</i>	<i>414</i>	<i>455</i>	<i>382</i>	<i>287</i>	<i>263</i>	<i>2505</i>
<i>All adults</i>	<i>665</i>	<i>760</i>	<i>795</i>	<i>875</i>	<i>743</i>	<i>538</i>	<i>435</i>	<i>4811</i>
<i>Bases (unweighted):</i>								
<i>Men</i>	<i>170</i>	<i>228</i>	<i>345</i>	<i>408</i>	<i>362</i>	<i>384</i>	<i>225</i>	<i>2122</i>
<i>Women</i>	<i>228</i>	<i>329</i>	<i>474</i>	<i>499</i>	<i>442</i>	<i>387</i>	<i>326</i>	<i>2685</i>
<i>All adults</i>	<i>398</i>	<i>557</i>	<i>819</i>	<i>907</i>	<i>804</i>	<i>771</i>	<i>551</i>	<i>4807</i>

a Meets moderate/vigorous physical activity (MVPA) guidelines = 150 mins moderate / 75 mins vigorous / combination of both per week; meets muscle guideline = carries out activities that strengthen muscles on at least two days per week

Table 6.6 Adult adherence to old and new activity guidelines, 2008 to 2012

<i>Aged 16 and over</i>	<i>2008 to 2012</i>				
Adherence to guidelines	2008	2009	2010	2011	2012
	%	%	%	%	%
Men					
Meets new MVPA guidelines (best estimate) ^a	n/a	n/a	n/a	n/a	67
Meets new MVPA guidelines (time series version) ^b	62	62	62	62	63
Meets old guidelines ^c	45	43	45	45	44
Women					
Meets new MVPA guidelines (best estimate) ^a	n/a	n/a	n/a	n/a	58
Meets new MVPA guidelines (time series version) ^b	55	55	54	54	53
Meets old guidelines ^c	33	32	33	33	33
All Adults					
Meets new MVPA guidelines (best estimate) ^a	n/a	n/a	n/a	n/a	62
Meets new MVPA guidelines (time series version) ^b	58	58	58	58	58
Meets old guidelines ^c	39	37	39	39	38
<i>Bases (weighted):</i>					
<i>Men</i>	3085	3591	3466	3605	2307
<i>Women</i>	3369	3923	3772	3924	2505
<i>All adults</i>	6455	7514	7238	7529	4811
<i>Bases (unweighted):</i>					
<i>Men</i>	2837	3278	3112	3274	2122
<i>Women</i>	3615	4238	4122	4253	2685
<i>All adults</i>	6452	7516	7234	7527	4807

a 150 mins moderate / 75 mins vigorous / combination of both per week, using 2012 definitions of walking pace, sports and time spent very active at work

b 150 mins moderate / 75 mins vigorous / combination of both per week, using 2008-11 definitions of walking pace, sports and time spent very active at work

c 30 minutes or more of at least moderate activity on at least 5 days per week, using 2008-11 definitions of walking pace and time spent very active at work

See the chapter text for full details of the new and old definitions of walking pace, sports and time spent very active at work

Table 6.7 Adult sport participation, 2012, by age and sex

Aged 16 and over who took part in any sport/exercise

2012

Participation in activity during last four weeks	Age							Total
	16-24	25-34	35-44	45-54	55-64	65-74	75+	
	%	%	%	%	%	%	%	%
Men								
Workout at a gym/Exercise bike/Weight training	39	28	15	15	9	9	5	19
Swimming	12	25	17	11	9	6	3	13
Exercises (e.g. press ups, sit ups)	40	24	13	11	6	3	4	16
Running/Jogging	38	26	16	11	3	2	-	15
Cycling	13	18	20	14	9	6	2	13
Hillwalking/rambling	8	10	13	14	10	10	3	10
Aerobics/Keep Fit/Gymnastics/Dance for fitness	7	3	3	2	3	1	1	3
Football/Rugby	37	21	12	6	1	1	-	12
Golf	6	10	10	15	12	12	10	11
Dancing (other than for fitness)	3	3	2	1	2	3	2	2
Snooker/billiards/pool	20	11	9	5	4	4	1	8
Yoga/pilates	0	1	2	1	1	1	1	1
Badminton/Tennis	7	3	4	5	2	1	-	3
Bowls	0	1	2	2	3	7	7	3
Fishing/angling	3	4	3	3	5	4	1	4
Tenpin bowling	3	3	2	1	0	1	-	2
Martial arts including Tai Chi	8	2	3	1	-	0	-	2
Aqua-robics/aquafit/exercise class in water	1	0	0	0	1	-	-	0
Climbing	3	2	3	1	0	0	0	2
Table tennis	4	1	1	1	2	1	-	1
Basketball	4	1	1	1	-	-	-	1
Horse riding	0	-	-	0	0	-	-	0
Ice skating	2	1	1	0	-	0	-	1
Squash	4	1	1	2	-	1	-	1
Canoeing/Kayaking	0	2	1	1	0	0	-	1
Hockey	4	0	1	-	-	-	-	1
Athletics	2	0	2	-	0	0	-	1
Any other sport or exercise ^a	10	6	4	6	2	3	2	5
Any sport or exercise	81	69	63	60	49	46	30	60
No sport or exercise	19	31	37	40	51	54	70	40

Continued...

Table 6.7 - Continued

Aged 16 and over who took part in any sport/exercise

2012

Participation in activity during last four weeks	Age							Total
	16-24	25-34	35-44	45-54	55-64	65-74	75+	
	%	%	%	%	%	%	%	%
Women								
Workout at a gym/Exercise bike/Weight training	23	15	19	13	9	5	1	13
Swimming	17	23	20	15	12	7	3	15
Exercises (e.g. press ups, sit ups)	23	17	13	12	5	4	3	11
Running/Jogging	21	16	11	6	2	0	-	8
Cycling	6	8	10	6	4	4	-	6
Hillwalking/rambling	6	10	10	10	7	8	1	8
Aerobics/Keep Fit/Gymnastics/Dance for fitness	19	19	22	13	10	7	6	14
Football/Rugby	5	1	1	0	0	-	-	1
Golf	1	0	1	2	2	2	1	1
Dancing (other than for fitness)	16	8	8	4	5	5	3	7
Snooker/billiards/pool	5	1	1	1	1	-	-	1
Yoga/pilates	7	6	7	4	5	4	1	5
Badminton/Tennis	8	4	3	1	2	1	0	3
Bowls	2	1	1	1	1	5	4	2
Fishing/angling	2	1	1	-	0	0	-	1
Tenpin bowling	3	2	2	1	0	0	-	1
Martial arts including Tai Chi	1	-	1	1	1	2	-	1
Aqua-robics/aquafit/exercise class in water	0	3	2	2	3	1	1	2
Climbing	2	1	0	0	-	-	-	0
Table tennis	1	0	1	1	1	-	-	1
Basketball	5	1	1	0	0	-	-	1
Horse riding	3	3	3	2	0	1	-	2
Ice skating	2	2	1	1	-	-	-	1
Squash	1	-	1	-	-	-	-	0
Canoeing/Kayaking	2	1	0	1	-	0	-	1
Hockey	2	0	-	0	0	-	-	0
Athletics	2	1	-	-	-	-	-	0
Any other sport or exercise ^a	8	4	4	3	2	0	0	3
Any sport or exercise	77	63	61	48	40	36	19	50
No sport or exercise	23	37	39	52	60	64	81	50

Continued...

Table 6.7 - Continued

Aged 16 and over who took part in any sport/exercise

2012

Participation in activity during last four weeks	Age							Total
	16-24	25-34	35-44	45-54	55-64	65-74	75+	
	%	%	%	%	%	%	%	%
All adults								
Workout at a gym/Exercise bike/Weight training	31	22	17	14	9	7	3	15
Swimming	15	24	18	13	11	7	3	14
Exercises (e.g. press ups, sit ups)	32	20	13	11	6	3	4	13
Running/Jogging	30	21	13	9	3	1	-	12
Cycling	9	13	15	10	7	5	1	9
Hillwalking/rambling	7	10	11	12	9	9	2	9
Aerobics/Keep Fit/Gymnastics/Dance for fitness	13	11	13	8	6	4	4	9
Football/Rugby	21	11	6	3	1	0	-	6
Golf	3	5	5	9	7	7	4	6
Dancing (other than for fitness)	9	5	5	3	4	4	3	5
Snooker/billiards/pool	12	6	5	3	2	2	0	5
Yoga/pilates	4	3	5	3	3	2	1	3
Badminton/Tennis	7	4	4	3	2	1	0	3
Bowls	1	1	1	1	2	6	5	2
Fishing/angling	2	2	2	1	3	2	0	2
Tenpin bowling	3	3	2	1	0	1	-	1
Martial arts including Tai Chi	4	1	2	1	1	1	-	1
Aqua-robics/aquafit/exercise class in water	1	2	1	1	2	0	0	1
Climbing	3	2	1	1	0	0	0	1
Table tennis	2	1	1	1	1	0	-	1
Basketball	4	1	1	0	0	-	-	1
Horse riding	2	1	1	1	0	0	-	1
Ice skating	2	2	1	0	-	0	-	1
Squash	2	1	1	1	-	0	-	1
Canoeing/Kayaking	1	2	1	1	0	0	-	1
Hockey	3	0	0	0	0	-	-	1
Athletics	2	1	1	-	0	0	-	1
Any other sport or exercise ^a	9	5	4	4	2	2	1	4
Any sport or exercise	79	66	62	54	44	41	24	55
No sport or exercise	21	34	38	46	56	59	76	45

Continued...

Table 6.7 - Continued

<i>Aged 16 and over who took part in any sport/exercise</i>								2012
Participation in activity during last four weeks	Age							Total
	16-24	25-34	35-44	45-54	55-64	65-74	75+	
<i>Bases (weighted):</i>								
<i>Men</i>	339	383	380	420	362	251	173	2309
<i>Women</i>	324	376	414	455	383	287	263	2502
<i>All adults</i>	663	760	795	875	745	539	435	4812
<i>Bases (unweighted):</i>								
<i>Men</i>	170	228	346	409	364	385	225	2127
<i>Women</i>	227	329	474	499	443	388	326	2686
<i>All adults</i>	397	557	820	908	807	773	551	4813

a Other sports or exercise include all named sports in the questionnaire, in which less than 0.5% of the adult population took part, i.e. cricket, curling, netball, powerboating, rowing, sailing, shinty, skateboarding, skiing, subaqua, surfing, volleyball and waterskiing, plus any sport or form of exercise which was not listed on the questionnaire

Table 6.8 Adults' sedentary time, 2012, by age and sex

<i>Aged 16 and over</i>								2012
Sedentary leisure time in hours (TV + non-TV)	Age							Total
	16-24	25-34	35-44	45-54	55-64	65-74	75+	
	%	%	%	%	%	%	%	%
Men								
Weekday								
Mean	5.6	5.1	4.6	5.1	5.6	6.7	7.4	5.5
Standard error of the mean	0.25	0.21	0.16	0.16	0.15	0.16	0.25	0.08
Median	5.0	4.5	4.0	4.5	5.0	6.0	7.0	5.0
% in bottom quartile (≤ 3.50)	25	34	42	32	23	9	9	27
% in second quartile (3.51-5.00)	30	30	29	34	32	28	20	30
% in third quartile (5.01-7.00)	22	17	18	18	25	29	25	21
% in top quartile (≥ 7.01)	23	19	11	16	20	34	46	22
Weekend								
Mean	6.0	5.6	5.7	5.8	6.1	6.9	7.6	6.1
Standard error of the mean	0.30	0.21	0.16	0.16	0.17	0.17	0.28	0.09
Median	6.0	5.0	5.0	5.0	6.0	6.0	7.0	6.0
% in bottom quartile (≤ 4.00)	35	36	36	35	27	19	15	31
% in second quartile (4.01 - 5.50)	12	21	18	20	22	16	16	18
% in third quartile (5.51-7.00)	25	21	22	24	22	28	23	23
% in top quartile (≥ 7.01)	28	22	25	21	29	37	46	28
Women								
Weekday								
Mean	5.5	4.6	4.6	4.7	5.5	6.5	7.6	5.4
Standard error of the mean	0.19	0.14	0.15	0.13	0.15	0.16	0.20	0.07
Median	5.0	4.0	4.0	4.0	5.0	6.0	7.0	5.0
% in bottom quartile (≤ 3.50)	22	39	43	37	22	10	6	28
% in second quartile (3.51-5.00)	31	32	28	33	32	29	19	30
% in third quartile (5.01-7.00)	32	19	16	18	25	31	31	24
% in top quartile (≥ 7.01)	15	10	13	12	21	31	45	19

Continued...

Table 6.8 - Continued

<i>Aged 16 and over</i>								2012
Sedentary leisure time in hours (TV + non-TV)	Age							Total
	16-24	25-34	35-44	45-54	55-64	65-74	75+	
	%	%	%	%	%	%	%	%
Weekend								
Mean	5.9	5.3	5.3	5.5	5.8	6.5	7.5	5.9
Standard error of the mean	0.25	0.14	0.14	0.13	0.15	0.16	0.21	0.08
Median	6.0	5.0	5.0	5.0	5.5	6.0	7.0	5.5
% in bottom quartile (≤ 4.00)	34	36	40	39	30	25	16	33
% in second quartile (4.01 - 5.50)	16	25	23	20	23	16	15	20
% in third quartile (5.51-7.00)	25	26	21	20	24	27	26	24
% in top quartile (≥ 7.01)	25	13	17	21	23	31	44	24
All Adults								
Weekday								
Mean	5.6	4.9	4.6	4.9	5.6	6.5	7.5	5.5
Standard error of the mean	0.15	0.14	0.11	0.10	0.11	0.12	0.17	0.06
Median	5.0	4.0	4.0	4.0	5.0	6.0	7.0	5.0
% in bottom quartile (≤ 3.50)	23	36	43	34	23	9	7	28
% in second quartile (3.51-5.00)	30	31	28	34	32	28	19	30
% in third quartile (5.01-7.00)	27	18	17	18	25	30	28	22
% in top quartile (≥ 7.01)	19	14	12	14	21	33	45	20
Weekend								
Mean	6.0	5.5	5.5	5.7	6.0	6.7	7.6	6.0
Standard error of the mean	0.20	0.13	0.11	0.11	0.12	0.14	0.19	0.07
Median	6.0	5.0	5.0	5.0	5.5	6.0	7.0	5.5
% in bottom quartile (≤ 4.00)	35	36	38	37	29	22	16	32
% in second quartile (4.01 - 5.50)	14	23	21	20	22	16	15	19
% in third quartile (5.51-7.00)	25	23	21	22	23	27	25	23
% in top quartile (≥ 7.01)	27	18	20	21	26	34	44	26

Continued...

Table 6.8 - Continued

<i>Aged 16 and over</i>								2012
Sedentary leisure time in hours (TV + non-TV)	Age							Total
	16-24	25-34	35-44	45-54	55-64	65-74	75+	
<i>Bases (weighted):</i>								
<i>Men weekday</i>	337	382	378	420	362	249	169	2298
<i>Men weekend</i>	335	383	377	417	361	248	169	2290
<i>Women weekday</i>	319	373	414	452	379	286	257	2480
<i>Women weekend</i>	318	374	413	450	380	286	257	2478
<i>All adults weekday</i>	655	755	793	872	741	536	426	4778
<i>All adults weekend</i>	653	758	790	867	740	534	426	4768
<i>Bases (unweighted):</i>								
<i>Men weekday</i>	168	227	344	409	363	382	219	2112
<i>Men weekend</i>	168	228	341	406	361	380	218	2102
<i>Women weekday</i>	224	327	474	496	438	387	319	2665
<i>Women weekend</i>	223	328	473	495	438	386	318	2661
<i>All adults weekday</i>	392	554	818	905	801	769	538	4777
<i>All adults weekend</i>	391	556	814	901	799	766	536	4763

7 OBESITY

Linsay Gray and Alastair H Leyland

SUMMARY

- In 2012, over a quarter (27.1%) of adults aged 16 or above were obese (body mass index (BMI) of 30 kg/m² or above). Almost two-thirds (64.3%) were either overweight or obese (BMI of 25 kg/m² or above).
- While men were significantly more likely than women to be overweight or obese (68.2% compared with 60.4%) in 2012, obesity prevalence among both genders was similar (26.6% and 27.5% respectively).
- The mean BMI for both men and women in 2012 was 27.3 kg/m².
- Since 1995 there has been a significant increase in the proportion of adults aged 16 to 64 categorised as obese (from 17.2% in 1995 to 26.1% in 2012), although the level has remained fairly constant since 2008. Over the same period, the proportion who were overweight or obese increased from 52.4% to 61.9%, again showing some stability in recent years.
- The mean BMI of adults aged 16 to 64 increased from 25.8 kg/m² in 1995 to 27.1 kg/m² in 2012, with little change since 2008.
- Obesity prevalence increased with age among adults. In 2012, 9.9% of those aged 16-24 were obese; levels peaked at 36.4% of those aged 55-64, falling to 26.6% of those aged 75 and over. Overweight or obesity prevalence followed a similar age-related pattern, increasing from 33.9% of those aged 16-24, to 77.0% of those aged 65-74.
- In 2012, two-thirds (67.5%) of children aged 2 to 15 had a healthy weight (BMI >2nd percentile and < 85th percentile). Girls were more likely than boys to have a healthy weight (70.3% compared with 64.9%). Those aged 12-15 were least likely to be of healthy weight (59.5% of boys and 60.9% of girls).
- The proportion of girls falling within the healthy weight range has remained fairly stable since 1998. Among boys, there has been more variation over this period, although the proportion in the healthy weight range in 2012 (64.9%) was similar to that seen in 2003 (64.7%).
- In 2012 one in six (16.8%) of children were at risk of obesity (at or above the 95th percentile), with a further 13.8% at risk of overweight (at or above the 85th percentile, and below the 95th).
- Boys were at greater risk of being overweight (including obese) than girls in 2012 (33.6% compared with 27.4%). Boys were also more likely than girls to be at risk of obesity (19.7% compared with 13.7%). Children aged 12-15 were most likely to be at risk of obesity (26.1% of boys and 18.3% of girls).
- The proportion of boys at risk of obesity rose from 14.5% in 1998 to 19.7% in 2012. For girls, the proportion at risk was highest in 2009 (15.9%), and fell to close to the 1998 level in 2012 (13.7%).
- Less than 2% of children were at risk of underweight (at or below the second percentile) in 2012, with girls slightly more likely to be at risk than boys (2.3% compared with 1.4%). Older children (aged 12-15) were at greatest risk of being underweight (2.5% of boys and 5.2% of girls).

7.1 INTRODUCTION

Obesity has a major impact on quality of life and health across the lifecourse. Overweight and obese children have an increased risk of conditions such as hypertension, type 2 diabetes and asthma^{1,2} in childhood, and if their weight continues to be unhealthy into adulthood they face an increased risk of numerous conditions associated with adult obesity, such as cardiovascular disease, osteoarthritis and cancer.^{3,4,5} There is also evidence suggesting a link between overweight and obesity in midlife and dementia in old age.^{6,7,8}

Scotland has one of the worst obesity records among developed countries. The estimated cost of obesity and related illnesses to the NHS in Scotland was in excess of £175 million in 2007/8.⁹ With these economic and health costs, tackling obesity is a key priority for the public health sector in Scotland.

Each year, in addition to updating the obesity trends, the Scottish Health Survey (SHeS) annual report provides a broad overview of recent policy initiatives and developments relating to obesity. Recent developments include:

- The Scottish Government's *Healthy Eating, Active Living: An action plan to improve diet, increase physical activity and tackle obesity*.¹⁰
- The Keep Well initiative.¹¹
- The Scottish Government's Obesity Route Map for tackling obesity and the associated *Obesity Route Map Action Plan*, published in 2011.¹² SHeS is the measurement tool for seven of the *Route Map* indicators, including the following long-term goals: the majority of Scotland's adult population in normal weight throughout life; fewer children in Scotland overweight or obese.¹³
- The Scottish Intercollegiate Guidelines Network (SIGN) national clinical guidelines on obesity management.⁴
- The revised Scottish Government National Performance Framework indicators: 'increase the proportion of babies with a healthy birth weight'¹⁴ and 'increase the proportion of healthy weight children'¹⁵ – with the latter of these measured via SHeS.
- The NHS Scotland HEAT¹⁶ target to deliver 14,910 child healthy weight interventions over the three years ending March 2014 (with at least 40% of such interventions delivered to children living in the two most deprived SIMD quintiles).¹⁷ 5,232 interventions were delivered between April 2011 and March 2012, and a further 4,951 by March 2013.
- The inclusion of child obesity rates as one of the national mental health indicators for children and young people in Scotland: 'percentage of children aged 2 to 15 with a body mass index (BMI) at or above the 95th percentile of the 1990 UK reference data'.¹⁸

In addition to these developments, many of the policy actions specifically targeted at improving diet (described in Chapter 5) and physical activity (described in Chapter 6) in the population are also relevant in the context of tackling obesity.

This chapter focuses on BMI, derived from the direct measurements of height and weight taken in the main SHeS interview. Trends in adult and child BMI are

presented by sex. BMI prevalence of both adults and children in 2012 is also presented by age and sex. Waist measurements for a random sub-sample of adults are also being collected by interviewers in the 2012-2015 period; results of these will be presented in the 2013 report when two years' data have accumulated.

Future reports will present more detailed analyses of BMI data, for example by updating the tables on disease risk, and socio-economic factors, presented in the 2011 report.

7.2 METHODS AND DEFINITIONS

Full details of the protocols for carrying out height and weight measurements are included in Volume 2 of this report and are briefly summarised here.

7.2.1 Height

Height was measured using a portable stadiometer with a sliding head plate, a base plate and three connecting rods marked with a metric measuring scale. Participants were asked to remove shoes. One measurement was taken, with the participant stretching to the maximum height and the head positioned in the Frankfort plane.¹⁹ The reading was recorded to the nearest even millimetre.

7.2.2 Weight

Weight was measured using Soehnle and Tanita electronic scales with a digital display. Participants were asked to remove shoes and any bulky clothing. A single measurement was recorded to the nearest 100g. Participants aged under 2 years, or who were pregnant, or chairbound, or unsteady on their feet were not weighed. Participants who weighed more than 130 kg were asked for an estimate of their weight because the scales are inaccurate above this level. These estimated weights were included in the analysis.

In the analysis of height and weight, data from those who were considered by the interviewer to have unreliable measurements, for example those who had excessive clothing on, were excluded.

7.2.3 Body Mass Index (BMI)

The Body Mass Index (BMI), defined as weight (kg)/square of height (m²), is a widely accepted measure that allows for differences in weight due to height. It has been used in each SHeS report to date BMI has, however, some limitations.^{20,21} It does not distinguish between mass due to body fat and mass due to muscular physique. Nor does it take account of the distribution of fat.

BMI was calculated for all those participants for whom a valid height and weight measurement was recorded.

BMI classification: adults

Adult participants were classified into the following BMI groups:²²

BMI (kg/m²)	Description
Less than 18.5	Underweight
18.5 to less than 25	Normal
25 to less than 30	Overweight, excluding obese
30 to less than 40	Obese, excluding morbidly obese
40+	Morbidly obese

Other cut-off points can be used in analyses of obesity, for example, the World Health Organisation (WHO) cites evidence that chronic disease is an increasing risk in populations when BMI exceeds 21,²³ while mortality rates do not necessarily correlate neatly with the categories presented here.²⁴ However, meaningful comparisons of prevalence estimates between countries require agreed thresholds and these categories correspond with the WHO's recommended definitions for underweight, normal, overweight and obese (though the WHO use three sub-classifications of obesity rather than the two presented here).²⁵

Mean BMI prevalence for the five categories outlined in the table above are presented by age and sex in the tables. Although obesity has the greatest ill-health and mortality consequences, overweight is also a major public health concern, not least because overweight people are at high risk of becoming obese. Being underweight can also have negative health consequences. Three measures are presented in trend tables: the proportion either overweight or obese (BMI of 25 kg/m² or more), the proportion who are obese (BMI of 30 kg/m² or more), and the proportion morbidly obese (BMI of 40 kg/m² or more). The latter group are at particularly high risk of morbidity and mortality.²⁶

BMI classification: children

BMI for children is defined in the same way as it is for adults: weight (kg)/square of height (m²). However, despite the relatively wide acceptance of the use of BMI as an adiposity indicator, the establishment of a specific obesity and overweight classification system for children and young people has proved to be difficult. Constant changes in body composition during growth mean that the relationship between weight-for-height and adiposity during childhood and adolescence is age-dependent, and this relationship is further complicated by both ethnicity and gender.²⁷ Several methods have been employed to define early life overweight and obesity, including body fatness as measured by skinfold thickness,^{28,29} national BMI percentile charts,^{30,31,32} weight-for-height indices,³³ BMI percentile cut-off points,³⁴ and international³⁵ and national³⁶ BMI cut-off points.

Percentile charts can be used to compare an individual child's BMI with the distribution of BMI in a reference population to see whether it corresponds with the average or is unusually high or low. Since a child's

BMI changes as he or she ages, comparisons need to be age specific. For example, the BMI for a child aged 5 needs to be compared with a reference population for a large sample of 5 year olds rather than a sample of children with a wider age range.

The classification of children's BMI used in this chapter, set out below, has been derived from BMI percentiles of the UK 1990 reference curves^{31,32} (referred to as the national BMI percentiles classification); these have been used in each SHeS to date. SIGN recommends that these reference curves and thresholds should be used for population surveillance in Scotland.⁴

The use of reference curves require children's ages to be exactly matched to those in the reference population charts. This is a fairly straightforward process in clinical settings where an individual child's exact age can be compared with the look-up chart for their age. Matching exact ages to population charts in a survey dataset containing many children is somewhat less straightforward. SHeS uses a method developed by ISD Scotland that plots the exact ages of the children in the sample against the reference population data.³⁷

Although children's exact age was used to calculate the BMI grouping prevalence rates (based on the interview date and the date of birth), the results are presented using grouped ages based on age at last birthday.

The 85th / 95th percentile cut-off points are commonly accepted thresholds used to analyse overweight and obesity in children. These thresholds have previously been used to describe childhood overweight and obesity prevalence trends in the UK.^{38,39,40,41} The national BMI percentiles classification has been shown to be reasonably sensitive (i.e. not classifying obese children as non-obese) and specific (i.e. not classifying non-obese children as obese).^{42,43} As noted in the introduction, one of the Scottish Government's national indicators relates to healthy weight in children, defined as neither underweight nor overweight or obese.¹⁵ For this reason, the data have been categorised to show the total proportions that are: healthy weight, at risk of overweight, at risk of obesity, and at risk of underweight.

A number of changes have been made to the presentation of child BMI data since the publication of the 2011 annual report. These are as follows:

- The threshold used to differentiate between underweight and healthy weight has been revised from the 5th percentile to the 2nd percentile.
- The description of the weight categories has changed in line with recommendations in a joint statement released by the Scientific Advisory Committee on Nutrition (SACN) and the Royal College of Paediatrics and Child Health (RCPCH) in April 2012.⁴⁴
- Minor methodological changes have been made in relation to rounding.

- The approach to excluding BMI values at the extreme ends of the distribution has changed. To minimise the impact of error in either the height or weight measurements affecting the BMI data, ISD Scotland recommends excluding cases with BMI values at the extreme ends of the distribution. The data presented in the 2008-2011 SHeS annual reports defined such cases as more than three standard deviations above or below the mean for all children. In 2012, ISD revised the definition for this range to exclude a smaller number of cases (above or below seven standard deviations from the mean).⁴⁵ The increase in child obesity since the reference curves were derived means that some of the previously excluded cases were likely to have been valid BMIs rather than erroneous measures. All time-trend figures for child BMI presented in this chapter have been re-run using the revised exclusion definition.

Percentile cut-off	Description
At or below 2 nd percentile	At risk of underweight
Above 2 nd percentile and below 85 th percentile	Healthy weight
At or above 85 th percentile and below 95 th percentile	At risk of overweight
At or above 95 th percentile	At risk of obesity

The impact of these changes can be seen by comparing the 1998 to 2011 figures in Table 7.3 with those in Table 5.2 in the 2011 report (Volume 2).⁴⁶ The general effect is an approximate 2 percentage point increase in the proportion of boys categorised as being at risk of obesity in each of the years, a 1.5 percentage point increase in the proportion categorised as at risk of overweight, and a 1 percentage point increase in the proportion outwith the healthy weight range. There was an approximate 1 percentage point increase in the proportion of girls who were at risk of being overweight or obese, and a slight decrease in the proportion outwith the healthy range.

7.3 TRENDS IN ADULT OVERWEIGHT AND OBESITY PREVALENCE SINCE 1995

7.3.1 Obesity and morbid obesity

Since older adults were excluded from the survey in earlier years, the trend figures presented for 1995 onwards are for adults aged 16 to 64 only. The figures for all aged 16 and over are shown from 2003 onwards. Obesity prevalence (BMI ≥ 30 kg/m²) has increased significantly, by around nine percentage points, since 1995, from 17.2%, to 26.1% in 2012. The rapid increase observed between 1995 and 2003 (23.0%), however, does not appear to have been sustained in more recent years, with the proportion of adults categorised as obese fluctuating between 25.7% and 27.4% between 2008 and 2012. Obesity prevalence among all adults (aged 16 and over) has followed a similar

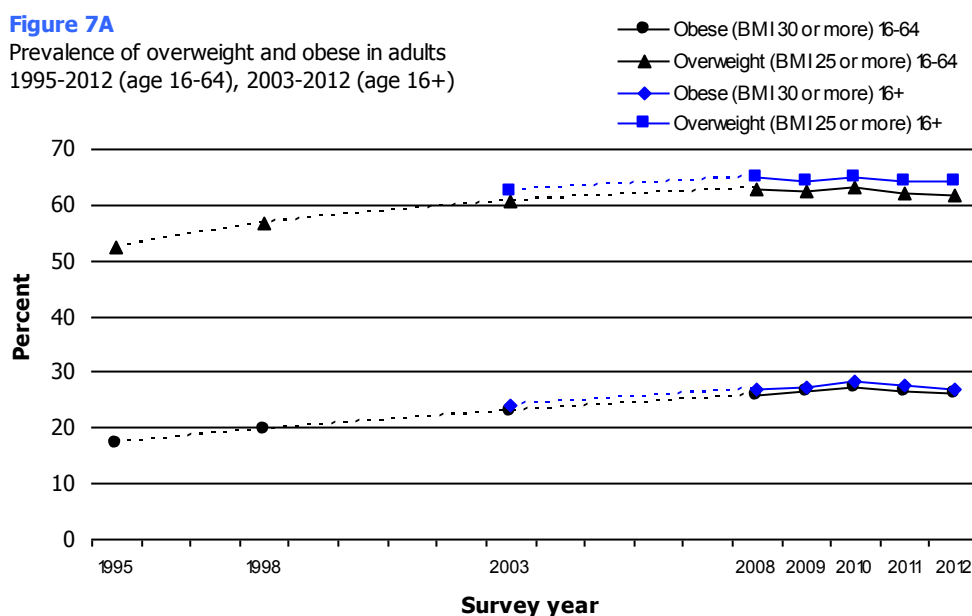
pattern to this since 2003. Trends in male and female obesity have followed a similar pattern over the years.

Morbid obesity prevalence (BMI ≥ 40 kg/m²) among men aged 16 to 64 increased from 0.5% in 1995 to 2.0% in 2012. The corresponding figures for women were consistently higher over this same period (1.3% in 1995 and 3.5% in 2012). Since 2003, the level of morbid obesity has remained at between 1.0% and 2.0% for all men aged 16 and over and between 3.2% and 4.1% for women. **Figure 7A, Table 7.1**

7.3.2 Overweight including obesity

Since 1995, the proportion of the population aged 16 to 64 categorised either as overweight or obese (BMI ≥ 25 kg/m²) has risen significantly from 52.4%, to 61.9% in 2012, an increase of almost 10 percentage points. As with the trend in obesity levels, the sharp increase in prevalence between 1995 and 2003 (60.6%) among both men and women has not been sustained in recent years. The proportion of 16 to 64 year olds who were overweight including obese has fluctuated between 61.9% and 63.3% since 2008 (61.9% in 2012).

Since 2003, the trend in the prevalence of overweight including obesity for all adults (aged 16 and over) has followed a similar pattern to that seen for 16 to 64 year olds. **Figure 7A, Table 7.1**



7.3.3 Mean BMI

The mean BMI for adults aged 16 to 64 rose from 25.8 kg/m² in 1995 to 27.1 kg/m² in 2012. The greatest increase occurred between 1995 and 2003 (26.9 kg/m²), with stability observed in more recent years. Since 2003, the mean BMI for all adults (aged 16 and over) has been similar to the mean for 16 to 64 year olds, fluctuating between 27.1 kg/m² and 27.5 kg/m² since then. **Table 7.1**

7.4 ADULT BMI, 2012, BY AGE AND SEX

In 2012, 27.1% of adults (aged 16 and above) in Scotland were obese (BMI \geq 30 kg/m²) (Table 7.2). Obesity prevalence was similar among men and women (26.6% and 27.5% respectively).

Obesity levels were age-dependent for both men and women but with slightly different patterns. Among men, prevalence was lowest (8.8%) in the youngest age group (16-24 year olds). In line with the pattern seen in earlier years of the survey, prevalence then increased with age up to age 65-74 (38.5%) but was lower for the age 75 and over group (29.5%). The pattern for women was less clear, with the lowest obesity prevalence observed in the youngest age group (11.3%) and the highest for 55-64 year olds (35.0%). Among the remaining age groups, the proportion classified as obese ranged between 24.5% and 32.2%.

Figure 7B

Men: Prevalence of overweight and obese, 2012, by age

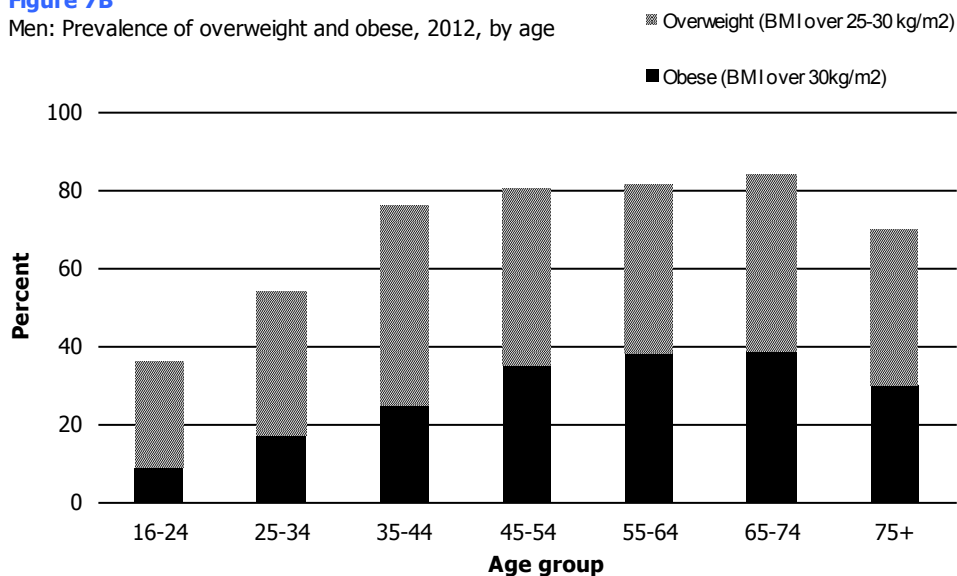
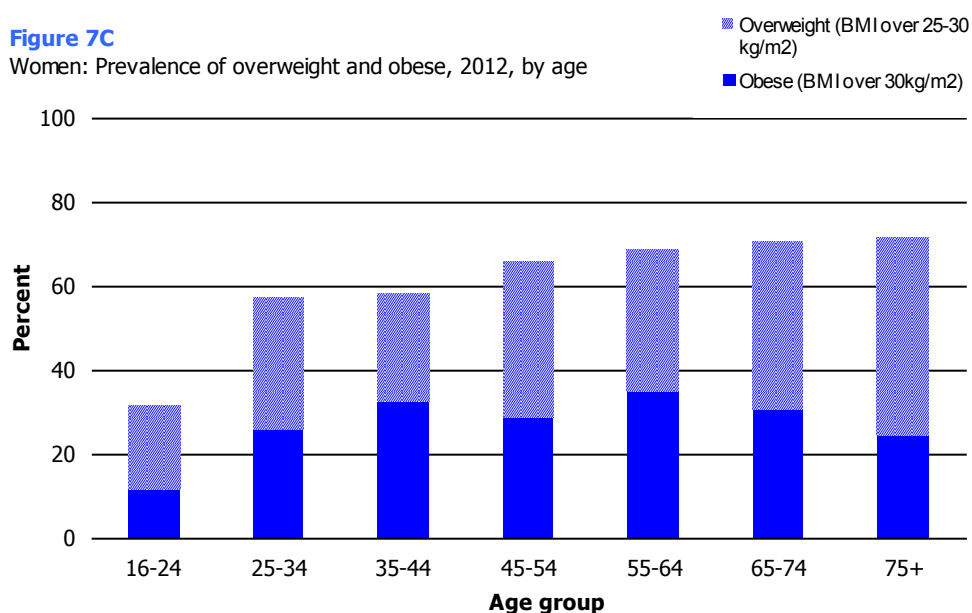


Figure 7C

Women: Prevalence of overweight and obese, 2012, by age



In 2012, almost two-thirds (64.3%) of adults were classified as overweight or obese (BMI \geq 25 kg/m²). While there was no significant difference in obesity prevalence for men and women, men were more likely than women to be overweight including obese (68.2% compared with 60.4% of women).

As with obesity, prevalence of overweight including obese varied with age. Among men, the level was lowest among the youngest age group – 16-24 year olds (35.8%). Prevalence then increased with age, up to age 65-74 (84.2%), and was lower again for those aged 75 and over (70.0%). For women, overweight (including obesity) prevalence increased with age, rising from 31.5% of the youngest age group to 71.6% of those in the oldest age group.

In 2012, mean BMI was 27.3 kg/m² for both men and women. In line with differences observed in overweight and obesity prevalence, mean BMI varied with age, being lowest for the youngest age group (24.0 kg/m²) and highest for those aged 55-64 (28.7 kg/m²) and 65-74 (28.6 kg/m²).

Figure 7B, Figure 7C, Table 7.2

7.5 TRENDS IN THE PREVALENCE OF CHILD HEALTHY WEIGHT, OVERWEIGHT AND OBESITY SINCE 1998

The proportion of children aged 2 to 15 at risk of obesity rose from 14.3% to 16.6% between 1998 and 2008 but has remained stable since then (16.8% in 2012). Prevalence trends were slightly different for boys and girls. Among boys, the proportion at risk of obesity increased from 14.5% in 1998 to 19.7% in 2012, with some fluctuation between 2003 and 2010. Over time, the proportion of girls at risk of obesity has been more stable, fluctuating between 14.2% and 15.9% since 1998 (13.7% in 2012).

The proportion of 2 to 15 year olds at risk of overweight including obese rose from 29.1% in 1998 to 32.8% in 2008 but, since then, has fluctuated with no clear pattern (30.6% in 2012). Prevalence has changed somewhat for boys over the years but has been relatively stable for girls. Between 1998 and 2008 the proportion of boys at risk of overweight including obese progressively increased from 29.0% to 37.5%. The level then declined notably to 31.3% in 2009 and 32.9% in 2010; since then obesity prevalence in boys has been higher again at 36.2% in 2011 and 33.6% in 2012. Among girls, the proportion at risk of overweight including obese was 29.1% in 1998 and 27.4% in 2012 with similar rates observed in the interim years (ranging from 27.8% to 30.2%) and no statistically significant differences observed.

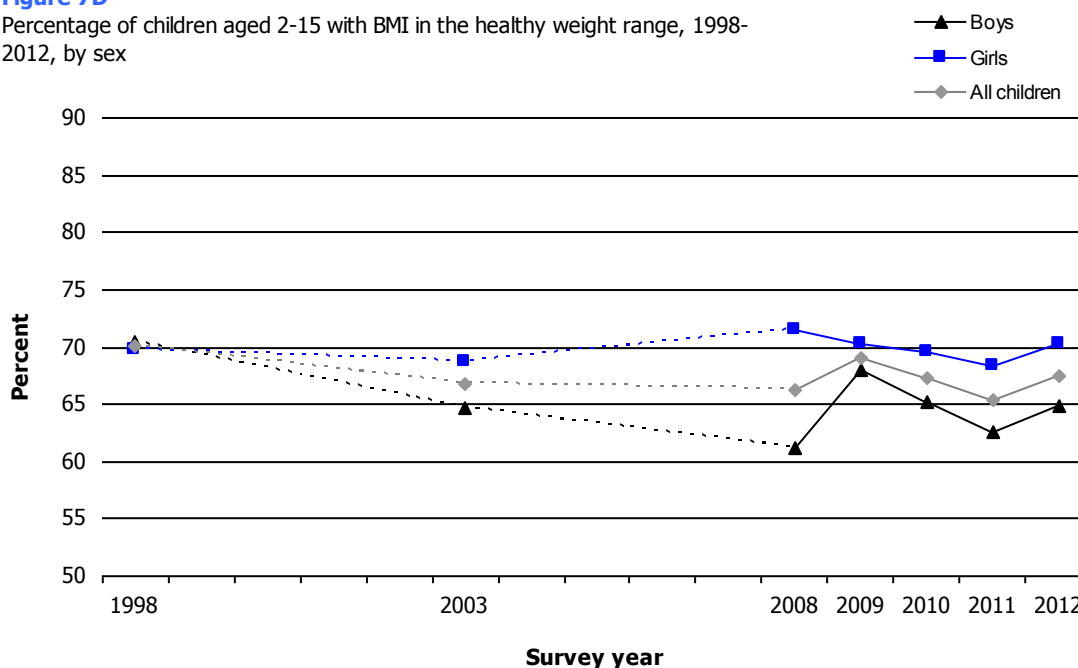
Healthy weight prevalence among children followed similar, but opposing, patterns to those described above for obesity and overweight (Figure 7D). In 1998, seven in ten (70.1%) children had a weight within the healthy range, decreasing to 66.2% in 2008, and then fluctuating between 69.1% and 67.5% between 2009 and 2012, with a low of 65.4% in 2011. Among boys, there was a sharp decrease in healthy weight prevalence between 1998 and 2008 (from 70.4% to 61.2%), with the level since then remaining similar to the level in 2008 (despite a large fluctuation in 2009). In 2012, almost two-thirds (64.9%) of boys were within the healthy weight range. For girls, the proportion falling within the

healthy range was very similar across survey years, ranging between 68.4% and 71.5%, with prevalence at 70.3% in 2012.

Figure 7D, Table 7.3

Figure 7D

Percentage of children aged 2-15 with BMI in the healthy weight range, 1998-2012, by sex



7.6 CHILD BMI CATEGORIES, 2012, BY AGE AND SEX

This section focuses on 2012 prevalence for the three summary BMI groups discussed above (at risk of obesity; at risk of overweight including obese; and within healthy range). In addition, data for those at risk of underweight are also presented. Figures are presented by age and sex for children aged 2 to 15. The sample size for children is not sufficiently large to detect statistically significant differences between all of the sub-groups in individual survey years.

In 2012, one in six (16.8%) children (aged 2 to 15) was at risk of obesity. Prevalence was higher among boys (19.7%) than girls (13.7%). The proportion at risk of obesity increased with age, from 12.1% of those aged 2-6, to 22.5% of those aged 12-15.

Three in ten (30.6%) children were at risk of overweight including obese in 2012. The overall figure for boys (33.6%) was significantly higher than for girls (27.4%). Prevalence was highest among those aged 12-15 (36.1%). Boys' increased likelihood of being at risk of overweight including obese was true across all age groups but was particularly pronounced at age 2-6, with 32.7% classified as such, compared with 22.3% of girls.

Two thirds (67.5%) of children had a BMI within the healthy range in 2012, with girls significantly more likely than boys to be a healthy weight (70.3% compared with 64.9%). As with overweight and obese, healthy weight prevalence varied with age, with those aged 12-15 least likely to be a healthy weight (59.5% of boys of this age were a healthy weight, as were 60.9% of girls).

The group of children outwith the healthy range comprises those at risk of overweight, obese and underweight. At 1.9% in 2012, the proportion at risk of underweight was low among all children (1.4% of boys and 2.3% of girls). Prevalence varied by age group, particularly for girls (no girls aged 7-11 in the sample were at risk of being underweight, compared with 5.2% of girls aged 12-15).

Table 7.4

References and notes

- ¹ Oude Luttikhuis, H. et al. (2009). Interventions for treating obesity in children. *Cochrane Database of Systematic Reviews* 1, CD001872.
- ² Summerbell, C. D. et al. (2005). Interventions for preventing obesity in children. *Cochrane Database of Systematic Reviews* 3, CD001871.
- ³ Nathan, B. M. and Moran, A. (2008). Metabolic complications of obesity in childhood and adolescence: more than just diabetes. *Current Opinion in Endocrinology Diabetes and Obesity*. 15(1): 21-29.
- ⁴ Scottish Intercollegiate Guidelines Network *Management of Obesity – A National Clinical Guideline*. SIGN guideline no. 115. Edinburgh: SIGN, 2010..
<http://www.sign.ac.uk/guidelines/fulltext/115/index.html>
- ⁵ Grant, I., Fischbacher, C., and Whyte, B. (2007). *Obesity in Scotland – An Epidemiology Briefing*. Edinburgh: NHS National Services Scotland/Scottish Public Health Observatory.
www.scotpho.org.uk/home/Publications/scotphoreports/pub_obesityinscotland.asp
- ⁶ Anstey, K. J., Cherbuin, N., Budge, M., and Young, J. (2011). Body mass index in midlife and late-life as a risk factor for dementia: a meta-analysis of prospective studies. *Obesity Reviews* 12(5): e426-37.
- ⁷ Xu, W. L., Atti, A. R., Gatz, M., Pedersen, N. L., Johansson, B., and Fratiglioni, L. (2011). Midlife overweight and obesity increase late-life dementia risk: a population-based twin study. *Neurology* 76(18): 1568-74.
- ⁸ Loef, M. and Walach, H. (2013). Midlife obesity and dementia: meta-analysis and adjusted forecast of dementia prevalence in the United States and China. *Obesity* 21(1): e51-5.
- ⁹ *Preventing Overweight and Obesity in Scotland: A Route Map Towards Healthy Weight*. Edinburgh: the Scottish Government, 2010.
<http://www.scotland.gov.uk/Publications/2010/02/17140721/0>
- ¹⁰ *Healthy Eating, Active Living: An Action Plan to Improve Diet, Increase Physical Activity and Tackle Obesity (2008-2011)*. Edinburgh: Scottish Government, 2008.
<http://www.scotland.gov.uk/Publications/2008/06/20155902/0>
- ¹¹ Available from: www.keepwellscotland.com
- ¹² *Obesity Route Map: Action Plan – Version 1.0*. Edinburgh: Scottish Government, 2011.
www.scotland.gov.uk/Resource/Doc/346007/0115166.pdf
- ¹³ Health Analytical Services Scottish Government and Information and Statistics Division, NHS National Services Scotland (2011). *Indicators to Monitor Progress of the Obesity Route Map*. Edinburgh: Scottish Government. www.scotland.gov.uk/Resource/Doc/346011/0115167.pdf
- ¹⁴ Available from: www.scotland.gov.uk/About/Performance/scotPerforms/indicator/birthweight
- ¹⁵ Available from: www.scotland.gov.uk/About/scotPerforms/indicator/healthyweight
- ¹⁶ The HEAT targets derive their name from the four strands in the performance framework: the Health of the population; Efficiency and productivity, resources and workforce; Access to services and waiting times; and Treatment and quality of services.
- ¹⁷ Available from:
www.scotland.gov.uk/About/scotPerforms/partnerstories/NHSScotlandperformance/childhealthyweight

- ¹⁸ Parkinson, J. (2012). *Establishing a Core Set of National, Sustainable Mental Health Indicators for Children and Young People in Scotland: Final Report*. Glasgow: NHS Health Scotland. <http://www.childreninscotland.org.uk/docs/NHSHealthScotlandCYPmentalhealthindicatorsdrafframeworkconsultationdocument.pdf>
- ¹⁹ The Frankfort Plane is an imaginary line passing through the external ear canal and across the top of the lower bone of the eye socket, immediately under the eye. Participants' heads are positioned with the Frankfort Plane in a horizontal position when height is measured using a stadiometer as a means of ensuring that, as far as possible, the measurements taken are standardised.
- ²⁰ For a full review of obesity measures see: National Institute of Health and Clinical Excellence (2006). *CG43 Obesity: Full Guideline, Section 2: Identification and Classification*. www.nice.org.uk/guidance/index.jsp?action=download&o=38295
- ²¹ Romero-Corral, A. *et al* (2008). Accuracy of body mass index in diagnosing obesity in the adult general population. *International Journal of Obesity* 32: 959–966.
- ²² These cut-offs differ to those used in the previous surveys. In 1995 and 1998 the normal weight range was defined as 20-25 kg/m², in 2003 it was changed to 18.5-25 kg/m². From 2008 onwards the ranges are defined as set out below. This brings the definition in line with WHO recommendations. The impact of the change of definition is very marginal as very few people have a BMI measurement that is exactly 18.5, 25, 30 or 40 kg/m².
- | | 2003 | 2008 onwards |
|----------------|----------------|----------------------|
| Underweight | 18.5 or under | Less than 18.5 |
| Normal weight | Over 18.5 – 25 | 18.5 to less than 25 |
| Overweight | Over 25 – 30 | 25 to less than 30 |
| Obese | Over 30 – 40 | 30 to less than 40 |
| Morbidly obese | Over 40 | 40+ |
- ²³ *WHO Obesity Factsheet*. World Health Organization, 2009. www.who.int/mediacentre/factsheets/fs311/en/index.html
- ²⁴ Prospective Studies Collaboration (2009). Body-mass index and cause-specific mortality in 900,000 adults: collaborative analyses of 57 prospective studies. *The Lancet* 373: 1083-96.
- ²⁵ The problem of overweight and obesity. In *Obesity: Preventing and Managing the Global Epidemic. Report of a WHO Consultation*. WHO Technical Report Series 894. Geneva: WHO, 2000. [http://whqlibdoc.who.int/trs/WHO_TRS_894_\(part1\).pdf](http://whqlibdoc.who.int/trs/WHO_TRS_894_(part1).pdf)
- ²⁶ NHS Consensus Development Conference (2006). Gastrointestinal surgery for severe obesity. *Nutrition* 12: 397-402.
- ²⁷ Daniels, S. R., Khoury, P. R. and Morrison, J. A. (1997). The utility of body mass index as a measure of body fatness in children and adolescents: Differences by race and gender. *Pediatrics* 99: 804-807.
- ²⁸ Lohman, T. G. (1986). Applicability of body-composition techniques and constants for children and youths. *Exercise and Sport Sciences Reviews* 14: 325-357.
- ²⁹ Steinbeck, K. (2001). The importance of physical activity in the prevention of overweight and obesity in childhood: a review and an opinion. *Obesity Review*. 2: 117-130.
- ³⁰ Hammer, L., Kraemer, H. Wilson, D. *et al*. (1991). Standardised percentile curves of body mass index for children and adolescents. *American Journal of Diseases in Children* 145: 259-263.
- ³¹ Cole, T., Freeman, J. V. and Preece, M. A. (1990). Body mass index reference curves for the UK. *Archives of Disease in Childhood*. 73: 25-29.

-
- ³² Cole, T., Freeman, J. V. and Preece, M. A. (1998). British 1990 growth reference centiles for weight, height, body mass index and head circumference fitted by maximum penalised likelihood. *Statistics in Medicine* 17: 407-429.
- ³³ Rolland-Cachera, M.F. (1999). Defining obesity in childhood. In: Guy-Grand, B. and Ailhaud, G. (eds.) *Progress in Obesity Research: 8. Proceedings of the 8th International Congress of Obesity*. London: John Libbey and Co.
- ³⁴ Europe Overweight and Obesity in Children Task Force (2000). *Overweight and Obesity in European Children and Adolescents. Causes and Consequences-Prevention and Treatment*. Brussels: International Life Sciences Institute.
- ³⁵ Cole, T., Bellizzi, M., Flegal, K. and Dietz, W.H. (2000). Establishing a standard definition for child overweight and obesity worldwide: an international survey *British Medical Journal*. 320: 1-6.
- ³⁶ Chinn, S. and Rona, R. J. (2002). International definitions of overweight and obesity for children: a lasting solution? *Annals of Human Biology*. 29: 306-313.
- ³⁷ This method has been developed by ISD Scotland, full details of the procedure are available on request from the Scottish Government Scottish Health Survey Team
- ³⁸ Jotangia, D., Moody, A., Stamatakis, E., et al. (2005). *Obesity Among Children Under 11*. London: Department of Health in collaboration with the Health and Social Care Information Centre.
- ³⁹ Reilly, J., Dorosty, A., and Emmett, P. (1999). Prevalence of overweight and obesity in British children: cohort study. *British Medical Journal*. 319: 1039.
- ⁴⁰ Bundred, P., Kitciner, D. and Buchan, I. (2001). Prevalence of overweight and obese children between 1989 and 1998: population based series of cross sectional studies. *British Medical Journal* 322: 1-4.
- ⁴¹ Rudolf, M. C. J., Sahota, P., Barth, J. H., and Walker, J. (2001). Increasing prevalence of obesity in primary school children: cohort study. *British Medical Journal* 322: 1094-1095.
- ⁴² Reilly, J. J. (2002). Assessment of childhood obesity: National reference data or international approach? *Obesity Research* 10: 838-840.
- ⁴³ Reilly, J. J., Wilson, M. L., Summerbell, C. D., and Wilson, D. C. (2002). Obesity: diagnosis, prevention, and treatment; evidence based answers to common questions. *Archives of Disease in Childhood* 86: 392-395.
- ⁴⁴ See: http://www.sacn.gov.uk/pdfs/sacnrcpch_position_statement_bmi_thresholds.pdf
- ⁴⁵ *Primary 1 Body Mass Index (BMI) Statistics. School Year 2010/11*. Edinburgh: ISD, 2012: www.isdscotland.org/Health-Topics/Child-Health/Publications/2012-04-24/2012-04-24-BMI-Report.pdf?84266299010
- ⁴⁶ Gray, L. and Leyland, A. (2012). Chapter 5: Obesity. In: Rutherford, L., Bromley, C. (eds.) *The 2011 Scottish Health Survey – Volume 2: Children*. Edinburgh: Scottish Government. <http://www.scotland.gov.uk/Publications/2012/09/3327>

Table list

Table 7.1	Mean adult BMI, prevalence of overweight and obesity, 1995 to 2012
Table 7.2	Adult BMI, 2012, by age and sex
Table 7.3	Proportion of children with BMI within the healthy range, and prevalence of overweight and obesity in children, 1998 to 2012
Table 7.4	Children's BMI, 2012, by age and sex

Table 7.1 Mean adult BMI, prevalence of overweight and obesity, 1995 to 2012

Aged 16 and over with valid height and weight measurements

BMI (kg/m ²)	1995 to 2012							
	1995	1998	2003	2008	2009	2010	2011	2012
	%	%	%	%	%	%	%	%
Men								
25 and over^a								
16-64	55.6	61.0	64.0	66.3	66.2	66.1	67.1	66.0
16+	n/a	n/a	65.4	68.5	67.9	67.8	69.2	68.2
30 and over^b								
16-64	15.9	18.8	22.0	24.9	26.7	26.6	26.7	24.8
16+	n/a	n/a	22.4	26.0	26.9	27.4	27.7	26.6
40 and over^c								
16-64	0.5	0.9	1.8	1.4	1.0	1.7	1.8	2.0
16+	n/a	n/a	1.6	1.4	1.0	1.6	1.7	2.0
Mean								
16-64	26.0	26.4	26.9	27.2	27.4	27.3	27.4	27.1
16+	n/a	n/a	27.0	27.4	27.5	27.5	27.6	27.3
SE of the mean								
16-64	0.07	0.07	0.12	0.13	0.13	0.15	0.14	0.16
16+	n/a	n/a	0.12	0.12	0.12	0.13	0.12	0.14
Women								
25 and over^a								
16-64	47.2	52.2	57.3	59.6	58.4	60.3	57.1	57.7
16+	n/a	n/a	59.7	61.8	61.0	62.4	59.6	60.4
30 and over^b								
16-64	17.3	20.9	23.8	26.5	26.4	28.1	26.3	27.4
16+	n/a	n/a	26.0	27.5	27.6	28.9	27.6	27.5
40 and over^c								
16-64	1.3	2.0	3.6	3.5	3.5	3.7	4.2	3.5
16+	n/a	n/a	3.4	3.4	3.5	3.2	4.1	3.2
Mean								
16-64	25.7	26.3	26.9	27.3	27.2	27.4	27.3	27.2
16+	n/a	n/a	27.2	27.4	27.4	27.6	27.5	27.3
SE of the mean								
16-64	0.08	0.09	0.14	0.15	0.14	0.14	0.14	0.16
16+	n/a	n/a	0.14	0.13	0.12	0.12	0.12	0.14

Continued...

Table 7.1 - Continued

Aged 16 and over with valid height and weight measurements

1995 to 2012

BMI (kg/m ²)	1995	1998	2003	2008	2009	2010	2011	2012
	%	%	%	%	%	%	%	%
All adults								
25 and over^a								
16-64	52.4	56.7	60.6	62.9	62.4	63.3	62.2	61.9
16+	n/a	n/a	62.4	65.1	64.4	65.1	64.3	64.3
30 and over^b								
16-64	17.2	19.8	23.0	25.7	26.5	27.4	26.5	26.1
16+	n/a	n/a	24.2	26.8	27.2	28.2	27.7	27.1
40 and over^c								
16-64	1.2	1.4	2.7	2.5	2.2	2.7	3.0	2.7
16+	n/a	n/a	2.5	2.4	2.2	2.4	2.9	2.6
Mean								
16-64	25.8	26.4	26.9	27.2	27.3	27.4	27.3	27.1
16+	n/a	n/a	27.1	27.4	27.4	27.5	27.5	27.3
SE of the mean								
16-64	0.05	0.06	0.10	0.11	0.10	0.11	0.11	0.12
16+	n/a	n/a	0.09	0.10	0.09	0.10	0.10	0.11
<i>Bases (weighted):</i>								
Men 16-64	3672	3673	2702	2238	2598	2487	2513	1706
Men 16+	n/a	n/a	3217	2689	3129	2992	3003	2048
Women 16-64	3632	3572	2776	2257	2553	2435	2478	1640
Women 16+	n/a	n/a	3458	2828	3208	3046	3100	2063
All adults 16-64	7757	7245	5478	4495	5151	4922	4991	3346
All adults 16+	n/a	n/a	6675	5517	6336	6038	6103	4110
<i>Bases (unweighted):</i>								
Men 16-64	3303	3110	2368	1822	2107	2020	2092	1381
Men 16+	n/a	n/a	3016	2454	2817	2674	2745	1876
Women 16-64	4005	3783	2908	2293	2678	2553	2596	1676
Women 16+	n/a	n/a	3684	3019	3449	3327	3389	2221
All adults 16-64	7776	6893	5276	4115	4785	4573	4688	3057
All adults 16+	n/a	n/a	6700	5473	6266	6001	6134	4097

a 25 and over = overweight / obese / morbidly obese

b 30 and over = obese / morbidly obese

c 40 and over = morbidly obese

Table 7.2 Adult BMI, 2012, by age and sex

Aged 16 and over with valid height and weight measurements

2012

BMI (kg/m ²)	Age							Total
	16-24	25-34	35-44	45-54	55-64	65-74	75+	
	%	%	%	%	%	%	%	%
Men								
Less than 18.5	6.6	2.3	0.2	0.6	0.4	0.5	-	1.7
18.5 to less than 25	57.6	43.8	24.0	18.7	18.1	15.3	30.0	30.2
25 to less than 30	27.0	36.9	51.0	45.9	43.7	45.6	40.4	41.6
30 to less than 40	8.8	16.1	21.9	31.7	34.8	35.7	29.4	24.6
40+	-	0.9	2.8	3.0	3.0	2.8	0.1	2.0
<i>All 25 and over^a</i>	35.8	53.9	75.8	80.7	81.6	84.2	70.0	68.2
<i>All 30 and over^b</i>	8.8	17.0	24.7	34.8	37.8	38.5	29.5	26.6
Mean	24.0	25.9	27.8	28.6	28.8	29.0	27.7	27.3
Standard error of the mean	0.38	0.35	0.30	0.28	0.30	0.26	0.39	0.14
Women								
Less than 18.5	4.2	1.2	1.9	1.1	1.0	1.7	2.0	1.8
18.5 to less than 25	64.3	41.5	40.2	33.0	30.4	27.7	26.4	37.8
25 to less than 30	20.2	31.8	25.6	37.3	33.6	40.1	47.2	32.9
30 to less than 40	10.8	22.8	27.1	25.1	30.2	27.2	23.8	24.3
40+	0.5	2.7	5.2	3.5	4.8	3.3	0.7	3.2
<i>All 25 and over^a</i>	31.5	57.3	57.9	65.9	68.6	70.6	71.6	60.4
<i>All 30 and over^b</i>	11.3	25.5	32.2	28.6	35.0	30.5	24.5	27.5
Mean	24.1	27.1	27.7	27.7	28.6	28.1	27.6	27.3
Standard error of the mean	0.39	0.38	0.32	0.28	0.31	0.34	0.32	0.14

Continued...

Table 7.2 - Continued

Aged 16 and over with valid height and weight measurements

2012

BMI (kg/m ²)	Age							Total
	16-24	25-34	35-44	45-54	55-64	65-74	75+	
	%	%	%	%	%	%	%	%
All adults								
<i>All 25 and over^a</i>	33.9	55.5	66.5	73.2	75.0	77.0	71.0	64.3
<i>All 30 and over^b</i>	9.9	21.0	28.6	31.7	36.4	34.3	26.6	27.1
Mean	24.0	26.4	27.7	28.2	28.7	28.6	27.6	27.3
Standard error of the mean	0.28	0.26	0.23	0.20	0.23	0.22	0.24	0.11
<i>Bases (weighted):</i>								
<i>Men</i>	321	345	342	380	318	215	126	2048
<i>Women</i>	255	306	367	387	325	241	182	2063
<i>All adults</i>	576	651	710	767	643	457	307	4110
<i>Bases (unweighted):</i>								
<i>Men</i>	162	211	315	374	319	332	163	1876
<i>Women</i>	184	269	419	429	375	322	223	2221
<i>All adults</i>	346	480	734	803	694	654	386	4097

a 25 and over = overweight (including obese)

b 30 and over = obese

Table 7.3 Proportion of children with BMI within the healthy range, and prevalence of overweight and obesity in children, 1998 to 2012

<i>Aged 2-15 with valid height and weight measurements^a</i>							<i>1998 to 2012</i>
BMI status (National BMI percentiles)	1998r	2003r	2008r	2009r	2010r	2011r	2012
	%	%	%	%	%	%	%
Boys							
Within healthy range ^b	70.4	64.7	61.2	68.0	65.2	62.6	64.9
Outwith healthy range ^c	29.6	35.3	38.8	32.0	34.8	37.4	35.1
At risk of overweight (including obesity) ^d	29.0	34.2	37.5	31.3	32.9	36.2	33.6
At risk of obesity ^e	14.5	17.6	18.7	17.0	17.8	19.7	19.7
Girls							
Within healthy range ^b	69.7	68.7	71.5	70.3	69.5	68.4	70.3
Outwith healthy range ^c	30.3	31.3	28.5	29.7	30.5	31.6	29.7
At risk of overweight (including obesity) ^d	29.1	30.2	27.8	28.9	29.6	29.1	27.4
At risk of obesity ^e	14.2	13.9	14.4	15.9	14.3	14.5	13.7
All children							
Within healthy range ^b	70.1	66.7	66.2	69.1	67.3	65.4	67.5
Outwith healthy range ^c	29.9	33.3	33.8	30.9	32.7	34.6	32.5
At risk of overweight (including obesity) ^d	29.1	32.3	32.8	30.2	31.3	32.7	30.6
At risk of obesity ^e	14.3	15.8	16.6	16.4	16.1	17.2	16.8
<i>Bases (weighted):</i>							
<i>Boys</i>	<i>985</i>	<i>1243</i>	<i>669</i>	<i>958</i>	<i>641</i>	<i>655</i>	<i>663</i>
<i>Girls</i>	<i>931</i>	<i>1182</i>	<i>621</i>	<i>924</i>	<i>612</i>	<i>621</i>	<i>620</i>
<i>All children</i>	<i>1916</i>	<i>2425</i>	<i>1290</i>	<i>1882</i>	<i>1253</i>	<i>1276</i>	<i>1283</i>
<i>Bases (unweighted):</i>							
<i>Boys</i>	<i>1780</i>	<i>1208</i>	<i>652</i>	<i>967</i>	<i>662</i>	<i>643</i>	<i>630</i>
<i>Girls</i>	<i>1704</i>	<i>1215</i>	<i>640</i>	<i>914</i>	<i>569</i>	<i>626</i>	<i>644</i>
<i>All children</i>	<i>3484</i>	<i>2423</i>	<i>1292</i>	<i>1881</i>	<i>1231</i>	<i>1269</i>	<i>1274</i>

a Children whose BMI was more than 7 standard deviations above or below the norm for their age were excluded from the table. The 1998 to 2011 figures have been revised as prior to 2012 cases which were more than 3 standard deviations above or below the mean for all children were excluded.

b BMI above 2nd percentile, below 85th percentile. The 1998 to 2011 figures have been revised as prior to 2012 the range was above 5th percentile and below 85th percentile.

c BMI at or below 2nd percentile, at or above 85th percentile

d BMI at or above 85th percentile

e BMI at or above 95th percentile

Table 7.4 Children's BMI, 2012, by age and sex*Aged 2-15 with valid height and weight measurements^a*

2012

BMI status (National BMI percentiles)	Age			Total
	2-6	7-11	12-15	
	%	%	%	%
Boys				
At risk of underweight ^b	0.4	1.5	2.5	1.4
Healthy weight ^c	67.0	68.0	59.5	64.9
At risk of overweight ^d	17.7	12.0	12.0	13.9
At risk of obesity ^e	15.0	18.4	26.1	19.7
<i>Outwith healthy range^f</i>	33.0	32.0	40.5	35.1
<i>Overweight (including obese)^g</i>	32.7	30.5	38.1	33.6
Girls				
At risk of underweight ^b	2.1	-	5.2	2.3
Healthy weight ^c	75.6	73.0	60.9	70.3
At risk of overweight ^d	13.0	12.8	15.6	13.7
At risk of obesity ^e	9.3	14.2	18.3	13.7
<i>Outwith healthy range^f</i>	24.4	27.0	39.1	29.7
<i>Overweight (including obese)^g</i>	22.3	27.0	33.9	27.4
All children				
At risk of underweight ^b	1.3	0.8	3.7	1.9
Healthy weight ^c	71.3	70.4	60.2	67.5
At risk of overweight ^d	15.4	12.4	13.7	13.8
At risk of obesity ^e	12.1	16.4	22.5	16.8
<i>Outwith healthy range^f</i>	28.7	29.6	39.8	32.5
<i>Overweight (including obese)^g</i>	27.5	28.8	36.1	30.6
<i>Bases (weighted):</i>				
<i>Boys</i>	220	231	212	663
<i>Girls</i>	218	218	184	620
<i>All children</i>	438	448	396	1283
<i>Bases (unweighted):</i>				
<i>Boys</i>	217	214	199	630
<i>Girls</i>	235	224	185	644
<i>All children</i>	452	438	384	1274

a Children whose BMI was more than 7 standard deviations above or below the norm for their age were excluded from the table

b BMI at or below 2nd percentile

c BMI above 2nd percentile, below 85th percentile

d BMI at or above 85th percentile, below 95th percentile

e BMI at or above 95th percentile

f BMI at or below 2nd percentile, at or above 85th percentile

g BMI at or above 85th percentile

8 LONG-TERM CONDITIONS

Lindsay Gray and Alastair H Leyland

SUMMARY

- Adult long-term conditions prevalence increased from 41% in 2008 to 46% in 2012; the increase has been greater for women than men. The proportion of men and women with limiting long-term conditions also increased over this period.
- Prevalence of both long-term conditions and limiting long-term conditions was generally higher for women than for men and increased with age for both genders.
- Since 1998, the proportion of adults (aged 16 to 74) with doctor-diagnosed asthma has increased from 11% to 17% in 2012.
- Similar proportions of men and women had asthma in 2012 (16% and 17% respectively). Asthma prevalence declined with age (28% among those aged 16-24 to 11% of those aged 75 and over).
- In 2012, 13% of 2 to 15 year olds had doctor-diagnosed asthma, down from 18% in 1998. The drop in asthma levels was more pronounced among girls.
- Asthma rates were higher among boys than girls in 2012 (15% compared with 9% for girls).
- Since 1998, there has been little change in the proportion of adults with doctor-diagnosed COPD (3.8% in 2008 and 4.0% in 2012). COPD prevalence was at a similar level for men and women, and increased with age for both genders (from less than 0.5% of those aged 16 to 34 to one in ten (9.6%) of those aged 75 and above).
- Between 1995 and 2012, there was a rise in the proportion of adults (aged 16 to 64) with cardio-vascular disease (CVD) (from 8.7% to 10.8%).
- In 2012, one in six (16.2%) adults aged 16 and over had a CVD condition. CVD prevalence increased with age (from 4.6% among those aged 16-24 to 45.8% for those aged 75 and above).
- The proportion of adults (aged 16 to 64) with doctor-diagnosed diabetes has increased from 1.5% in 1995 to 3.7% 2012. 5.5% of all adults (aged 16 and over) had diabetes in 2012.
- IHD, stroke and IHD or stroke prevalence have not varied significantly since 1995.

8.1 INTRODUCTION

The significant personal, social and economic costs of long-term health conditions to Scottish society are well recognised.¹ The established links with deprivation and age are particularly significant in Scotland given its persistent health inequalities and ageing population. While numerous serious long-term conditions exist, diabetes, cardiovascular and respiratory diseases together represent a significant health burden in Scotland, and globally.²

The Scottish Government's National Action Plan¹ relating to people with long-term conditions states that: 'Long term conditions are health conditions that last a year or longer, impact on a person's life, and may require ongoing care and support.' These include mental health problems and a wide range of physical

conditions such as chronic pain, arthritis, inflammatory bowel disease. Prominent among the physical conditions are respiratory diseases and metabolic disorders including cardiovascular disease (CVD) and diabetes. Long-term conditions in Scotland account for 80% of all GP consultations; they also account for 60% of all deaths in Scotland.¹

Asthma and chronic obstructive pulmonary disease (COPD) are common long-term respiratory diseases. Asthma is characterised by variable and recurring symptoms of breathlessness, wheezing, coughing and chest tightness. COPD, another chronic lung condition, is caused by restricted airways that result in breathing difficulties, persistent coughing and abnormal sputum production.³ In the past, COPD has also been referred to as chronic bronchitis or emphysema.

CVD is one of the leading contributors to the global disease burden. Its main components are ischaemic heart disease (IHD) (or coronary heart disease) and stroke, both of which have been identified as clinical priorities for the NHS in Scotland.⁴

Diabetes is the most common metabolic disorder and its increasing prevalence is a major health issue for Scotland. Scotland has one of the highest levels of type 1 diabetes in Europe, but it is the rising levels of type 2 diabetes – linked to obesity, physical inactivity and ageing – which are driving the increased prevalence and causing concern.⁵

Long-term respiratory conditions, CVD and diabetes all place significant demands on the NHS in Scotland. The breathing restrictions associated with COPD, for example, are a major cause of repeated hospital admissions in Scotland.⁶ Estimates suggest the cost borne by NHS Scotland for treating COPD is around £100 million a year.⁶

In terms of mortality, IHD and respiratory diseases are the second and third most common causes of death in Scotland after cancer, accounting for 14% and 13% of deaths, respectively, in 2012, with a further 8% caused by stroke.⁷ Diabetes is a risk factor in premature mortality, although there have been improvements in recent years.⁵ Early mortality from heart disease and stroke have also both improved in recent years (surpassing targets in both cases), but concern remains about continuing inequalities in relation to morbidity and mortality linked to these conditions.⁴

Thus, the challenges presented by long-term conditions in general, and respiratory disease, CVD and diabetes specifically, are clear. In recognition of the challenges posed by long-term conditions – both for the individual as well as for health and care services – the Scottish Government, working with partners such as NHS Scotland, has pursued a range of actions and initiatives over recent years to help reduce the prevalence of these conditions and improve management and care of them.

At a strategic level, the Scottish Government's National Performance Framework includes a national outcome of 'We live longer, healthier lives'. In addition, a number of the NPF national indicators⁸ are linked to key CVD and respiratory disease risk factors, most notably smoking,⁹ but also physical

activity¹⁰ and obesity¹¹ (as described in Chapters 4, 6 and 7 respectively). The refreshed NPF, published in December 2011,¹² now also includes an indicator to 'reduce premature mortality' (deaths from all causes in those aged under 75).¹³ CVD is described as one of the key 'big killer' diseases around which action must be taken if this target is to be met. As the only major cause of death in Scotland which is increasing, effective COPD prevention and symptom management will also contribute to reducing premature mortality.⁶

The Scottish Government published an overarching strategy for long-term conditions in 2009: *Improving the Health & Wellbeing of People with Long Term Conditions in Scotland: A National Action Plan* (the Action Plan).¹ The Action Plan delivered on a commitment made in the earlier *Better Health, Better Care: Action Plan*.¹⁴ It recognises the need for system-wide action in response to the challenge presented by the increasing prevalence of long-term conditions within the context of an ageing population, the links to health inequalities, and the particular challenges of multi-morbidity – the experience of two or more long-term conditions.

Following on from the Action Plan, there have been a range of more specific actions and initiatives addressing prevention, treatment and care in relation to long-term conditions, including:

- The Scottish Government's *Better Heart Disease and Stroke Care Action Plan*,¹⁵ launched in June 2009, which built on the *Coronary Heart Disease and Stroke Strategy for Scotland* published in 2002, and updated in 2004.¹⁶
- The SIGN guidelines on cardiovascular health¹⁷ published in 2007, which include a risk assessment tool (ASSIGN) to calculate a person's future risk of cardiovascular disease.
- The revised SIGN guidelines on diabetes¹⁸ published in March 2010.
- The revised *Diabetes Action Plan*, published in August 2010.¹⁹
- The updated SIGN guidelines on asthma management for adults and children published in 2011, originally developed in conjunction with the British Thoracic Society.²⁰
- The publication of NHS Quality Improvement Scotland (now Healthcare Improvement Scotland) clinical standards on COPD management⁷ in 2010 which carries on from previous work on long-term conditions. The seven standards cover: service organisation and delivery, timely case identification, diagnostic accuracy and review, access to pulmonary rehabilitation and oxygen therapy, the provision of support at home, and access to palliative care.
- The Quality and Outcomes Framework²¹ and initiatives such as the Keep Well programme.²²
- The roll-out of the Life begins at 40 programme which invites all those turning 40 to participate in a health assessment delivered by NHS 24 via telephone or online.²³

At an operational level, NHS Scotland's HEAT performance management system²⁴ is based around a series of targets against which the performance of individual Health Boards is measured. The Scottish Government's 2007 action plan *Better Health, Better Care*²⁵ set out how the HEAT system would feed into

the Government's overarching objectives as set out in the NPF. A number of the HEAT targets are relevant to long-term conditions. For example, the quality of care in the immediate aftermath of a stroke is an important factor in a person's recovery rate and subsequent quality of life, and there was a HEAT target specifically aimed at improving performance in this area: by March 2013 90% of patients admitted with a stroke should be admitted to a specialist stroke unit within one day of admission.²⁶ In the quarter ending March 2013 80% of stroke patients were admitted to a specialist stroke unit within one day of their admission, up from 68% in 2010 and 78% in 2011. There was also a HEAT target for inequalities-targeted cardiovascular health checks; almost 50,000 checks were carried out in 2011/12, far in excess of the target of 26,682.²⁷

The Scottish Health Survey (SHeS) is an important source of information on the prevalence of long-term conditions in Scotland and the characteristics of people who have them. In previous reports, data on long-term conditions were presented in the chapter on general health and mental wellbeing. Here, for the first time, relevant findings on a wide-range of long-term conditions have been brought together in one chapter.

This chapter presents the prevalence of self-reported long-term conditions in Scotland, as well as adult prevalence of specific respiratory conditions (asthma and COPD), CVD, and diabetes. As with the four most recent SHeS reports, the combined prevalence of CVD and diabetes is also reported, reflecting the status of these two conditions as major health burdens for individuals and the NHS in Scotland. Prevalence of asthma and wheezing among children is also reported.

All of the topics presented in this chapter have time series data from 2008, while for some topics, the data extend back further to 1995 or 1998. This chapter focuses on updating trends and presenting prevalence data by age group and gender. Space constraints mean it is not possible to explore other sub-group differences, such as socio-economic status, or lifestyle risk factors. Future SHeS reports will return to these topics in more detail. Results of the various bio-markers relevant to long-term conditions included in the survey (such as blood pressure) will be included in future reports.

8.2 METHODS AND DEFINITIONS

8.2.1 Questions

Participants were asked about the presence of a series of conditions. In some cases questions sought responses based on a participant's own perceptions; in other cases, confirmation of doctor-diagnosis was sought.

All long-term conditions

All participants were asked if they had any physical or mental health condition or illness lasting - or likely to last - for twelve months or more. As this wording differs slightly from that used in the 2008 to 2011 surveys, time series data needs to be interpreted with caution.²⁸ Those who reported having such a condition were asked to provide more details about it. Answers were recorded verbatim and then coded in the

office. Those reporting a condition were also asked if it limited their daily activities a lot, a little, or not at all. This enabled conditions to be classified as either 'limiting' or 'non-limiting'. Prior to 2012, participants were only asked to say whether or not their condition limited their activities; thus, to aid comparability with previous years, the categories 'a lot' and 'a little' have been combined in the tables presented here. These questions did not specify that conditions had to be doctor-diagnosed; responses were thus based on individuals' perceptions.

Asthma and COPD

Participants were asked if a doctor had ever told them they had asthma. Due to changes in the way that COPD has been described over time, participants were asked if they had ever had COPD, chronic bronchitis or emphysema, and if so, whether a doctor had told them they had one of these conditions. No direct measures were used to confirm these self-reported diagnoses.

CVD conditions

Participants were asked whether they had any of the following conditions: angina, heart attack, stroke, heart murmur, irregular heart rhythm, other heart trouble. Those who responded affirmatively were then asked whether a doctor had ever told them they had the condition. For the purposes of this report, participants are classified as having a particular condition if they reported that the diagnosis was confirmed by a doctor. Those who said they had a condition were asked if they had it during the last 12 months.

Diabetes

Participants were asked whether they had diabetes and, if so, whether they had ever been told by a doctor that they had the condition. Here, only those reporting that a doctor diagnosed them with condition were classified as having diabetes. Women whose diabetes occurred only during pregnancy were excluded from the classification. No distinction was made between type 1 and type 2 diabetes in the interview.²⁹

8.2.2 Summary measures

Responses to the individual questions were used to derive a number of summary measures.

Any CVD condition / Any CVD condition or diabetes

Participants were classified as having any CVD condition if they reported ever having any of the following conditions confirmed by a doctor: angina, heart attack, stroke, heart murmur, abnormal heart rhythm, or 'other heart trouble'.³⁰ A second category that includes diabetes as well as the above CVD conditions is also presented in the tables as 'any CVD condition or diabetes' so that the total combined prevalence of these conditions can be seen. The trend table reports the prevalence of both any CVD, and any CVD or diabetes from 1995 onwards.

Ischaemic heart disease (IHD)

Participants were classified as having IHD if they reported ever having angina or a heart attack, confirmed by a doctor.

Ischaemic heart disease or stroke

Participants were classified as having IHD or stroke if they reported ever having angina, a heart attack, or a stroke, confirmed by a doctor.

8.3 LONG-TERM CONDITIONS

8.3.1 Trends in long-term conditions prevalence since 2008

The prevalence of long-term conditions in adults increased significantly between 2008 and 2012 (from 41% to 46%). While the wording of the question changed slightly in 2012,²⁸ much of the increase took place between 2008 and 2011, with no significant change in prevalence between 2011 and 2012. Over the years, prevalence has been consistently higher among women than men. The increase in prevalence, since 2008, was also greater for women than for men. In 2008, 42% of women had a long-term condition, with this increasing to 49% by 2012; the equivalent figures for men were 38% and 42% respectively.

Trends in limiting long-term conditions have been similar to those for long-term conditions in general. Between 2008 and 2012 there was a 6 percentage point increase in the proportion of adults in Scotland reporting that they had a limiting long-term condition (from 26% to 32%). Prevalence increased steadily for both men and women over this period (from 23% to 28% for men and from 28% to 35% for women).

Prevalence of non-limiting long-term conditions has been more stable over the years. Each year, around one in seven adults (ranging between 14% and 16%) reported having a condition that did not limit their daily activities in any way. Male and female trends in prevalence of non-limiting conditions were very similar.

Table 8.1

8.3.2 Long-term conditions, 2012, by age and sex

In 2012, 46% of adults in Scotland had a long-term condition with women significantly more likely than men to do so (49% compared with 42% of men). The gender disparity was most apparent among those aged under 45.

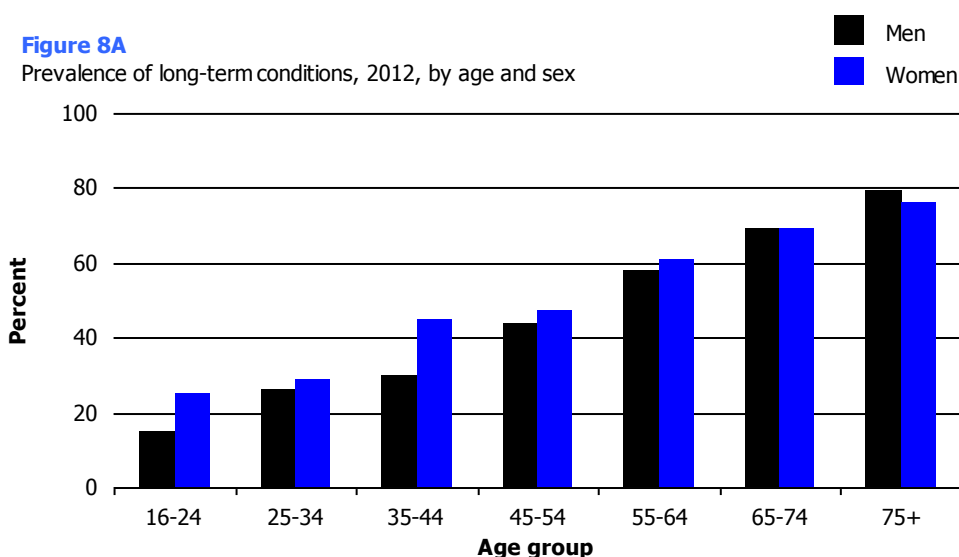
Prevalence increased progressively in line with age, with those in the youngest age group (16-24 year olds) least likely to report having a long-term condition (15% of men and 25% of women). At age 75 and over, 79% of men and 76% of women reported the presence of a long-term condition.

A third (32%) of adults in Scotland had a limiting long-term condition in 2012. In line with the pattern seen for all long-term conditions,

prevalence varied both by gender and age. Over a third (35%) of women and 28% of men reported that they had a long-term condition that limited their daily activities. Limiting conditions were generally more prevalent among women than men. For example, women aged 16-24 were twice as likely as men of the same age to report having a limiting condition (16% compared with 8%). The exception was the oldest age group (aged 75 and over) where prevalence was similar for both sexes (63% and 62% respectively).

One in seven adults (14%) had a non-limiting long-term condition in 2012. Overall prevalence was the same for men and women but the age-related pattern was slightly different for both. Among men, prevalence rose steadily from 6% in the youngest age group to 23% among those aged 65-74, before dropping back to 15% for the oldest age group. For women, prevalence ranged from one in ten (9%) in the youngest group to two in ten (21%) in the 65-74 year age group but with no obvious pattern evident.

Figure 8A, Table 8.2



The most commonly reported long-term conditions for men and women (aged 16 or above) in 2012 were: musculoskeletal conditions (18% prevalence), heart and circulatory conditions (including CVD conditions) (13%), endocrine and metabolic conditions (including diabetes) (9%), and conditions related to the respiratory system (including asthma and COPD) (8%) (Data not shown).

8.4 ASTHMA

8.4.1 Trends in asthma prevalence since 1998

Trends in the prevalence of both doctor-diagnosed asthma and wheezing are presented by age and sex in Table 8.3. Data for both adults and children are included for 2003 onwards; in addition, 1998 figures for those aged 2 to 15 and 16 to 74 are also presented.

Adults

Since 1998 there has been a steady increase in the prevalence of doctor-diagnosed asthma among 16 to 74 year olds from 11% to 13% in 2003, 14% in 2008/2010 and 17% in 2012. Levels have risen for both men and women, from 11% and 12% respectively in 1998 to 16% and 17% in 2012.

There was no clear pattern to the trend in wheezing prevalence for 16 to 74 year olds between 1998 and 2012. In 1998 and 2003, 16% reported the presence of wheezing in the last 12 months, the equivalent levels in 2008/2010 and 2012 were 15% and 18% respectively. As with asthma, trends in wheezing were similar for men and women, with little change observed for either gender since 2008.

The trends in both doctor-diagnosed asthma and wheezing in the last 12 months for all adults (aged 16 and over) were similar to those discussed above for 16 to 74 year olds.

Children

The proportion of children aged 2 to 15 with doctor-diagnosed asthma fell from 18% in both 1998 and 2003, to 13% in 2012. The decline was most pronounced for girls, falling from 16% in 1998 to 10% in 2012. For boys prevalence declined from 19% in 1998 to 17% in 2012 with some fluctuation observed in interim years.

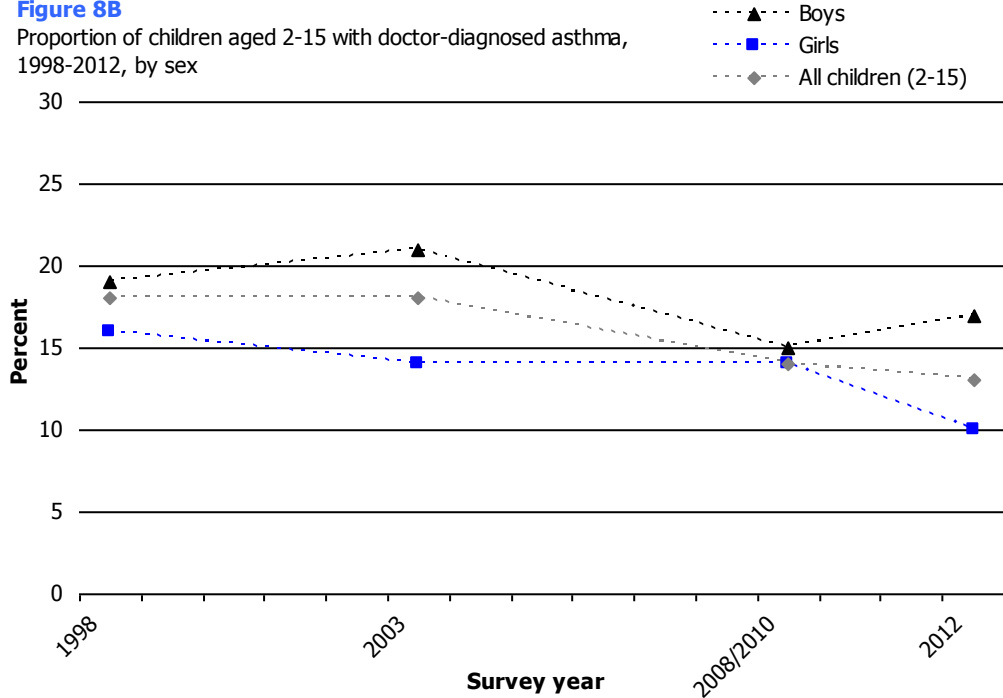
Over this same period there was a similar, but less pronounced, decline in prevalence of wheezing among 2 to 15 year olds. In 1998, 16% of 2 to 15 year olds had experienced wheezing in the last 12 months by 2003 this had declined slightly to 13% where it has remained since. During this time, prevalence among boys remained steady (between 14% and 16%) whereas there has been a small drop in wheezing levels among girls (14% in 1998 to 11% in 2012).

Since 2003, prevalence of both doctor-diagnosed asthma and wheezing (in the last 12 months) among all children (aged 0 to 15) have been similar to levels discussed above for 2 to 15 year olds.

Figure 8B, Table 8.3

Figure 8B

Proportion of children aged 2-15 with doctor-diagnosed asthma, 1998-2012, by sex



8.4.2 Asthma prevalence, 2012, by age and sex

Adults

In 2012, one in six adults (aged 16 and over) reported having doctor-diagnosed asthma. While overall, prevalence was similar for men and women (16% and 17% respectively) this was not the case at all ages. The gender difference was particularly pronounced among the youngest age group (16-24 year olds), with 33% of men of this age reporting doctor-diagnosed asthma compared with 22% of women.

Asthma levels were highest among younger people with over a quarter (28%) of those aged 16-24 reporting, in 2012, that a doctor had diagnosed them with the condition. Prevalence declined with age with just one in ten (11%) of those aged 75 and over having the condition.

In 2012, 18% of adults reported wheezing in the previous 12 months. Prevalence was similar among men (17%) and women (18%) and there was no clear age-related pattern for either gender. Fifteen percent of 16-24 year olds reported wheezing, as did 17% of those aged 75 and over with levels among the intervening age groups ranging from 14% to 23%.

Children

Twelve percent of children aged 0 to 15 had doctor-diagnosed asthma in 2012. The level for boys was six percentage points higher than for girls (15% compared with 9%). The proportion of children reporting experience of wheezing in the previous 12 months was similar to the level with asthma (13%), with boys, again, more likely than girls to have experienced it (15% and 11% respectively).

Table 8.4

8.5 COPD

8.5.1 Trends in COPD prevalence since 2008

Since 2008, there has been little change in the proportion of adults (aged 16 or above) in Scotland with doctor-diagnosed COPD. In 2008, 3.8% reported that a doctor had diagnosed them with the condition and the equivalent figure in 2012 was 4.0% with only slight, and insignificant, deviations in the intervening years (3.2% in 2009 and 4.5% in 2010). Male and female trends in COPD prevalence were similar with neither gender experiencing more than a one percentage point change between survey years.

Table 8.5

8.5.2 COPD prevalence, 2012, by age and sex

As noted above, in 2012, 4.0% of adults reported that a doctor had diagnosed them with COPD (3.5% of men and 4.4% of women). The proportion diagnosed with the condition increased with age for both genders. Less than 0.5 percent of 16 to 34 year olds had doctor-diagnosed COPD compared with one in ten (9.6%) of those in the oldest age group (aged 75 and over). In 2012, 7.8% of men aged 75 and over and 10.7% of women of this age had doctor-diagnosed COPD.

Table 8.6

8.6 CARDIOVASCULAR CONDITIONS AND DIABETES

This section examines trends, since 1995, in the prevalence of: any CVD; any CVD or diabetes; diabetes; IHD; stroke and IHD or stroke. Changes to the sample composition over the first three years of the survey mean that discussion of the trend between 1995 and 2012 is based on those aged 16 to 64, while from 2003 onwards the trend for all adults aged 16 and over is included and discussed.

8.6.1 Trends in any CVD, and CVD or diabetes prevalence since 1995

Any CVD

Since 1995, there has been a rise in the proportion of adults aged 16 to 64 with any CVD condition, from 8.7% to 10.8% in 2012 (varying between 8.4% and 10.3% in the intervening years). The observed increase in prevalence was evident for both men and women. In 1998, 8.4% of men (aged 16 to 64) and 8.9% of women of the same age had any CVD condition, the equivalent figures in 2012 were 10.3% and 11.3%

Prevalence among all adults (aged 16 and over) was higher than for 16 to 64 year olds only, reflecting the higher CVD prevalence at older ages. Among men, 14.9% had any CVD condition in 2003 rising to 16.6% in 2012. The corresponding figures for women were 14.5% and 15.9%, with some fluctuation in the interim years.

CVD or diabetes

Since 1995, there has been a more or less steady rise in any CVD or diabetes prevalence among adults aged 16 to 64, from 9.8% to 13.5% in 2012. The trend for men (aged 16 to 64) was similar to the trend for all adults of this age, with the proportion diagnosed with CVD or diabetes increasing from 9.4% in 1995 to 13.0% in 2012. While there has been more fluctuation in the level for women over the years, there has, overall, been a small increase in prevalence since 1995 (from 10.1% to 13.9% in 2012).

Since 2003, there has been an upward trend in any CVD or diabetes prevalence among all adults (aged 16 or above), rising from 16.6% to 19.7% in 2012. An increase has been observed for both men and women. In 2003 16.8% of men and 16.4% of women had CVD or diabetes; by 2012 the equivalent figures were 20.1% and 19.3% respectively.

Table 8.7

8.6.2 Trends in doctor-diagnosed diabetes since 1995

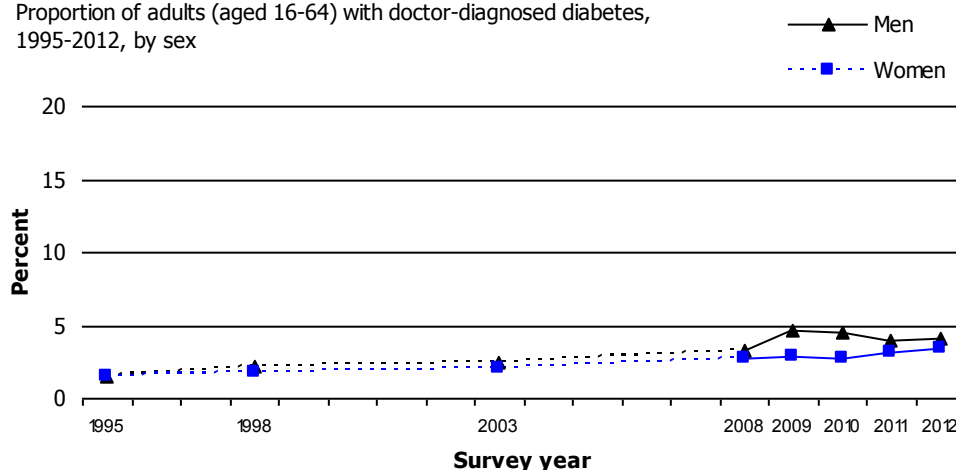
Since 1995, doctor-diagnosed diabetes has become more common among adults aged 16 to 64. In 1995, 1.5% of adults this age had been told by a doctor that they had diabetes. By 2012, diabetes prevalence had increased more than two-fold to 3.7%. Increased prevalence of diabetes was true for both men and women of this age. Among men (aged 16 to 64), prevalence rose from 1.5% in 1995 to 4.7% in 2009, and has remained at or just above 4.0% since then (4.1% in 2012). For women, during this period, the level rose from 1.5% in 1995 to 3.4% in 2012.

In 2003, 3.7% of all adults (aged 16 or above) had doctor-diagnosed diabetes. By 2012, 5.5% of adults had the condition. Between 2003 and 2012 prevalence among men increased from 3.8% to 6.2%. There was a less pronounced increase for women over this same period (from 3.7% in 2003 to 4.9% in 2012).

Figure 8C, Table 8.7

Figure 8C

Proportion of adults (aged 16-64) with doctor-diagnosed diabetes, 1995-2012, by sex



8.6.3 Trends in IHD, stroke, and IHD or stroke prevalence since 1995

IHD

Unlike any CVD and diabetes, IHD prevalence among 16 to 64 year olds has not changed significantly since 1995. Four percent of men had IHD in 1995, and in 2012 prevalence was 3.3%. The equivalent figures for women were 2.9% in 1995 and 2.3% in 2012, with levels as low as 1.8% in 2011.

The picture for all adults (aged 16 and over) since 2003 was similar. In 2003, 7.3% of adults in Scotland had IHD, and in 2012, 6.5% had been told they had the condition. Again, levels remained stable for both men and women. In 2003, 8.2% of men and 6.5% of women had IHD. The corresponding figures for 2012 were 7.3% and 5.7% respectively,

Stroke

Since 1995, the proportion of 16 to 64 years olds that have had a stroke has remained relatively stable. Among all adults of this age, there was a small increase in prevalence from 0.8% in 1995 to 1.3% in 2012. For men, in both 1995 and 2012, 1.0% reported having had a stroke, with the lowest level observed in 1998 (0.7%) and the highest in 2010 (1.8%). In 1995, 0.5% of women aged 16 to 64 reported having a stroke and by 2012 this had risen to 1.5%, but with some fluctuation in the intervening period.

Stroke prevalence among all adults (aged 16 and over) increased by less than one percentage point between 2003 and 2012 (from 2.2% to 2.8%). In 2003, 2.4% of men and 2.1% of women reported that they had had a stroke. The corresponding figure in 2012 was 2.8% for both men and women.

IHD or stroke

There has been very little change in IHD or stroke prevalence among 16 to 64 year olds since 1995. In 1995, 3.9% (4.6% of men and 3.2% of women) reported that they had IHD or had a stroke. The corresponding figure in 2012 was 3.7% (4.0% of men and 3.5% of women).

The prevalence of IHD or stroke among all men aged 16 years and over was 9.6% in 2003 and 9.2% in 2012. The corresponding figures for women of this age were 8.0% and 7.7%.

Table 8.7

8.6.4 Any CVD, CVD or diabetes, diabetes, IHD, stroke and IHD or stroke prevalence, 2012, by age and sex

The 2012 prevalence figures for each condition are shown by sex and age in Table 8.8 and are summarised below.

	Any CVD	Any CVD or diabetes	Diabetes	IHD	Stroke	IHD or stroke
Men (%)	16.6	20.1	6.2	7.3	2.8	9.2
Women (%)	15.9	19.3	4.9	5.7	2.8	7.7
All adults (%)	16.2	19.7	5.5	6.5	2.8	8.4

Any CVD

In 2012, one in six (16.2%) adults (aged 16 and over) had any CVD condition. Prevalence increased progressively in line with age, rising from 4.6% for those aged 16-24 to 45.8% for those in the oldest age group (75 and over). Overall CVD levels were similar for men (16.6%) and women (15.9%) with differentials at some ages; for example, among those aged 16-24, 2.2% of men had any CVD condition compared with 7.1% of women. Among those aged 65 and over, men were more likely than women to have been diagnosed with a CVD condition (55.8% of men age 75 and over had any CVD condition compared with 39.3% of women this age).

CVD or diabetes

One in five (19.7%) adults in 2012 reported having CVD or diabetes. Again, overall levels were similar for men (20.1%) and women (19.3%) and, as with any CVD, prevalence increased by age. Around one in twenty (6.1%) 16-24 year olds had either CVD or diabetes in 2012, compared with around half (52.4%) of those aged 75 and over.

Diabetes

In 2012, 5.5% of adults in Scotland had doctor-diagnosed diabetes (6.2% of men and 4.9% of women). Those in the youngest age group were least likely to have had a diagnosis (1.5%) with prevalence increasing progressively in line with age up to 13.5% in the 75 and over age group.

IHD

In 2012, 6.5% of adults had IHD (7.3% of men and 5.7% of women). No-one in the youngest age group had been diagnosed with IHD by a doctor. Prevalence was just 0.3% among 25-34 year olds and by age 75 and over had increased to 25.0%. Age-related patterns in IHD prevalence were similar for men and women although, as seen with CVD and diabetes, prevalence among older men was higher than for women (for example 30.7% of men aged 75 and over had IHD compared with 21.2% of women this age).

IHD or stroke

Joint prevalence of IHD or stroke for all adults in 2012 was 8.4% (9.2% of men and 7.7% of women). Again, prevalence was strongly related to age. Less than 1% of 16 to 34 year olds had IHD or stroke with the level increasing to 11.7% at age 55-64; 21.7% at age 65-74 and 33.6% at age 75 or above. Differences between men and women were particularly apparent among older people (for example, 41.9% of men aged 75 and over had either condition compared with 28.2% of women of this age).

Stroke

In 2012, 2.8% of adults reported having had a stroke at some point. Levels for men and women were identical (2.8%). The age-related pattern for stroke prevalence was very similar to that seen for all the other conditions discussed above: prevalence increased in line with age and gender differences were most apparent among older people. Less than 1% of those under the age of 45 reported having had a stroke, but by age 75 and over this had climbed to 12.9%. Among those aged 75 and over, prevalence was 7 percentage points higher for men than women.

Table 8.8

References and notes

- ¹ *Improving the Health and Wellbeing of People with Long Term Conditions in Scotland: A National Action Plan*. Edinburgh: Scottish Government, 2009.
www.scotland.gov.uk/Publications/2009/12/03112054/11
- ² Lozano, R. et al. (2012). Global and regional mortality from 235 causes of death for 20 age groups in 1990 and 2010: a systematic analysis for the Global Burden of Disease Study 2010. *The Lancet* Vol 380. Issue 9859: 2095-128.
- ³ *Chronic Obstructive Pulmonary Disease (COPD)*. Factsheet No.315. World Health Organization, 2012. : <http://www.who.int/mediacentre/factsheets/fs315/en/>
- ⁴ *Better Heart Disease and Stroke Care Action Plan*. Edinburgh, Scottish Government, 2009
<http://www.scotland.gov.uk/Resource/Doc/277650/0083350.pdf>
- ⁵ *Diabetes Action Plan 2010: Quality Care for Diabetes in Scotland*. Edinburgh, Scottish Government, 2010
- ⁶ *Clinical Standards for Chronic Obstructive Pulmonary Disease Services*. Edinburgh: NHS Quality Improvement Scotland, 2010.
http://www.healthcareimprovementscotland.org/our_work/long_term_conditions/copd_implementation/copd_clinical_standards.aspx
- ⁷ Available from: <http://www.gro-scotland.gov.uk/files2/stats/high-level-summary/j11198/j1119814.htm>
- ⁸ *Scottish Budget Spending Review 2007*. Edinburgh: Scottish Government, 2007.
<www.scotland.gov.uk/Publications/2007/11/13092240/0> See also:
<www.scotlandperforms.com>
- ⁹ See: <www.scotland.gov.uk/About/Performance/scotPerforms/indicator/smoking>
- ¹⁰ See: <www.scotland.gov.uk/About/scotPerforms/indicator/physicalactivity>
- ¹¹ See: <www.scotland.gov.uk/About/scotPerforms/indicator/healthyweight>
- ¹² *National Performance Framework: Changes to the National Indicator Set*. Edinburgh: Scottish Government, 2012. <www.scotland.gov.uk/About/scotPerforms/Nlchanges> See also:
<www.scotlandperforms.com>
- ¹³ See: <www.scotland.gov.uk/About/Performance/scotPerforms/indicator/mortality>
- ¹⁴ *Better Health, Better Care Action Plan*. Edinburgh: Scottish Government, 2007
<http://www.scotland.gov.uk/Publications/2007/12/11103453/0>
- ¹⁵ *Better Heart Disease and Stroke Care Action Plan*. Edinburgh: Scottish Government, 2009.
<http://www.scotland.gov.uk/Publications/2009/06/29102453/0>
- ¹⁶ *Coronary Heart Disease and Stroke in Scotland - Strategy Update 2004*. Edinburgh: Scottish Executive, 2004. <http://www.scotland.gov.uk/Publications/2009/06/29102453/0>
- ¹⁷ Scottish Intercollegiate Guidelines Network *Risk Estimation and the Prevention of Heart Disease. SIGN guideline no. 97*. Edinburgh: SIGN, 2007 <www.sign.ac.uk/guidelines/fulltext/97/index.html>
- ¹⁸ Scottish Intercollegiate Guidelines Network *Management of Diabetes. SIGN guideline no. 116*. Edinburgh: SIGN, 2010. <www.sign.ac.uk/guidelines/fulltext/116/index.html>
- ¹⁹ *Diabetes Action Plan 2010: Quality Care for Diabetes in Scotland*. Edinburgh: Scottish Government, 2010. <<http://www.scotland.gov.uk/Publications/2010/08/17095311/0>>

- ²⁰ Scottish Intercollegiate Guidelines Network *British Guideline on the Management of Asthma. A National Clinical Guideline. SIGN guideline no. 101*. Edinburgh: SIGN, 2011.
<http://www.sign.ac.uk/guidelines/fulltext/101/index.html>
- ²¹ Details of the Quality and Outcomes Framework are available from:
<www.isdscotland.org/isd/3305.html>
- ²² *Health in Scotland 2007 – Annual Report of the Chief Medical Officer*. Edinburgh: Scottish Government, 2008. <http://www.scotland.gov.uk/Publications/2008/11/26155748/0>
- ²³ See: <www.scotland.gov.uk/News/Releases/2011/02/21091044>
- ²⁴ The HEAT targets derive their name from the four strands in the performance framework: Health of the population; Efficiency and productivity, resources and workforce; Access to services and waiting times; and Treatment and quality of services.
- ²⁵ *Better Health, Better Care Action Plan*. Edinburgh: Scottish Government, 2009.
<http://www.scotland.gov.uk/Publications/2007/12/11103453/0>
- ²⁶ See: <www.scotland.gov.uk/About/scotPerforms/partnerstories/NHSScotlandperformance/Stroke>
- ²⁷ See:
<http://www.scotland.gov.uk/About/Performance/scotPerforms/partnerstories/NHSScotlandperformance/HT201112>
- ²⁸ The question wording in 2008-2011 was: 'Do you have a long-standing physical or mental condition or disability that has troubled you for at least 12 months, or that is likely to affect you for at least 12 months?' The new wording was introduced as part of the Scottish Government's survey harmonisation process and is being included in SHeS, the Scottish Crime Survey and Scottish Household Survey from 2012 onwards.
- ²⁹ In some previous SHeS reports, rates for each type were estimated by examining the age of onset of the condition and whether a participant was on insulin therapy at the time of interview.²⁹ However, with increasing rates of type 2 diabetes in younger age groups, and increasing use of insulin to treat it, this classification method is no longer considered appropriate.
- ³⁰ It should be noted that in common with the definition used since the 2003 report, diabetes and high blood pressure are not included in this definition of 'any CVD condition' (as they had been in 1995 and 1998), since they are risk factors for CVD.

Table list

Table 8.1	Prevalence of long-term conditions in adults, 2008 to 2012
Table 8.2	Prevalence of long-term conditions in adults, 2012, by age and sex
Table 8.3	Doctor-diagnosed asthma, 1998 to 2012, by age and sex
Table 8.4	Doctor-diagnosed asthma, 2012, by age and sex
Table 8.5	Doctor-diagnosed COPD, 2008 to 2012
Table 8.6	Doctor-diagnosed COPD, 2012, by age and sex
Table 8.7	Any CVD, any CVD or diabetes, doctor-diagnosed diabetes, IHD, stroke, IHD or stroke, 1995 to 2012
Table 8.8	Any CVD, any CVD or diabetes, doctor-diagnosed diabetes, IHD, stroke, IHD or stroke, 2012, by age and sex

Table 8.1 Prevalence of long-term conditions in adults, 2008 to 2012

<i>Aged 16 and over</i>	<i>2008 to 2012</i>				
Long-term conditions and limiting long-term conditions	2008	2009	2010	2011	2012
	%	%	%	%	%
Men					
No long-term conditions	62	63	59	57	58
Limiting long-term conditions	23	23	25	26	28
Non-limiting long-term conditions	15	14	16	17	14
<i>Total with conditions</i>	38	37	41	43	42
Women					
No long-term conditions	58	58	55	54	51
Limiting long-term conditions	28	27	30	30	35
Non-limiting long-term conditions	15	15	15	16	14
<i>Total with conditions</i>	42	42	45	46	49
All adults					
No long-term conditions	59	60	57	56	54
Limiting long-term conditions	26	25	28	28	32
Non-limiting long-term conditions	15	14	16	16	14
<i>Total with conditions</i>	41	40	43	44	46
<i>Bases (weighted):</i>					
<i>Men</i>	3087	3597	3465	3610	2306
<i>Women</i>	3377	3926	3777	3932	2505
<i>All adults</i>	6464	7523	7242	7542	4811
<i>Bases (unweighted):</i>					
<i>Men</i>	2840	3283	3112	3280	2125
<i>Women</i>	3623	4241	4129	4262	2686
<i>All adults</i>	6463	7524	7241	7542	4811

Table 8.2 Prevalence of long-term conditions in adults, 2012, by age and sex

Long-term conditions and limiting long-term conditions	Age							2012
								Total
	16-24	25-34	35-44	45-54	55-64	65-74	75+	
	%	%	%	%	%	%	%	%
Men								
No long-term conditions	85	74	70	56	42	31	21	58
Limiting long-term conditions	8	16	20	29	38	45	63	28
Non-limiting long-term conditions	6	10	10	15	20	23	15	14
<i>Total with conditions</i>	15	26	30	44	58	69	79	42
Women								
No long-term conditions	75	71	55	53	39	31	24	51
Limiting long-term conditions	16	17	30	34	45	48	62	35
Non-limiting long-term conditions	9	12	15	14	16	21	13	14
<i>Total with conditions</i>	25	29	45	47	61	69	76	49
All adults								
<i>Total with conditions</i>	20	28	38	46	60	69	77	46
<i>Bases (weighted):</i>								
<i>Men</i>	339	383	380	418	362	251	172	2306
<i>Women</i>	326	376	414	455	383	287	263	2505
<i>All adults</i>	665	760	795	873	745	539	434	4811
<i>Bases (unweighted):</i>								
<i>Men</i>	170	228	346	408	364	385	224	2125
<i>Women</i>	228	329	473	499	443	388	326	2686
<i>All adults</i>	398	557	819	907	807	773	550	4811

Table 8.3 Doctor-diagnosed asthma, 1998 to 2012, by age and sex

<i>All persons</i>	<i>1998 to 2012</i>			
Respiratory symptoms and asthma	1998	2003	2008/2010 combined	2012
	%	%	%	%
Males				
Wheezed in last 12 months^a				
0-15	n/a	16	14	15
2-15	16	16	14	15
16-74	16	16	14	17
16+	n/a	16	14	17
Doctor-diagnosed asthma				
0-15	n/a	20	14	15
2-15	19	21	15	17
16-74	11	13	13	16
16+	n/a	13	13	16
Females				
Wheezed in last 12 months^a				
0-15	n/a	12	11	11
2-15	14	11	10	11
16-74	15	16	16	18
16+	n/a	16	16	18
Doctor-diagnosed asthma				
0-15	n/a	12	12	9
2-15	16	14	14	10
16-74	12	14	16	17
16+	n/a	14	15	17
All				
Wheezed in last 12 months^a				
0-15	n/a	14	12	13
2-15	16	13	12	13
16-74	16	16	15	18
16+	n/a	16	15	18
Doctor-diagnosed asthma				
0-15	n/a	16	13	12
2-15	18	18	14	13
16-74	11	13	14	17
16+	n/a	13	14	16

Continued...

Table 8.3 - Continued

<i>All persons</i>	<i>1998 to 2012</i>			
Respiratory symptoms and asthma	1998	2003	2008/2010 combined	2012
<i>Bases (weighted):</i>				
<i>Males 0-15</i>	<i>n/a</i>	1701	960	914
<i>Males 2-15</i>	1096	1516	841	803
<i>Males 16-74</i>	4423	3588	2068	2136
<i>Males 16+</i>	<i>n/a</i>	3847	2228	2309
<i>Females 0-15</i>	<i>n/a</i>	1623	917	873
<i>Females 2-15</i>	1046	1449	786	760
<i>Females 16-74</i>	4577	3821	2178	2243
<i>Females 16+</i>	<i>n/a</i>	4290	2432	2506
<i>All 0-15</i>	<i>n/a</i>	3322	1877	1786
<i>All 2-15</i>	2142	2963	1627	1563
<i>All adults 16-74</i>	8996	7409	4247	4380
<i>All adults 16+</i>	<i>n/a</i>	8137	4660	4815
<i>Bases (unweighted):</i>				
<i>Males 0-15</i>	<i>n/a</i>	1656	994	879
<i>Males 2-15</i>	1987	1465	867	764
<i>Males 16-74</i>	3941	3277	1801	1902
<i>Males 16+</i>	<i>n/a</i>	3603	1999	2127
<i>Females 0-15</i>	<i>n/a</i>	1668	883	907
<i>Females 2-15</i>	1905	1468	746	785
<i>Females 16-74</i>	5106	4043	2360	2362
<i>Females 16+</i>	<i>n/a</i>	4536	2659	2688
<i>All 0-15</i>	<i>n/a</i>	3322	1877	1786
<i>All 2-15</i>	3892	2931	1613	1549
<i>All adults 16-74</i>	9042	7320	4161	4264
<i>All adults 16+</i>	<i>n/a</i>	8139	4658	4815

a Wheezing or whistling in the chest

Table 8.4 Doctor-diagnosed asthma, 2012, by age and sex

Respiratory symptoms and asthma	Age								2012
	0-15	16-24	25-34	35-44	45-54	55-64	65-74	75+	All aged 16+
	%	%	%	%	%	%	%	%	%
Males									
Wheezed in last 12 months ^a	15	16	13	18	19	21	18	18	17
Doctor-diagnosed asthma	15	33	19	11	11	12	13	11	16
Females									
Wheezed in last 12 months ^a	11	15	14	18	18	25	19	16	18
Doctor-diagnosed asthma	9	22	19	21	16	13	13	10	17
All									
Wheezed in last 12 months ^a	13	15	14	18	18	23	18	17	18
Doctor-diagnosed asthma	12	28	19	16	14	13	13	11	16
<i>Bases (weighted):</i>									
<i>Males</i>	914	339	383	380	420	362	251	173	2309
<i>Females</i>	873	326	376	414	456	383	287	263	2506
<i>All</i>	1786	665	760	795	876	745	539	435	4815
<i>Bases (unweighted):</i>									
<i>Males</i>	879	170	228	346	409	364	385	225	2127
<i>Females</i>	907	228	329	474	500	443	388	326	2688
<i>All</i>	1786	398	557	820	909	807	773	551	4815

^a Wheezing or whistling in the chest

Table 8.5 Doctor-diagnosed COPD, 2008 to 2012

<i>Aged 16 and over</i>	<i>2008 to 2012</i>				
Doctor-diagnosed COPD	2008	2009	2010	2011	2012
	%	%	%	%	%
Men					
Yes	3.3	2.9	4.2	3.0	3.5
No	96.7	97.1	95.8	97.0	96.5
Women					
Yes	4.2	3.5	4.8	4.3	4.4
No	95.8	96.5	95.2	95.7	95.6
All adults					
Yes	3.8	3.2	4.5	3.7	4.0
No	96.2	96.8	95.5	96.3	96.0
<i>Bases (weighted):</i>					
<i>Men</i>	3088	3601	3468	3609	2309
<i>Women</i>	3377	3929	3777	3931	2506
<i>All adults</i>	6465	7530	7245	7540	4815
<i>Bases (unweighted):</i>					
<i>Men</i>	2842	3288	3115	3279	2127
<i>Women</i>	3623	4242	4130	4261	2688
<i>All adults</i>	6465	7530	7245	7540	4815

Table 8.6 Doctor-diagnosed COPD, 2012, by age and sex

<i>Aged 16 and over</i>								2012
Doctor-diagnosed COPD	Age							Total
	16-24	25-34	35-44	45-54	55-64	65-74	75+	
	%	%	%	%	%	%	%	%
Men								
Yes	0.4	0.5	1.6	2.9	7.9	7.0	7.8	3.5
No	99.6	99.5	98.4	97.1	92.1	93.0	92.2	96.5
Women								
Yes	-	0.3	2.1	4.4	7.4	8.1	10.7	4.4
No	100.0	99.7	97.9	95.6	92.6	91.9	89.3	95.6
All adults								
Yes	0.2	0.4	1.9	3.7	7.6	7.6	9.6	4.0
No	99.8	99.6	98.1	96.3	92.4	92.4	90.4	96.0
<i>Bases (weighted):</i>								
<i>Men</i>	339	383	380	420	362	251	173	2309
<i>Women</i>	326	376	414	456	383	287	263	2506
<i>All adults 16+</i>	665	760	795	876	745	539	435	4815
<i>Bases (unweighted):</i>								
<i>Men</i>	170	228	346	409	364	385	225	2127
<i>Women</i>	228	329	474	500	443	388	326	2688
<i>All adults 16+</i>	398	557	820	909	807	773	551	4815

Table 8.7 Any CVD, any CVD or diabetes, doctor-diagnosed diabetes, IHD, stroke, IHD or stroke, 1995 to 2012

<i>Aged 16 and over</i>		<i>1995 to 2012</i>						
Any CVD^a / any CVD or diabetes / doctor-diagnosed diabetes^b / IHD^c / stroke / IHD or stroke	1995	1998	2003	2008	2009	2010	2011	2012
	%	%	%	%	%	%	%	%
Men								
Any CVD								
16-64	8.4	8.1	9.7	9.9	9.5	10.5	9.8	10.3
16+	n/a	n/a	14.9	15.1	15.2	16.3	15.6	16.6
Any CVD or diabetes								
16-64	9.4	9.7	11.1	12.2	12.7	13.6	12.7	13.0
16+	n/a	n/a	16.8	18.2	19.0	20.1	19.2	20.1
Doctor-diagnosed diabetes								
16-64	1.5	2.2	2.4	3.3	4.7	4.5	4.0	4.1
16+	n/a	n/a	3.8	5.3	6.2	6.3	6.1	6.2
IHD								
16-64	4.0	4.0	4.1	3.2	3.6	3.4	3.4	3.3
16+	n/a	n/a	8.2	6.9	7.4	7.5	7.5	7.3
Stroke								
16-64	1.0	0.7	1.2	1.1	1.1	1.8	1.3	1.0
16+	n/a	n/a	2.4	2.5	2.7	3.3	2.9	2.8
IHD or stroke								
16-64	4.6	4.4	5.0	4.2	4.4	4.8	4.3	4.0
16+	n/a	n/a	9.6	8.7	9.4	9.8	9.4	9.2

Continued...

Table 8.7 - Continued

<i>Aged 16 and over</i>		<i>1995 to 2012</i>						
Any CVD^a / any CVD or diabetes / doctor-diagnosed diabetes^b / IHD^c / stroke / IHD or stroke	1995	1998	2003	2008	2009	2010	2011	2012
	%	%	%	%	%	%	%	%
Women								
Any CVD								
16-64	8.9	8.5	8.9	10.7	9.0	9.3	8.4	11.3
16+	n/a	n/a	14.5	15.5	13.7	14.0	13.8	15.9
Any CVD or diabetes								
16-64	10.1	9.6	10.2	12.8	11.2	11.3	10.8	13.9
16+	n/a	n/a	16.4	18.2	16.5	16.7	17.0	19.3
Doctor-diagnosed diabetes								
16-64	1.5	1.8	2.0	2.8	2.9	2.8	3.2	3.4
16+	n/a	n/a	3.7	4.1	4.5	4.4	4.9	4.9
IHD^b								
16-64	2.9	2.7	2.6	2.2	1.9	2.2	1.8	2.3
16+	n/a	n/a	6.5	5.6	5.2	5.2	4.9	5.7
Stroke								
16-64	0.5	0.6	0.7	1.2	0.9	1.1	1.0	1.5
16+	n/a	n/a	2.1	2.8	2.2	2.5	2.7	2.8
IHD or stroke								
16-64	3.2	3.0	3.2	3.1	2.4	3.1	2.6	3.5
16+	n/a	n/a	8.0	7.5	6.7	7.0	6.7	7.7

Continued...

Table 8.7 - Continued

<i>Aged 16 and over</i>		<i>1995 to 2012</i>						
Any CVD^a / any CVD or diabetes / doctor-diagnosed diabetes^b / IHD^c / stroke / IHD or stroke	1995	1998	2003	2008	2009	2010	2011	2012
	%	%	%	%	%	%	%	%
All adults								
Any CVD								
16-64	8.7	8.4	9.3	10.3	9.3	9.9	9.1	10.8
16+	n/a	n/a	14.7	15.3	14.4	15.1	14.6	16.2
Any CVD or diabetes								
16-64	9.8	9.7	10.6	12.5	11.9	12.4	11.8	13.5
16+	n/a	n/a	16.6	18.2	17.7	18.3	18.1	19.7
Doctor-diagnosed diabetes								
16-64	1.5	1.8	2.2	3.1	3.8	3.7	3.6	3.7
16+	n/a	n/a	3.7	4.6	5.3	5.3	5.5	5.5
IHD^b								
16-64	3.5	3.3	3.3	2.7	2.7	2.8	2.6	2.8
16+	n/a	n/a	7.3	6.2	6.2	6.3	6.2	6.5
Stroke								
16-64	0.8	0.6	1.0	2.6	1.0	1.5	1.2	1.3
16+	n/a	n/a	2.2	2.6	2.5	2.9	2.8	2.8
IHD or stroke								
16-64	3.9	3.7	4.0	3.6	3.4	3.9	3.5	3.7
16+	n/a	n/a	8.8	8.1	8.0	8.3	8.0	8.4

Continued...

Table 8.7 - Continued

<i>Aged 16 and over</i>	<i>1995 to 2012</i>							
Any CVD^a / any CVD or diabetes / doctor-diagnosed diabetes^b / IHD^c / stroke / IHD or stroke	1995	1998	2003	2008	2009	2010	2011	2012
<i>Bases (weighted):</i>								
<i>Men 16-64</i>	3898	3953	3188	2542	2955	2837	2953	1885
<i>Men 16+</i>	<i>n/a</i>	<i>n/a</i>	3857	3086	3601	3465	3608	2308
<i>Women 16-64</i>	3988	3989	3327	2640	3068	2947	3069	1956
<i>Women 16+</i>	<i>n/a</i>	<i>n/a</i>	4291	3372	3926	3774	3931	2506
<i>All adults 16-64</i>	7886	7946	6517	5182	6023	5784	6023	3841
<i>All adults 16+</i>	<i>n/a</i>	<i>n/a</i>	8142	6459	7526	7240	7539	4814
<i>Bases (unweighted):</i>								
<i>Men 16-64</i>	3520	3367	2771	2084	2408	2293	2423	1517
<i>Men 16+</i>	<i>n/a</i>	<i>n/a</i>	3610	2840	3287	3112	3277	2125
<i>Women 16-64</i>	4397	4212	3461	2694	3211	3083	3178	1974
<i>Women 16+</i>	<i>n/a</i>	<i>n/a</i>	4538	3618	4239	4127	4261	2688
<i>All adults 16-64</i>	7917	7583	6233	4778	5619	5376	5601	3491
<i>All adults 16+</i>	<i>n/a</i>	<i>n/a</i>	8142	6458	7526	7239	7538	4813

a Any cardiovascular condition, excluding diabetes or high blood pressure

b Excludes diabetes diagnosed during pregnancy

c Heart attack or angina

Table 8.8 Any CVD, any CVD or diabetes, doctor-diagnosed diabetes, IHD, stroke, IHD or stroke, 2012, by age and sex

<i>Aged 16 and over</i>								<i>2012</i>
Any CVD^a / any CVD or diabetes / doctor-diagnosed diabetes^b / IHD^c / stroke / IHD or stroke	Age							Total
	16-24	25-34	35-44	45-54	55-64	65-74	75+	
	%	%	%	%	%	%	%	%
Men								
Any CVD	2.2	5.3	9.7	12.8	20.8	36.9	55.8	16.6
Any CVD or diabetes	3.5	7.3	10.4	17.6	25.3	45.0	61.8	20.1
Doctor-diagnosed diabetes	1.4	2.0	2.0	6.3	8.3	15.0	16.2	6.2
IHD	-	-	1.4	3.5	11.8	21.0	30.7	7.3
Stroke	-	0.2	0.3	1.4	3.4	6.5	17.1	2.8
IHD or stroke	-	0.2	1.7	4.3	13.6	25.7	41.9	9.2
Women								
Any CVD	7.1	5.7	11.4	12.8	18.2	26.6	39.3	15.9
Any CVD or diabetes	8.8	6.9	14.3	16.1	22.3	31.3	46.3	19.3
Doctor-diagnosed diabetes	1.7	1.2	3.6	3.4	6.8	9.0	11.7	4.9
IHD	-	0.7	1.4	2.1	7.1	14.5	21.2	5.7
Stroke	-	0.7	1.4	1.6	3.4	5.0	10.1	2.8
IHD or stroke	-	1.1	2.5	3.4	9.8	18.2	28.2	7.7
All Adults								
Any CVD	4.6	5.5	10.6	12.8	19.4	31.4	45.8	16.2
Any CVD or diabetes	6.1	7.1	12.5	16.8	23.8	37.7	52.4	19.7
Doctor-diagnosed diabetes	1.5	1.6	2.9	4.8	7.5	11.8	13.5	5.5
IHD	-	0.3	1.4	2.7	9.4	17.5	25.0	6.5
Stroke	-	0.4	0.9	1.5	3.4	5.7	12.9	2.8
IHD or stroke	-	0.6	2.1	3.8	11.7	21.7	33.6	8.4

Continued...

Table 8.8 - Continued

<i>Aged 16 and over</i>								2012
Any CVD^a / any CVD or diabetes / doctor-diagnosed diabetes^b / IHD^c / stroke / IHD or stroke	Age							Total
	16-24	25-34	35-44	45-54	55-64	65-74	75+	
<i>Bases (weighted):</i>								
<i>Men</i>	339	383	380	420	362	251	172	2308
<i>Women</i>	326	376	414	456	383	287	263	2506
<i>All adults</i>	665	760	795	876	745	538	435	4814
<i>Bases (unweighted):</i>								
<i>Men</i>	170	228	346	409	364	384	224	2125
<i>Women</i>	228	329	474	500	443	388	326	2688
<i>All adults</i>	398	557	820	909	807	772	550	4813

a Any cardiovascular condition, excluding diabetes or high blood pressure

b Excludes diabetes diagnosed during pregnancy

c Heart attack or angina

9 GAMBLING BEHAVIOUR

Heather Wardle

SUMMARY

- In 2012, seven in ten adults in Scotland had gambled in the previous 12 months, with men significantly more likely than women to have done so (74% and 67% respectively).
- The most popular form of gambling activity that adults had taken part in the previous year was buying tickets for the National Lottery Draw (58%). Eighteen percent purchased scratchcards, 15% took part in other lotteries and one in ten (10%) bet on horses (not online).
- Gambling participation was typically highest among those aged 25 to 54. However, when National Lottery only play was excluded, participation rates were highest among those aged 16-24 (64% of men and 47% of women).
- One in twelve adults (8%) participated in online gambling (not including the National Lottery) in the previous 12 months (12% of men and 4% of women).
- In 2012, on average, adults took part in 1.6 types of gambling activities in the previous year with men participating in a greater number of activities than women (1.9 activities versus 1.3).
- Around one in ten adults (11%) took part in four or more different forms of gambling in the past year with younger people, and young men (particularly those aged 25-34), most likely to do so.
- Based on review of the number and types of activities engaged in, seven groups of gamblers were identified. This ranged from non-gamblers, to minimal interest gamblers through to multiple interest gamblers who engaged in eight or more activities.
- The profile of these groups of gamblers varied. Among non-gamblers, National Lottery only gamblers, and minimal interest (lottery and one other activity) gamblers there were more women than men.
- The vast majority of moderate interest gamblers (bettors and machines) and multiple interest gamblers (engaged in eight or more activities) were men (84% and 93% respectively).
- Over three-quarters of moderate interest gamblers (bettors and machines) and multiple interest gamblers (engaged in eight or more activities) were under the age of 45.
- In 2012, 0.7% of adults in Scotland were identified as problem gamblers according to the Diagnostic and Statistics Manual-IV (DSM-IV) screening tool (1.4% of men and 0.1% of women). A second screening tool, the Problem Gambling Severity Index (PGSI), also estimated problem gambling prevalence to be 0.7% (1.4% of men and 0.2% of women).
- The problem gambling rate for past year gamblers only was 1.0% according to the DSM-IV and 1.1% according to the PGSI.
- According to the PGSI, in 2012, a further 3% of adults were at 'low risk' of harm and 1% were at 'moderate risk.' Men were significantly more likely than women to be at low or moderate risk of harm.
- 5.5% of moderate interest gamblers (bettors and machine players) and 13.3% of multiple interest gamblers (engaged in eight or more activities) were problem gamblers (according to either the DSM-IV or the PGSI).

- The odds of being a problem gambler were 11.6 times higher for men than women.
- Those living in Scotland's most deprived areas (SIMD quintile 1) were around 7 times (odds ratio of 6.9) more likely to be a problem gambler than those in the least deprived areas (SIMD quintile 5).
- The odds of being a problem gambler were 5.6 times higher among those with a GHQ12 score of 4 or more than those with a score of zero. (A GHQ12 score of 4 or more is indicative of a possible psychiatric disorder, whereas a score of zero can be considered as indicative of psychological wellbeing).
- The odds of an adult displaying signs of possible alcohol dependence (AUDIT score of 20 or more) being a problem gambler were 7.1 times higher than for those with an AUDIT score of zero (low risk drinkers or abstinent).
- Adult parents that lived with their child/ren (under 16) were more likely to be problem gamblers than adults who were not parents (odds ratio of 2.6).

9.1 INTRODUCTION

Gambling behaviour is increasingly a subject of public health and policy interest in Britain. In the past decade, the gambling landscape in Britain has changed significantly. This is evident with the rise of online gambling opportunities and also with the implementation of the UK Gambling Act 2005. Fully implemented in 2007, this legislation overhauled the way commercial gambling is licensed, advertised and regulated in the UK.

In Britain, gambling is positioned as a legitimate recreational and leisure activity with policy responsibility held by the British Department for Culture, Media and Sport. While gambling policy is a reserved matter, some limited functions in relation to the setting of conditions for premises licenses are exercised by Scottish Ministers. There is widespread recognition among policy makers, industry and health care professionals that, like alcohol consumption, some people who engage in gambling activity can experience harm. Unlike alcohol consumption, there are no specific policy targets relating to harm minimisation. The Gambling Act 2005, however, contains three core licensing objectives. These are to:

- prevent gambling from being a source of crime or disorder, being associated with crime or disorder or being used to support crime,
- ensure that gambling is conducted in a fair and open way, and
- protect children and other vulnerable persons from being harmed or exploited by gambling.¹

The final objective highlights the potential for some people who participate in gambling to experience harm as a result of their behaviour and states that these groups specifically should be protected.

Problem gambling is defined as 'gambling to a degree which compromises, disrupts or damages family, personal or recreational pursuits.'² Its most severe form, pathological gambling, has been categorised as an impulse control disorder within the American Psychiatric Association's Diagnostic and Statistical Manual of Mental Disorders IV (DSM IV) and has been included in this manual since 1980.³ With the recent publication of the DSM V, disordered gambling has

been recognised as a behavioural addiction.⁴ In 2007, the British Medical Association highlighted the insufficient treatment facilities available for gambling problems and argued that services for problem gambling should be provided through the NHS, similar to those for drug and alcohol problems.⁵ With one notable exception (The NHS National Problem Gambling Clinic in Soho, London) this gap in structured provision still remains.

Problem gamblers suffer from a range of adverse consequences. There is international evidence that problem gambling is associated with a range of mental and physical health issues, including experience of depression, insomnia, stress-related disorders as well as experience of comorbid disorders such as alcohol abuse or dependence.⁶

In 2010, the British Gambling Prevalence Survey (BGPS) estimated that between 0.7% and 0.9% of adults living in private households in Britain were problem gamblers. This equates to around 400,000 people.⁷ The BGPS also estimated that a further 7% of adults were 'at risk' of experiencing harm from their gambling. In 1999, it was estimated that either 0.7% or 1.0% of adults in Scotland (depending on how it was measured) were problem gamblers. To date, these are the only publicly available national statistics on problem gambling prevalence in Scotland (although the 2010 BGPS report did include some data on participation levels in Scotland).

In 2012, for the first time, questions on gambling activity were included in both the Scottish Health Survey and the Health Survey for England. This is the first detailed exploration of this important public health issue in Scotland. This chapter presents estimates of past year participation in all forms of gambling in Scotland followed by estimates of problem and at-risk gambling according to two different measurement instruments, the DSM-IV and the Problem Gambling Severity Index (PGSI).³ The profiles of both gamblers in general and of problem gamblers in particular are also considered.

9.2 METHODS AND DEFINITIONS

9.2.1 Gambling participation in the last year - definition and methods

All adult participants (aged 16 and over) were asked to report whether they had spent any money on nineteen different forms of gambling activity in the past 12 months. The activities presented ranged from buying tickets for the National Lottery draw to online betting and gaming. The range of activities presented reflected all forms of commercial gambling currently available in Scotland and also included betting or gambling privately with family or friends to capture informal gambling activity. In this chapter, gambling participation is defined as having participated in any one of these activities in the past 12 months. This definition also includes the requirement that the participant spent his/her own money on the activity. This was to ensure that those occasions where someone else placed bets or purchased lottery tickets with a participant's money were included.

The list of gambling activities and descriptions presented to participants reflected those used in the BGPS 2007 as closely as possible.⁸ Exceptions included the addition of 'playing poker in pub or club' and of 'betting on sports activities' (like football) to reflect the growing popularity of these activities since the 2007 study.

As with the BGPS series, questions were asked using a confidential self-completion format. This was to encourage more honest reporting of a (potentially) sensitive activity and to ensure maximum comparability with the BGPS. Everyone who had gambled at least once in the last year was also asked to complete two screening instruments to identify problem or risky gambling behaviour (see Section 9.2.3).

9.2.2 Classification of gambling groups

A typology of past year gamblers was constructed using Latent Class Analysis (LCA). This is a statistical approach which categorises individuals into different groups, or 'latent classes,' based on their responses to a series of questions. In this chapter, LCA has been used to identify different groups or types of past year gamblers based on both the number and range of gambling activities undertaken by participants in the previous 12 months.

LCA operates by identifying the number of classes or groups that best fit the data and generating probabilities of membership of each group for every eligible participant. Once this is complete, a participant is assigned to the class for which they have the highest probability of membership. The first step is to identify how many different classes or groups best fit the data. To test this, a number of models, each containing a pre-specified number of classes, were produced. Models tested ranged from those with three classes to those with ten classes. Results from each model were compared and the most appropriate solution selected.⁹

A seven class model was identified as the solution which best fit the data. This identified the following mutually exclusive groups:

- Non-gamblers
- National Lottery only gamblers
- Minimal interest gamblers - lotteries and one other gambling activity
- Minimal interest gamblers - other gambling activity, not lottery
- Moderate interest gamblers – lotteries and more than one other gambling activity
- Moderate interest gamblers - mainly bettors and machine players
- Multiple interest gamblers - engaged in eight or more activities.

The groups differed in terms of both the total number of activities engaged in and the type of activities undertaken. Minimal interest gamblers typically took part in one or two activities in the past year, moderate interest gamblers tended to take part in between three to seven activities and multiple interest gamblers took part in eight or more

activities in the past 12 months (See Table 9.3). In this analysis, the terms minimal, moderate or multiple pertain entirely to the breadth of interest shown across a range of gambling activities. Data about frequency of gambling was not included in SHeS. Therefore these category descriptions do not reflect the depth of someone's gambling behaviour in terms of how often they engage in gambling activities only the breadth of their interest across a range of activities.

9.2.3 Problem gambling definition and measurement

Problem gambling is commonly accepted to involve 'gambling to a degree that compromises, disrupts or damages family, personal or recreational pursuits.'¹ Despite this, there is no definitive definition of problem gambling and many different instruments or 'screens' exist to identify and measure problem gambling (with over 20 different types in existence).¹⁰ As yet, there is no agreed 'gold standard' instrument recommended for use in population surveys.

Because of this, it has been common practice in Great Britain to include two different screening instruments in population-based surveys of gambling behaviour. As the instruments tend to capture different types of people, using both together, better reflects the broader range of issues associated with problematic gambling. The first of these is based on the fourth edition of the Diagnostic and Statistical Manual of Mental Disorders of the American Psychiatric Association (DSM-IV) and the second, the Problem Gambling Severity Index (PGSI),³ was developed in Canada specifically for use in population based studies. Both instruments have been widely used internationally and were the instruments of choice for the 2007 and 2010 BGPS. In 2012, SHeS included both the DSM-IV and the PGSI.

DSM-IV

The DSM-IV screening instrument contains ten diagnostic criteria ranging from chasing losses to committing a crime to fund gambling. Each DSM-IV item is assessed on a four-point scale, ranging from 'never' to 'very often.'¹¹ Responses to each item are then dichotomised to show whether a person meets the criteria or not. A total score between zero and ten is possible. A threshold of meeting at least three of the DSM-IV criteria is used to define problem gambling. This cut-off point has been found to give good discrimination between criterion groups and has provided the closest match to prevalence estimated by alternative screens.¹² Clinicians currently use an additional threshold of a DSM-IV score of five or more to represent pathological gambling.³ For a variety of reasons, this threshold is not presented in this chapter. Firstly, the number of people falling into this category would be too small to allow any detailed analysis to be carried out. Secondly, the term 'problem gambling' is preferred as it has less negative and medicalised conceptual issues associated with it than the term 'pathological gambling.'³ Finally, it is likely that the label 'pathological gambling' will become obsolete as it has been renamed 'gambling disorder' in the recent publication of the DSM-V.¹³ The threshold and

scoring criteria used to identify problem gamblers here are the same as those used in the BGPS series.

PGSI

The PGSI was developed for use among the general population rather than within a clinical context and was tested and validated within a general population survey. The instrument consists of nine items ranging from chasing losses to gambling causing health problems and feeling guilty about gambling. Each item is assessed on a four-point scale: never, sometimes, most of the time, almost always. Responses to each item are given the following scores: never = zero; sometimes = one; most of the time = two; almost always = three. Scores for each item are summed to give a total score ranging from zero to 27. A score of eight or over on the PGSI represent problem gambling. This is the threshold recommended by the developers of the PGSI and the threshold used in this report. The PGSI was also developed to give further information on sub-threshold problem gamblers. PGSI scores between three and seven are indicative of 'moderate risk' gambling and scores of one or two are indicative of 'low risk' gambling.¹⁴ As with the DSM-IV, the PGSI thresholds and scoring mechanisms used in SHeS are the same as those used in the BGPS.

Creating problem gambling scores

To produce problem gambling prevalence rates among all adults aged 16 and over, all non-gamblers were allocated a score of zero in both the DSM-IV and the PGSI screens. To be included in the final analysis for each instrument, participants were required to have answered at least five of the DSM-IV questions or at least four of the PGSI questions. Those who answered less than this were only included in the final analysis if their responses to the answered questions scored them as a problem gambler. Overall, around 15% of eligible adults did not have a valid DSM-IV or PGSI score. Inspection of the profile of those who did not respond to the screening instruments suggests that non-responders were slightly more likely to be from the youngest and oldest age groups and were somewhat more likely to be male (50% of non-responders were male compared with 48% of responders). This should be borne in mind when reviewing these results.

9.3 GAMBLING PARTICIPATION IN THE LAST YEAR

9.3.1 Participation in gambling activities in last year, 2012, by age and sex

In 2012, seven in ten adults (aged 16 and over) had gambled in the previous 12 months with men significantly more likely than women to have done so (74% and 67% respectively). Buying tickets for the National Lottery draw was the most popular form of gambling activity among all adults (58%). This was followed by purchasing scratchcards (18%), other lotteries (15%) and betting on horse races (not online) (10%). For each of the remaining activities asked about, prevalence

was below 10%. Forty-five percent of adults participated in gambling that excluded National Lottery only play and one in twelve (8%) participated in online gambling (excluding the National Lottery).

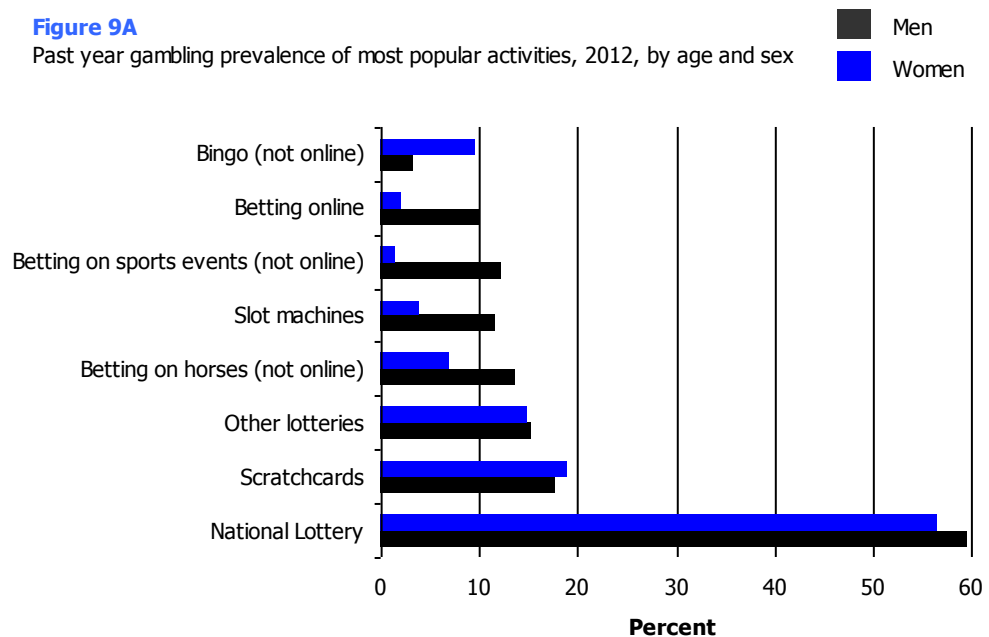
In 2012, six in ten (59%) men bought tickets for the National Lottery draw. The next most popular activities among men were purchasing scratchcards (18%), buying tickets for other lotteries (15%), betting on horse races (not online) (14%), betting on other sports events (not online) and playing slot machines (both 12%) and betting online with a bookmaker (10%). For all other individual activities, the prevalence rate for men was less than 10%, with around one in 14 (7%) playing table games in a casino and around one in sixteen (6%) playing machines in a bookmakers.

Excluding the National Lottery, 12% of men reported either betting online or playing slot-style or casino-style games online.

Among women, after the National Lottery (57%), the next most popular activities were, as observed for men, purchasing scratchcards (19%) and buying tickets for other lotteries (15%). Unlike men, this was then followed by playing bingo (10%). Prevalence for all other activities was less than 10% for women. Betting on horse races (not online) (7%) and playing slot machines (4%) were the next most popular activities. For all other individual activities, past year prevalence rates were 2% or less.

Overall, 4% of women had either bet online or played slot-style or casino-style games online (excluding the National Lottery).

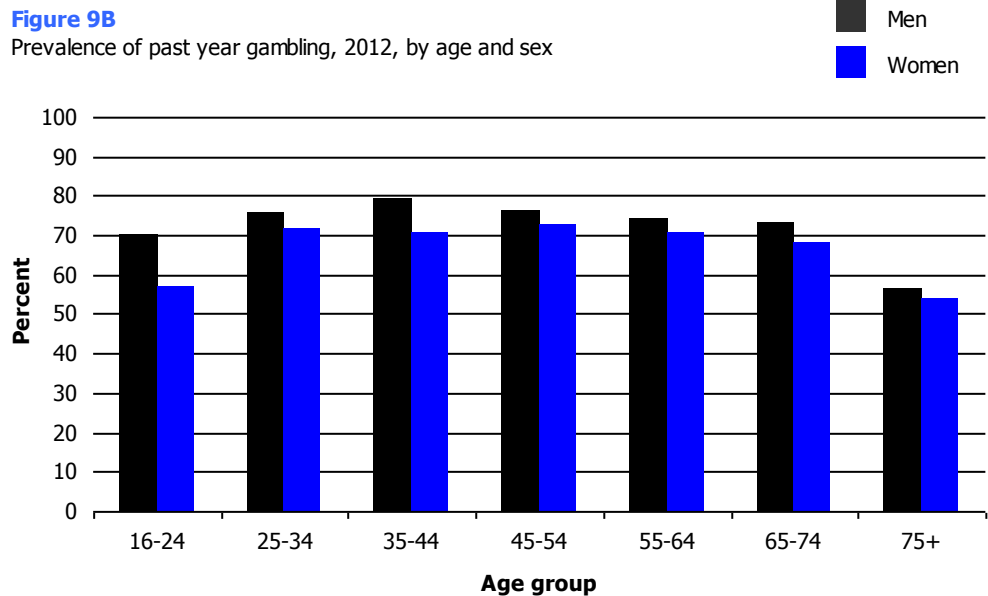
Figure 9A
Past year gambling prevalence of most popular activities, 2012, by age and sex



These patterns indicate that not only were women less likely than men to gamble but that typically they also took part in a lesser range of activities than men. Only four activities (National Lottery, scratchcards, other lotteries and bingo) were undertaken by more than 10% of women

whereas among men, seven different gambling activities had participation rates of more than 10%.

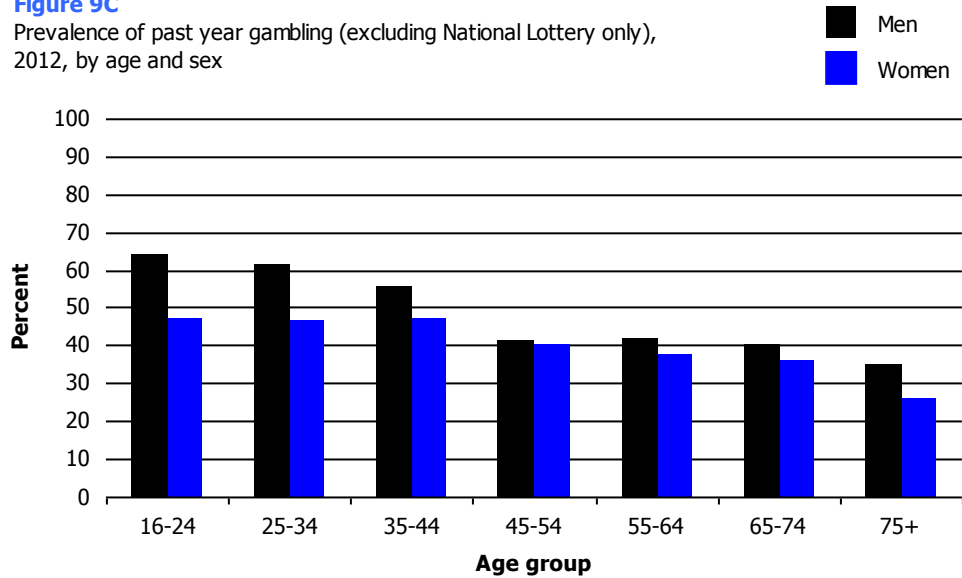
Gambling participation varied by age for both men and women. Typically, those aged 25 to 54 had the highest participation rates and those aged 16-24 or 75 and over had the lowest. Figure 9B demonstrates that the age-related pattern of participation was similar for both men and women.



This pattern is, however, dominated by participation rates in the National Lottery. As the most prevalent form of gambling activity, overall associations by age tend to be driven by patterns observed for National Lottery play only. When engagement in the National Lottery only was removed from the analysis, thus allowing associations for other forms of gambling to emerge, participation patterns by age changed (see Figure 9C). Here, participation rates were higher among the youngest age group (64% of men and 47% of women aged 16-24) and lowest among the oldest age group (35% of men and 26% of women aged 75 and over).

Figure 9C

Prevalence of past year gambling (excluding National Lottery only), 2012, by age and sex



For both men and women, the age-related gradient evident in Figure 9C was replicated across many of the individual activities. Among men participation in slot machines, machines in a bookmakers, casino table games, poker played in pubs/clubs, online betting and online gambling, using betting exchanges, betting on sports events and private betting followed this broad pattern. Among women a similar age-related gradient was apparent for scratchcards, slot machines, machines in a bookmakers, casino table games and private betting.

For all other activities, participation varied by age but with no clear pattern, or followed a pattern by which participation was most prevalent among those in the middle-age groups and was lower among the youngest and oldest. **Figure 9A, Figure 9B, Figure 9C, Table 9.1**

9.3.2 Number of gambling activities undertaken in last year, 2012, by age and sex

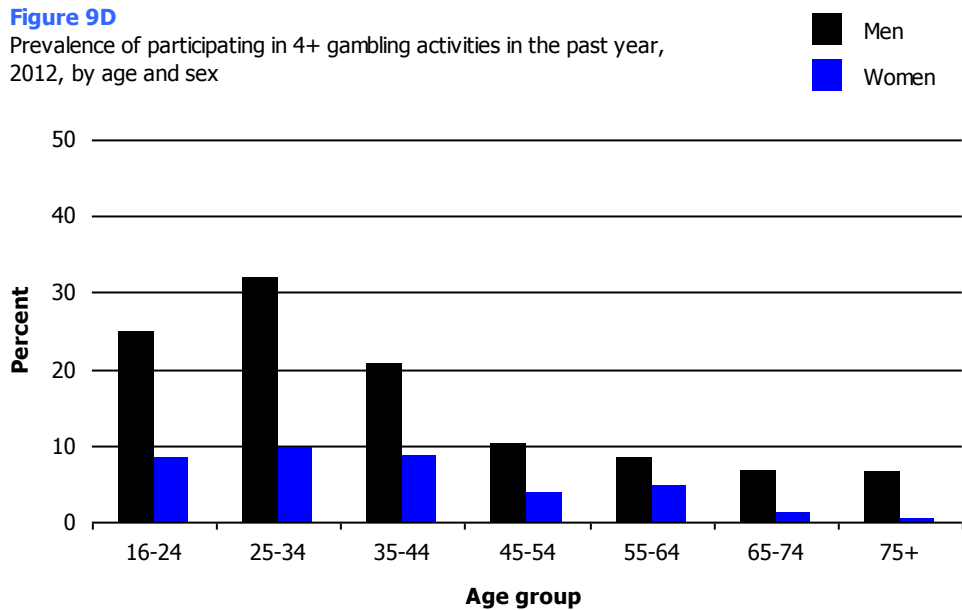
In 2012, adults took part in 1.6 gambling activities, on average, in the previous year with men participating in a greater number of activities than women (1.9 compared with 1.3).

For both men and women, the mean number of gambling activities undertaken was highest among younger age groups and declined with advancing age. Men aged 16 to 44, on average, took part in more than two gambling activities whereas men aged 75 and over took part in around one activity. Among women, the mean number of gambling activities undertaken ranged from 1.5 for those aged 25 to 34 to 0.8 for those aged 75 and over.

The number of gambling activities undertaken has been used as a proxy for identifying higher levels of gambling engagement, though no standard threshold for how many activities constitutes high engagement

has been identified. Overall, 11% of adults took part in four or more different forms of gambling in the previous year. The proportion of men participating in four or more activities was nearly three times greater than that for women (17% and 6% respectively).

For both men and women, the proportion who took part in four or more activities was highest among younger age groups, indicating greater levels of gambling engagement among younger people and young men in particular (see Figure 9D). **Figure 9D, Table 9.2**



9.3.3 Age and sex profile of gambling groups

Tables 9.1 and 9.2 demonstrate that there is a great deal of variety in both the level and type of gambling activities undertaken by different people. Some people are very engaged in all types of gambling while others only take part in certain forms of gambling like the National Lottery. Recognising the heterogeneity of gambling behaviour is important as it may have implications for differing levels of risk of harm.

To explore this further, latent class analysis (LCA) was used to identify distinct gambling groups (See Section 9.2.2 and Table 9.3 for a detailed discussion on how these groups were identified). The seven distinct gambling groups identified were:

- Non-gamblers (31% of adults)
- National Lottery only gamblers (25% of adults)
- Minimal interest gamblers – lotteries and one other gambling activity (16% of adults)
- Minimal interest gamblers – other gambling activity, not lottery (9% of adults)
- Moderate interest gamblers – lotteries and more than one other gambling activity (12% of adults)

- Moderate interest gamblers – mainly bettors and machine players (6% of adults)
- Multiple interest gamblers – engaged in eight or more activities (1% of adults).

The non-gamblers group was the largest with 31% of adults being classified as this. This was followed by National Lottery only gamblers who accounted for 25% of adults. Minimal interest gamblers (lotteries and one other activity) were the next largest group (16%) followed by moderate interest gamblers who took part in the lottery and more than one other activity (12%). This was followed by minimal interest gamblers (other activities) (9%) and moderate interest gamblers (mainly bettors) with 6% of adults being assigned to this group. Finally, 1% of adults were classified as multiple interest gamblers.

The age and sex profile of each of these gambling groups is presented in Table 9.4. More women than men were non-gamblers (58% female; 42% male), National Lottery only gamblers (55% female; 45% male) and minimal interest (lottery and other activity) gamblers (57% female; 43% male). Roughly equal proportions of men and women were minimal interest (other activities) gamblers (48% male; 52% female) or moderate interest gamblers (lotteries and other) (47% male; 53% female). The vast majority of moderate interest gamblers (bettors and machines) and multiple interest gamblers were male (84% and 93% respectively).

There was also variation between gambling groups with respect to their age profile. For example, the age profile of non-gamblers was relatively evenly distributed. Sixteen percent of this group were aged 16-24, between 14% and 16% were 25 to 64, 11% were 65-74 and 13% were aged 75 and over. National Lottery gamblers and minimal interest gamblers (lottery and other activity) tended to be aged between 35 and 64, with 61% of both groups having this age profile. Minimal interest (other activities) gamblers had a slightly younger age profile; two-thirds (68%) of this group were under 55 and 29% were aged 16-24. Of all the groups, moderate interest gamblers (bettors and machines) and multiple interest gamblers had the youngest age profiles. Over three-quarters of each group were under 45 (75% and 86% respectively).

Table 9.3, Table 9.4

9.3.4 Socio-economic profile of gambling groups

Table 9.5 examines the profile of each of the gambling groups based on NS-SEC of the household reference person, equivalised household income and the Scottish Index of Multiple Deprivation (descriptions of each of these measures are provided in the Glossary at the end of this volume). To ensure that the comparisons presented are not confounded by the different age profiles of the groups (as seen in Table 9.4) the data have been age-standardised. Age-standardisation allows comparisons to be made across groups which are not confounded by their different age profiles (See the Glossary at the end of this volume for a detailed description of age-standardisation).

Once age was accounted for, the profile of each gambling group did not differ by equivalised household income or area deprivation. However, group membership did vary by NS-SEC of the household reference person. The proportion of each group who lived in managerial and professional households varied from 35% for minimal interest (lotteries and other activity) to 51% for moderate interest gamblers (bettors and machine players). Multiple interest gamblers, both minimal interest gamblers groups and moderate interest gamblers (lotteries and other activities) had fewest people who lived in managerial and professional households.

Table 9.5

9.4 PROBLEM GAMBLING

9.4.1 DSM-IV items, 2012, by age and sex

As discussed in Section 9.2.3, the DSM-IV problem gambling screening instrument consists of ten criteria ranging from chasing losses to committing a crime to fund gambling. Participants indicated the extent to which a statement applied to them in the past 12 months by choosing one of four possible answer options ranging from very often to never (for chasing losses the options ranged from every time I lost to never). Response to each of the ten items, by age and sex, is shown in Table 9.6. The scoring applied here is the same as that used in the BGPS series. Overall, endorsement ranged from 1.4% of adults for chasing losses to 0.2% for committing a crime to fund gambling. The most endorsed items were chasing losses (1.4%), preoccupation with gambling (1.0%), gambling to escape (0.7%) and being restless when trying to stop gambling (0.6%). All other items were endorsed by 0.5% of adults or less.

With the exception of trying to cut back on gambling and failing, men were significantly more likely than women to positively endorse each item. Among men, the most highly endorsed items were chasing losses (2.1%), preoccupied with gambling (2.0%), gambling as escapism (1.3%), restlessness when trying to stop gambling (1.2%) and lying to family or friends (1.0%). All other items were endorsed by less than 1% of men. Rates were lower among women and the most highly endorsed items were chasing losses (0.7%), trying to cut back and failing (0.3%) and preoccupation with gambling (0.2%). Other items were endorsed by 0.1% of women or less. There were also three items (crime, risking relationships and financial crisis) which no female participants endorsed. However, this is likely to be a function of the sample size and should not be taken as indicating that women gamblers do not experience these problems.

Overall, there were no significant differences in endorsement rates by age for either men or women. The proportion of adults reporting trying to cut back and failing did vary significantly by age but with no clear pattern.

Table 9.6

9.4.2 PGSI items, 2012, by age and sex

The PGSI problem gambling screen consists of nine different criteria. For each of the criteria participants were asked to choose the answer option that most closely applied to them in the previous 12 months. There were four answer options ranging from almost always to never. (See Section 9.2.3 for a detailed discussion of the PGSI instrument). Responses to the PGSI are shown in Table 9.7.

Endorsement rates (defined as experiencing the specific problem at least sometimes) ranged from 0.5% for borrowing money to finance gambling to 3% for chasing losses. After chasing losses, the most commonly endorsed items were betting more than you could afford to lose (2.3%), feeling guilty about gambling (1.7%) and needing to gamble with larger amounts for money (1.4%). These prevalence patterns were the same for both men and women.

As with responses to the DSM-IV, men endorsed each item at significantly higher rates than women. For example, 5.2% of men and 0.9% of women had (at least sometimes) chased losses and 4% of men and 0.8% of women had (at least sometimes) gambled with more money than they could afford to lose.

For some of the items, endorsement also varied by age. Needing to gamble with larger amounts of money and chasing losses tended to have higher endorsement rates among younger adults. Estimates for chasing losses ranged from 5.0% of those aged 25-34 to 1.0% of those aged 75 and over. For gambling with larger amounts of money, estimates varied between 2.9% to 0.2% for the same age groups. Those aged 25 to 44 had the highest rates of endorsing gambling as a source of health problems or causing feelings of guilt, whereas oldest and youngest adults were less likely to report this.

Table 9.7

9.4.3 Problem gambling prevalence, 2012, by age and sex

In 2012, 0.7% of adults (aged 16 and over) in Scotland were identified as problem gamblers according to the DSM-IV. The 95% confidence interval for this estimate was 0.5%-1.1%, meaning we are 95% certain the true estimate lies between 0.5% and 1.1%. Rates were 1.4% for men and 0.1% for women.

According to the PGSI, the problem gambling rate in 2012 was also 0.7% of adults in Scotland. The confidence interval for this estimate was 0.5%-1.2%. PGSI rates for men and women were 1.4% and 0.2% respectively. Both screens identified men as significantly more likely than women to be problem gamblers.

These rates equates to around 30,500 problem gamblers in Scotland according to the DSM-IV or 32,300 according to the PGSI. These are likely to be cautious estimates as SHeS only includes adults living in private households and not those living in institutions like prisons,

student halls of residence or the homeless populations, all of which are likely to have higher rates of problem gambling.¹⁵

These 2012 estimates are similar to those observed for Scotland in the BGPS 2010, which estimated that 1.1% (DSM-IV) and 0.9% (PGSI) adults in Scotland were problem gamblers.¹⁶ The confidence intervals around the BGPS estimates were large due to small bases sizes for Scotland. The 95% confidence interval for the BGPS DSM-IV estimate was 0.4% - 2.8% and for the PGSI was 0.4% - 2.2%. This meant that we were 95% confident that the true estimate fell between these figures. The figures produced for the Scottish Health Survey in 2012 (0.7%) are well within this range and are not statistically different from the BGPS estimates.

Among past year gamblers only (i.e. those who reported gambling in the previous year), problem gambling rates were 1.0% according to the DSM-IV and 1.1% for the PGSI. Estimates for male past year gamblers were 1.9% for both screening instruments and for female past year gamblers were 0.1% according to the DSM-IV and 0.3% according to the PGSI.

Table A: Problem gambling rates, 2012, for all adults and past year gamblers only

	DSM-IV	PGSI
	%	%
All adults		
Men	1.4	1.4
Women	0.1	0.2
All	0.7	0.7
Past year gamblers only		
Men	1.9	1.9
Women	0.1	0.3
All past year gamblers	1.0	1.1

For both DSM-IV and PGSI, problem gambling rates did not vary significantly by age. The lack of statistical significance is likely to be a function of the sample size as estimates ranged between 0.2% for those aged 75 and over to 1.2% for those aged 35-44 according to the DSM-IV and from 0.2% for those aged 75 and over to 1.5% for those aged 25 to 44 according to the PGSI.

The BGPS study has repeatedly demonstrated that different problem gambling screens capture different people. The same is true for SHeS. Overall, 0.5% of adults in Scotland were identified as problem gamblers according to both screens and 1.0% of adults were identified as problem gamblers according to either screen. **Table 9.8**

9.4.4 'At-risk' prevalence, 2012, by age and sex

The PGSI screen includes two further sub-categories of gambling behaviour – gamblers at 'low risk' of harm (a PGSI score of 1-2) and gamblers at 'moderate risk' of harm (a PGSI score of 3-7). Overall, 3.0% of adults were identified as low risk gamblers in 2012 and a further 1.0% as moderate risk gamblers. Taken together with problem-gambling prevalence, this means that in 2012, 4.7% of adults were identified as experiencing some kind of difficulty with their gambling behaviour in the past 12 months.

Therefore, approximately a further 175,300 adults in Scotland were identified as being at low or moderate risk of harm from gambling.

Men were significantly more likely than women to be either low risk or moderate risk gamblers. Estimates for men were 4.8% and 2.1% respectively whereas 1.4% of women were identified as low risk gamblers and none were identified as being at moderate risk. Again, the lack of women identified as at moderate risk is likely to be due to sample size rather than assuming that no women in Scotland fits this categorisation.

Low risk gambling prevalence also varied significantly by age with rates tending to be highest among younger people and lower among older adults. 5.2% of those aged 25-34 were low-risk gamblers compared with 1.1% of those aged 75 and over. There was no significant association between moderate risk gambling and age.

Table 9.8

9.4.5 Problem gambling prevalence, 2012, by gambling groups

In Table 9.9, problem gambling prevalence rates are shown by past year gambling group. Due to small sample sizes the measure of problem gambling used was whether people were categorised as problem gamblers according to either the DSM-IV or the PGSI.

Problem gambling rates varied significantly by gambling group. Around 5.5% of moderate interest gamblers (bettors and machine players) and 13.3% of multiple interest gamblers were problem gamblers. This is unsurprising given that these groups tended to be male, to be younger and engaged in a greater range of gambling activities, all of which have been repeatedly shown to be associated with problem gambling (either in this chapter or within the BGPS series).

The associations between problem gambling and minimal, moderate or multiple interest gamblers were not necessarily linear. Problem gambling rates among moderate interest (lotteries and other activities) gamblers were lowest at 0.4% whereas 1.0% of minimal interest gamblers (other activities) and 0.6% of minimal interest gamblers (lottery and other activity) were problem gamblers. This highlights that whilst the range and number of activities undertaken does have a clear association with problem gambling, there are also some people who

experience problems while having a clear gambling activity preference and partaking in a lesser range of activities.¹⁷ **Table 9.9**

9.5 FACTORS ASSOCIATED WITH PROBLEM GAMBLING

Multivariate logistic regression was used to examine the independent associations between a range of socio-demographic, economic and health and lifestyle behaviours and problem gambling. Because of sample sizes, problem gambling according to either screen (DSM-IV or PGSI) was used in this model. A series of cross-tabulations were run separately for DSM-IV and PGSI problem gambling to assess if broad associations by each outcome variable were similar (data not shown). As they were similar using the combined problem gambling variable was deemed appropriate. As there were too few female problem gamblers to run separate regression models for men and women the model was run for all adults.

The factors investigated included age, sex and measures of socio-economic status in terms of household income, economic activity of the individual and area deprivation. A number of other factors were included such as marital status and educational attainment. Finally, a range of behavioural characteristics explored in other chapters of this report such as cigarette smoking status, hazardous or harmful drinking behaviours (as measured by the Alcohol Use Disorders Identification Test score (AUDIT)) and mental-ill health status (as measured by the General Health Questionnaire -12 - GHQ12) and whether the participant was a parent to any child in the household were included. These factors have been shown to be correlated with problem gambling in both the BGPS series and other international prevalence surveys.

Results are presented as odds ratios and are shown in Table 9.10. For each categorical variable, the odds of being a problem gambler are presented relative to a reference category, which is given a value of 1. An odds ratio of greater than 1 indicates higher odds of being a problem gambler while an odds ratio of less than 1 indicates lower odds of being a problem gambler. 95% confidence intervals are shown for each odds ratio. If the confidence interval does not include 1, the odds ratio for that category is significantly different from the reference group.

The factors found to be significantly associated with problem gambling were: sex, area deprivation, GHQ12 status and AUDIT score. A list of the factors that were included in the model, but were not significant, is included in the endnote to the table.

The odds of being a problem gambler were 11.6 times higher among men than women.

The odds of being a problem gambler were also greater among those with high scores on the General Health Questionnaire-12 (GHQ12). A high GHQ12 score (of 4 or more) is indicative of a possible psychiatric disorder whereas a score of zero can be considered to be an indicator of psychological wellbeing. The odds of being a problem gambler were 5.6 times higher among those with a GHQ12 score of 4+ than those with a score of 0.

Odds ratios varied by AUDIT score. Higher AUDIT scores indicated more risky patterns of alcohol consumption. Those with an AUDIT score of 20 or more (indicating harmful patterns of alcohol consumption) were more likely to be problem gamblers; odds were 7.1 times higher among this group than those with an AUDIT score of 0. Other AUDIT scores did not vary significantly from those with a score of 0.

Area deprivation was also significantly associated with problem gambling, with those living in the most deprived areas (SIMD quintile 1) having odds of problem gambling around seven times (6.9) higher than those living in the least deprived areas (SIMD quintile 5).

Finally, parents with children (under the age of 16) living with them in their household were also more likely to be problem gamblers than those who were not parents. Odds were 2.6 times higher among these parents than non-parents.

The parental pattern is interesting as it was significant even after age was taken into account. This simple association tentatively suggests that family relationships and responsibilities may be related to gambling problems. Likewise, the relationship with area deprivation is of note, suggesting an association between where people live and their propensity to experience problems. This, potentially, contributes to further health inequalities as people living in the most deprived areas are more likely to experience harm. Findings relating to health status and alcohol consumption are unsurprising as it has been well documented that problem gambling is associated with poor health and, in some cases, substance abuse problems. However, these associations also suggest that problem gambling should be considered as a health issue given the poorer health status of those experiencing problems. Taken together, this range of associations suggests that account needs to be taken of the individual, their experiences and the broader circumstances which may influence behaviour in order to understand patterns of problem gambling.

Table 9.10

References and notes

- ¹ For further information see: http://www.opsi.gov.uk/Acts/acts2005/ukpga_20050019_en_2
- ² Lesieur H.R, Rosenthal M.D. (1991). Pathological gambling: A review of the literature (prepared for the American Psychiatric Association Task Force on DSM-IV Committee on disorders of impulse control not elsewhere classified). *Journal of Gambling Studies* 7, 1, 5-40.
- ³ American Psychiatric Association (1994). *Diagnostic and Statistical Manual of Mental Disorders Fourth Edition* (DSM-IV); Wynne H.J. (2003). *Introducing the Canadian Problem Gambling Screen*. Edmonton, Canada: Wynne Resources.
- ⁴ American Psychiatric Association (2001). *Substance-related and Addictive Disorders*. <http://www.dsm5.org/Pages/Default.aspx>. Accessed 13.Aug.2013
- ⁵ Griffiths, M.D. (2007). (2007). *Gambling Addiction and Its Treatment Within the NHS: A Guide for Healthcare Professionals*. London: British Medical Association.
- ⁶ Potenza, M. N., Fiellin, D. A., Heninger, G. R., Rounsaville, B. J. and Mazure, C. M. (2002). Gambling. *Journal of General Internal Medicine* 17: 721–732. doi: 10.1046/j.1525-1497.2002.10812.x; Griffiths, M (2004). Betting your life on it: Problem gambling has clear health related consequences. *British Medical Journal* 329(7474): 1055–1056.
- ⁷ Wardle, H. et al. (2010). *British Gambling Prevalence Survey 2010*. Birmingham: Gambling Commission.
- ⁸ The BGPS 1999 and 2007 used a paper self-completion booklet to collect data. In 2010, computer-assisted self-completion was used which allowed the questionnaire to have a more complex structure as more follow-up questions could be asked. As the Scottish Health Survey used a paper self-completion, the questionnaire structure and format of the 1999 and 2007 studies was followed.
- ⁹ Selection of the most appropriate solution was made based on both statistical and substantive considerations. This included an examination of ‘goodness of fit’ statistics. Recommended guidelines are that a model which fits the data well should have lower BIC, AIC and AIC3 values, although BIC has been highlighted as the most robust and consistent statistic to consider. Classification error should be low, meaning that the likelihood that someone does not really belong to the group they have been assigned is low, the model should have good stability meaning that it can be replicated and finally the resulting groups should make substantive sense.
- ¹⁰ Abbott, M., Volberg., R (2007) The measurement of adult problem and pathological gambling. *International Gambling Studies*, 6(2); 175-200.
- ¹¹ This is with the exception of chasing losses which is rated on a scale ranging between ‘never’ and ‘everytime I lost’.
- ¹² Orford J., Wardle H., Griffiths M., Sproston K., Erens B., (2010). PGSI and DSM-IV in the 2007 British Gambling Prevalence Survey: reliability, item response, factor structure and inter-scale agreement. *International Gambling Studies* 10(1); 31-44.
- ¹³ The categorisation and screening of problem and pathological gambling has been reviewed and revised in the recently published DSM V. Main changes made were that the term pathological gambling was replaced with the term ‘gambling disorder’, that the crime criterion be removed from classification and that the threshold for identifying ‘gambling disorders’ be dropped from 5 (formerly the threshold for identifying pathological gamblers) to 4. However, the DSM V was not officially released at the time of Scottish Health Survey 2012 fieldwork. Therefore, this chapter uses the standards set by the DSM IV and replicates the scoring methods used in the BGPS series to allow comparisons to be made.

- ¹⁴ Some researchers have recommended that different (lower) thresholds should be used when identifying problem gamblers using the PGSI. However, these recommendations have not been universally accepted and are not currently endorsed by the original developers of the PGSI instrument. Therefore, this chapter uses the thresholds and categorisation recommended by the original developers and replicates the methods used in the BGPS, also allowing comparisons to be made.
- ¹⁵ Students and younger men in particular typically have higher rates of problem gambling, as do those in prison. There is also evidence from other jurisdictions that homeless populations have elevated rates of problem gambling compared with the general population. See Scarfe A. and Wilson, A. (2008). Addressing problem gambling in prisons: Good organisational reasons for programme success or failure. Presented at the 14th International Conference on Gambling and Risk; Shaffer H., Freed C. and Healea D. (2002). Gambling disorders among homeless persons with substance use disorders seeking treatment at a community center. *Psychiatric Services* 53:1112-1117.
- ¹⁶ In the BGPS, the confidence intervals for these estimates were large as the sample size for Scotland was small. The confidence interval for DSM-IV problem gambling was 0.4%-2.8% and for the PGSI was 0.4%-2.8%. Estimates produced for this study are therefore well within this range and thus in keeping with estimates from the BGPS series.
- ¹⁷ LaPlante, Nelson and Gray have noted similar issues relating to breadth and depth of involvement among internet gamblers. See LaPlante D.A., Nelson S., and Gray H. (in press). Breadth and depth involvement: Understanding internet gambling involvement and its relationship to gambling problems. *Psychology of Addictive Behaviors*.

Table list

Table 9.1	Gambling activities in the last 12 months, 2012, by age and sex
Table 9.2	Number of different gambling activities in the last 12 months, 2012, by age and sex
Table 9.3	Gambling group membership, 2012
Table 9.4	Gambling group membership, 2012, by age and sex
Table 9.5	Gambling group membership, 2012, by area deprivation (SIMD), equivalised household income and NS-SEC of the household reference person (age standardised)
Table 9.6	Response to DSM-IV items, 2012, by age and sex
Table 9.7	Response to PGSI items, 2012, by age and sex
Table 9.8	DSM-IV and PGSI scores for gambling in the last year, 2012, by age and sex
Table 9.9	Gambling group membership, 2012, by problem gambling and sex
Table 9.10	Estimated odds ratios, 2012, for problem gambling

Table 9.1 Gambling activities in the last 12 months, 2012, by age and sex

Aged 16 and over

2012

Activity money spent on	Age							Total
	16-24	25-34	35-44	45-54	55-64	65-74	75+	
	%	%	%	%	%	%	%	%
Men								
National Lottery	34	56	72	69	64	63	48	59
Scratchcards	25	27	27	13	9	7	8	18
Other lotteries	8	16	16	14	19	17	16	15
Football pools	14	16	7	4	6	8	5	9
Bingo (not online)	2	4	4	3	2	3	5	3
Slot machines	23	20	13	8	4	5	3	12
Machines in a bookmakers	17	12	6	1	2	1	1	6
Casino table games (not online)	14	16	5	3	2	1	0	7
Poker played in pubs or clubs	6	6	3	1	1	1	-	3
Online gambling on slots, casino or bingo games	7	8	4	1	2	2	2	4
Online betting with a bookmaker	17	22	13	4	3	3	2	10
Betting exchange	3	4	2	1	1	1	-	2
Horse races (not online)	11	16	19	13	10	12	11	14
Dog races (not online)	6	4	7	4	2	5	5	5
Sports events (not online)	19	19	18	9	6	4	3	12
Other events or sports (not online)	2	6	4	3	2	2	1	3
Spread-betting	1	4	1	1	-	0	-	1
Private betting	17	14	6	3	2	3	-	7
Any other gambling	6	3	3	3	1	1	2	3
<i>Any gambling activity</i>	<i>70</i>	<i>76</i>	<i>79</i>	<i>76</i>	<i>74</i>	<i>73</i>	<i>56</i>	<i>74</i>
<i>Any gambling (excluding National Lottery only)</i>	<i>64</i>	<i>61</i>	<i>56</i>	<i>41</i>	<i>42</i>	<i>40</i>	<i>35</i>	<i>50</i>
<i>Any online gambling (excludes National Lottery)</i>	<i>21</i>	<i>27</i>	<i>15</i>	<i>5</i>	<i>5</i>	<i>5</i>	<i>3</i>	<i>12</i>

Continued...

Table 9.1 - Continued

Aged 16 and over

2012

Activity money spent on	Age							Total
	16-24	25-34	35-44	45-54	55-64	65-74	75+	
	%	%	%	%	%	%	%	%
Women								
National Lottery	36	61	63	66	61	55	42	57
Scratchcards	27	28	25	17	13	10	8	19
Other lotteries	11	13	15	17	18	15	13	15
Football pools	2	2	0	1	1	3	2	1
Bingo (not online)	11	12	10	7	11	8	8	10
Slot machines	6	6	5	4	2	2	0	4
Machines in a bookmakers	4	0	1	0	0	1	-	1
Casino table games (not online)	4	5	3	2	2	1	-	2
Poker played in pubs or clubs	0	-	-	-	0	1	-	0
Online gambling on slots, casino or bingo games	2	3	3	1	2	1	-	2
Online betting with a bookmaker	3	3	4	2	2	1	0	2
Betting exchange	-	0	0	-	0	1	0	0
Horse races (not online)	9	8	11	7	6	4	2	7
Dog races (not online)	2	0	-	0	0	1	-	0
Sports events (not online)	1	3	3	1	1	1	0	2
Other events or sports (not online)	-	0	0	0	1	1	-	0
Spread-betting	-	-	-	-	-	1	-	0
Private betting	3	3	0	1	0	1	-	1
Any other gambling	1	1	0	1	1	1	-	1
<i>Any gambling activity</i>	<i>57</i>	<i>72</i>	<i>71</i>	<i>72</i>	<i>70</i>	<i>68</i>	<i>54</i>	<i>67</i>
<i>Any gambling (excluding National Lottery only)</i>	<i>47</i>	<i>47</i>	<i>47</i>	<i>40</i>	<i>38</i>	<i>36</i>	<i>26</i>	<i>41</i>
<i>Any online gambling (excludes National Lottery)</i>	<i>5</i>	<i>6</i>	<i>7</i>	<i>3</i>	<i>3</i>	<i>1</i>	<i>0</i>	<i>4</i>

Continued...

Table 9.1 - Continued

Aged 16 and over

2012

Activity money spent on	Age							Total
	16-24	25-34	35-44	45-54	55-64	65-74	75+	
	%	%	%	%	%	%	%	%
All Adults								
National Lottery	35	59	67	68	62	59	44	58
Scratchcards	26	27	26	15	11	9	8	18
Other lotteries	9	14	15	16	19	16	14	15
Football pools	8	9	4	2	3	5	3	5
Bingo (not online)	7	8	7	5	7	6	7	7
Slot machines	15	13	9	6	3	3	2	8
Machines in a bookmakers	11	6	3	1	1	1	0	3
Casino table games (not online)	10	10	4	2	2	1	0	4
Poker played in pubs or clubs	4	3	1	1	1	1	-	1
Online gambling on slots, casino or bingo games	5	6	3	1	2	1	1	3
Online betting with a bookmaker	10	12	9	3	2	2	1	6
Betting exchange	2	2	1	1	1	1	0	1
Horse races (not online)	10	12	15	10	8	8	5	10
Dog races (not online)	4	2	3	2	1	3	2	2
Sports events (not online)	10	11	10	5	3	3	1	7
Other events or sports (not online)	1	3	2	2	1	1	0	2
Spread-betting	1	2	1	1	-	1	-	1
Private betting	10	8	3	2	1	2	-	4
Any other gambling	4	2	1	2	1	1	1	2
<i>Any gambling activity</i>	<i>64</i>	<i>74</i>	<i>75</i>	<i>74</i>	<i>72</i>	<i>70</i>	<i>55</i>	<i>70</i>
<i>Any gambling (excluding National Lottery only)</i>	<i>56</i>	<i>54</i>	<i>51</i>	<i>41</i>	<i>40</i>	<i>38</i>	<i>29</i>	<i>45</i>
<i>Any online gambling (excludes National Lottery)</i>	<i>13</i>	<i>16</i>	<i>11</i>	<i>4</i>	<i>4</i>	<i>3</i>	<i>1</i>	<i>8</i>

Continued...

Table 9.1 - Continued

Aged 16 and over

2012

Activity money spent on	Age							Total
	16-24	25-34	35-44	45-54	55-64	65-74	75+	
<i>Bases (weighted)^a:</i>								
<i>Men</i>	289	340	345	386	324	229	131	2045
<i>Women</i>	276	349	383	413	362	254	221	2259
<i>All adults</i>	566	690	728	799	686	483	353	4304
<i>Bases (unweighted)^a:</i>								
<i>Men</i>	149	203	315	379	327	348	172	1893
<i>Women</i>	194	304	442	457	417	340	273	2427
<i>All adults</i>	343	507	757	836	744	688	445	4320

^a Bases shown are for any form of gambling. Bases for individual activities vary.

Table 9.2 Number of different gambling activities in the last 12 months, 2012, by age and sex

<i>Aged 16 and over</i>								<i>2012</i>
Number of different gambling activities	Age							Total
	16-24	25-34	35-44	45-54	55-64	65-74	75+	
	%	%	%	%	%	%	%	%
Men								
0	30	24	21	24	26	27	44	26
1	21	18	26	38	38	37	28	29
2	14	17	18	19	22	19	12	18
3	11	8	15	9	5	10	10	10
4 or more	25	32	21	10	8	7	7	17
Mean number of activities	2.4	2.7	2.3	1.6	1.4	1.4	1.1	1.9
SE of mean	0.25	0.23	0.17	0.09	0.09	0.09	0.12	0.07
Women								
0	43	28	29	28	30	32	46	33
1	23	31	29	36	40	41	38	34
2	17	18	22	23	21	23	9	20
3	9	12	11	10	5	3	6	9
4 or more	8	10	9	4	5	1	1	6
Mean number of activities	1.2	1.5	1.4	1.3	1.2	1.1	0.8	1.3
SE of mean	0.13	0.09	0.07	0.06	0.08	0.09	0.06	0.03
All adults								
0	36	26	25	26	28	30	45	30
1	22	25	27	37	39	39	35	32
2	15	18	20	21	21	21	10	19
3	10	10	13	10	5	6	7	9
4 or more	17	21	14	7	6	4	3	11
Mean number of activities	1.8	2.1	1.9	1.4	1.3	1.2	0.9	1.6
SE of mean	0.16	0.13	0.08	0.06	0.06	0.07	0.06	0.04

Continued...

Table 9.2 - Continued

Aged 16 and over

2012

Number of different gambling activities	Age							Total
	16-24	25-34	35-44	45-54	55-64	65-74	75+	
<i>Bases (weighted):</i>								
<i>Men</i>	289	340	345	386	324	229	131	2045
<i>Women</i>	276	349	383	413	362	254	221	2259
<i>All adults</i>	566	690	728	799	686	483	353	4304
<i>Bases (unweighted):</i>								
<i>Men</i>	149	203	315	379	327	348	172	1893
<i>Women</i>	194	304	442	457	417	340	273	2427
<i>All adults</i>	343	507	757	836	744	688	445	4320

Table 9.3 Gambling group membership, 2012

Aged 16 and over

2012

Gambling activities	Gambling group type						
	Non-gamblers	National Lottery only	Minimal interest - lotteries and other activity	Minimal interest - other activities	Moderate interest - lotteries and other activities	Moderate interest - mainly betting and machines	Multi interest gambler
	%	%	%	%	%	%	%
National Lottery	-	100	100	-	96	69	85
Scratchcards	-	-	35	24	60	39	64
Other lotteries	-	-	27	27	46	28	62
Football pools	-	-	3	6	9	28	63
Bingo (not online)	-	-	10	12	23	9	28
Slot machines	-	-	3	12	19	46	71
Machines in a bookmakers	-	-	0	2	1	33	71
Casino table games (not online)	-	-	2	4	11	27	55
Poker played in pubs or clubs	-	-	0	1	1	11	34
Online gambling on slots, casino or bingo games	-	-	1	1	7	14	50
Online betting with a bookmaker	-	-	2	5	11	41	76
Betting exchange	-	-	0	1	0	6	24
Horse races (not online)	-	-	9	14	25	49	80
Dog races (not online)	-	-	0	1	2	20	51
Sports events (not online)	-	-	3	6	9	51	89
Other events or sports (not online)	-	-	0	0	0	11	50
Spread-betting	-	-	0	1	1	1	22
Private betting	-	-	2	6	9	21	47
Any other gambling	-	-	1	3	5	6	24

Continued...

Table 9.3 - Continued

Aged 16 and over

2012

Gambling activities	Gambling group type						
	Non-gamblers	National Lottery only	Minimal interest - lotteries and other activity	Minimal interest - other activities	Moderate interest - lotteries and other activities	Moderate interest - mainly betting and machines	Multi interest gambler
	%	%	%	%	%	%	%
Number of gambling activities							
None	100	-	-	-	-	-	-
One	-	100	-	72	-	-	-
Two	-	-	100	28	-	-	-
Three	-	-	-	-	70	8	-
Four	-	-	-	-	24	24	-
Five	-	-	-	-	5	32	-
Six	-	-	-	-	0	23	-
Seven	-	-	-	-	-	13	-
Eight or more	-	-	-	-	-	-	100
<i>Bases (weighted):</i>	1272	1038	667	355	490	263	57
<i>Bases (unweighted):</i>	1353	1085	681	326	466	198	50

Table 9.4 Gambling group membership, by age and sex

Aged 16 and over

2012

Age and sex	Gambling group type						
	Non-gamblers	National Lottery only	Minimal interest - lotteries and other activity	Minimal interest - other activities	Moderate interest - lotteries and other activities	Moderate interest - mainly betting and machines	Multi interest gambler
	%	%	%	%	%	%	%
Sex							
Men	42	45	43	48	47	84	93
Women	58	55	57	52	53	16	7
Men							
16-24	16	4	5	35	12	23	[24]
25-34	15	10	13	19	21	30	[42]
35-44	13	17	19	8	27	20	[23]
45-54	17	27	22	11	18	12	[4]
55-64	16	21	23	13	9	8	[3]
65-75	12	15	13	9	8	5	[2]
75 and over	11	6	5	5	6	2	[2]
Women							
16-24	16	5	9	24	11	[39]	*
25-34	13	15	15	15	26	[21]	*
35-44	15	16	20	14	24	[24]	*
45-54	16	23	23	10	19	[6]	*
55-64	15	20	16	15	10	[11]	*
65-75	11	13	13	11	3	[-]	*
75 and over	14	10	4	11	5	[0]	*
All adults							
16-24	16	4	8	29	12	25	24
25-34	14	13	14	17	24	29	39
35-44	15	16	20	11	25	21	22
45-54	16	25	22	11	19	11	4
55-64	15	20	19	14	10	9	2
65-75	11	14	13	10	5	4	5
75 and over	13	8	5	8	6	1	2
<i>Bases (weighted):</i>							
Men	538	468	287	170	232	220	53
Women	734	570	381	185	257	43	4
All	1272	1038	667	355	490	263	57
<i>Bases (unweighted):</i>							
Men	531	474	275	136	206	162	45
Women	822	611	406	190	260	36	5
All	1353	1085	681	326	466	198	50

Table 9.5 Gambling group membership, 2012, by area deprivation (SIMD), equivalised household income and NS-SEC of the household reference person (age standardised)

Aged 16 and over

2012

Area deprivation (SIMD), Household income, and NS- SEC	Gambling group type						
	Non- gamblers	National Lottery only	Minimal interest - lotteries and other activity	Minimal interest - other activities	Moderate interest - lotteries and other activities	Moderate interest - mainly betting and machines	Multi interest gambler
	%	%	%	%	%	%	%
Area deprivation (SIMD)							
5th (least deprived)	24	22	17	21	22	24	22
4th	24	20	19	21	15	18	23
3rd	19	20	23	20	22	19	14
2nd	18	20	22	18	22	22	27
1st (most deprived)	15	17	19	20	19	18	14
Equivalised household income							
1st (highest)	23	21	19	29	23	23	[22]
2nd	21	20	19	22	21	27	[20]
3rd	17	22	22	14	21	25	[29]
4th	18	19	22	20	22	11	[10]
5th (lowest)	21	17	19	15	14	14	[19]
NS-SEC of household reference person							
Managerial and professional	48	41	35	37	38	51	[37]
Intermediate	8	10	11	12	13	7	[8]
Small employers and own account workers	8	9	8	15	9	5	[15]
Lower supervisory and technical	8	10	10	7	10	8	[17]
Semi-routine	28	30	35	29	29	30	[23]

Continued...

Table 9.5 - Continued

Aged 16 and over

2012

Area deprivation (SIMD), Household income, and NS- SEC	Gambling group type						
	Non- gamblers	National Lottery only	Minimal interest - lotteries and other activity	Minimal interest - other activities	Moderate interest - lotteries and other activities	Moderate interest - mainly betting and machines	Multi interest gambler
<i>Bases (weighted):</i>							
<i>Area deprivation</i>	1268	1045	668	359	488	261	59
<i>Equivalised household income</i>	1105	871	583	334	419	221	52
<i>NS-SEC</i>	1233	1024	658	359	484	252	60
<i>Bases (unweighted):</i>							
<i>Area deprivation</i>	1353	1085	681	326	466	198	50
<i>Equivalised household income</i>	1155	966	606	289	413	183	46
<i>NS-SEC</i>	1324	1076	667	320	463	195	49

Table 9.6 Response to DSM-IV items, 2012, by age and sex

Aged 16 and over

2012

DSM-IV item	Age							Total
	16-24	25-34	35-44	45-54	55-64	65-74	75+	
	%	%	%	%	%	%	%	%
Men								
Chased losses								
Most times/every time	3.2	2.9	2.2	0.8	2.4	1.4	1.0	2.1
Never/sometimes	96.8	97.1	97.8	99.2	97.6	98.6	99.0	97.9
Preoccupation with gambling								
Fairly often/very often	1.8	1.8	2.6	2.3	1.5	1.9	1.3	2.0
Never/occasionally	98.2	98.2	97.4	97.7	98.5	98.1	98.7	98.0
Needed to gamble with increasing amounts of money								
Fairly often/very often	0.2	1.5	1.5	1.2	0.4	0.7	-	0.9
Never/occasionally	99.8	98.5	98.5	98.8	99.6	99.3	100.0	99.1
Been restless or irritable when trying to stop gambling								
Fairly often/very often	-	1.7	2.5	0.3	1.1	1.8	0.5	1.2
Never/occasionally	100.0	98.3	97.5	99.7	98.9	98.2	99.5	98.8
Gambling as escapism								
Fairly often/very often	1.6	1.0	2.7	0.6	0.8	0.8	1.3	1.3
Never/occasionally	98.4	99.0	97.3	99.4	99.2	99.2	98.7	98.7
Lied to people to conceal extent of gambling								
Fairly often/very often	1.1	1.9	1.5	0.3	0.7	0.8	-	1.0
Never/occasionally	98.9	98.1	98.5	99.7	99.3	99.2	100.0	99.0
Tried but failed to cut back on gambling								
Fairly often/very often	0.3	0.9	1.8	0.1	0.4	1.2	0.8	0.8
Never/occasionally	99.7	99.1	98.2	99.9	99.6	98.8	99.2	99.2

Continued...

Table 9.6 - Continued

Aged 16 and over

2012

DSM-IV item	Age							Total
	16-24	25-34	35-44	45-54	55-64	65-74	75+	
	%	%	%	%	%	%	%	%
Committed a crime to fund gambling								
Occasionally/Fairly often/very often	0.3	0.9	-	0.5	-	0.8	-	0.4
Never	99.7	99.1	100.0	99.5	100.0	99.2	100.0	99.6
Risked or lost a relationship/job/educational opportunity because of gambling								
Occasionally/Fairly often/very often	0.3	1.3	1.2	0.7	-	1.0	-	0.7
Never	99.7	98.7	98.8	99.3	100.0	99.0	100.0	99.3
Relied on others to help with financial crisis caused by gambling								
Occasionally/Fairly often/very often	0.4	0.9	0.9	1.2	0.8	1.0	-	0.8
Never	99.6	99.1	99.1	98.8	99.2	99.0	100.0	99.2
Women								
Chased losses								
Most times/every time	1.3	0.9	1.2	0.3	0.8	0.3	0.1	0.7
Never/sometimes	98.7	99.1	98.8	99.7	99.2	99.7	99.9	99.3
Preoccupation with gambling								
Fairly often/very often	0.3	-	0.6	-	-	-	-	0.2
Never/occasionally	99.7	100.0	99.4	100.0	100.0	100.0	100.0	99.8
Needed to gamble with increasing amounts of money								
Fairly often/very often	1.0	-	-	-	-	-	-	0.1
Never/occasionally	99.0	100.0	100.0	100.0	100.0	100.0	100.0	99.9

Continued...

Table 9.6 - Continued

Aged 16 and over

2012

DSM-IV item	Age							Total
	16-24	25-34	35-44	45-54	55-64	65-74	75+	
	%	%	%	%	%	%	%	%
Been restless or irritable when trying to stop gambling								
Fairly often/very often	0.3	-	-	-	-	-	-	0.0
Never/occasionally	99.7	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Gambling as escapism								
Fairly often/very often	-	-	0.3	0.4	-	0.4	-	0.1
Never/occasionally	100.0	100.0	99.7	99.6	100.0	99.6	100.0	99.9
Lied to people to conceal extent of gambling								
Fairly often/very often	-	-	0.6	-	-	-	-	0.1
Never/occasionally	100.0	100.0	99.4	100.0	100.0	100.0	100.0	99.9
Tried but failed to cut back on gambling								
Fairly often/very often	-	0.9	0.8	-	-	-	-	0.3
Never/occasionally	100.0	99.1	99.2	100.0	100.0	100.0	100.0	99.7
Committed a crime to fund gambling								
Occasionally/Fairly often/very often	-	-	-	-	-	-	-	-
Never	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Risked or lost a relationship/job/educational opportunity because of gambling								
Occasionally/Fairly often/very often	-	-	-	-	-	-	-	-
Never	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Continued...

Table 9.6 - Continued

Aged 16 and over

2012

DSM-IV item	Age							Total
	16-24	25-34	35-44	45-54	55-64	65-74	75+	
	%	%	%	%	%	%	%	%
Relied on others to help with financial crisis caused by gambling								
Occasionally/Fairly often/very often	-	-	-	-	-	-	-	-
Never	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
All Adults								
Chased losses								
Most times/every time	2.3	1.9	1.7	0.5	1.5	0.9	0.4	1.4
Never/sometimes	97.7	98.1	98.3	99.5	98.5	99.1	99.6	98.6
Preoccupation with gambling								
Fairly often/very often	1.1	0.9	1.6	1.1	0.7	0.9	0.5	1.0
Never/occasionally	98.9	99.1	98.4	98.9	99.3	99.1	99.5	99.0
Needed to gamble with increasing amounts of money								
Fairly often/very often	0.6	0.7	0.7	0.6	0.2	0.4	-	0.5
Never/occasionally	99.4	99.3	99.3	99.4	99.8	99.6	100.0	99.5
Been restless or irritable when trying to stop gambling								
Fairly often/very often	0.2	0.8	1.2	0.1	0.5	0.9	0.2	0.6
Never/occasionally	99.8	99.2	98.8	99.9	99.5	99.1	99.8	99.4
Gambling as escapism								
Fairly often/very often	0.8	0.5	1.4	0.5	0.4	0.6	0.5	0.7
Never/occasionally	99.2	99.5	98.6	99.5	99.6	99.4	99.5	99.3
Lied to people to conceal extent of gambling								
Fairly often/very often	0.6	1.0	1.0	0.1	0.3	0.4	-	0.5
Never/occasionally	99.4	99.0	99.0	99.9	99.7	99.6	100.0	99.5

Table 9.6 - Continued

Aged 16 and over

2012

DSM-IV item	Age							Total
	16-24	25-34	35-44	45-54	55-64	65-74	75+	
	%	%	%	%	%	%	%	%
Tried but failed to cut back on gambling								
Fairly often/very often	0.1	0.9	1.3	0.0	0.2	0.6	0.3	0.5
Never/occasionally	99.9	99.1	98.7	100.0	99.8	99.4	99.7	99.5
Committed a crime to fund gambling								
Occasionally/Fairly often/very often	0.1	0.5	-	0.2	-	0.4	-	0.2
Never	99.9	99.5	100.0	99.8	100.0	99.6	100.0	99.8
Risked or lost a relationship/job/educational opportunity because of gambling								
Occasionally/Fairly often/very often	0.1	0.7	0.6	0.4	-	0.5	-	0.3
Never	99.9	99.3	99.4	99.6	100.0	99.5	100.0	99.7
Relied on others to help with financial crisis caused by gambling								
Occasionally/Fairly often/very often	0.2	0.5	0.4	0.6	0.4	0.5	-	0.4
Never	99.8	99.5	99.6	99.4	99.6	99.5	100.0	99.6
<i>Bases (weighted)^a:</i>								
<i>Men</i>	277	337	339	367	300	220	123	1962
<i>Women</i>	270	339	372	392	348	231	203	2156
<i>All adults</i>	548	676	711	758	648	451	326	4118
<i>Bases (unweighted)^a:</i>								
<i>Men</i>	144	201	308	359	306	331	163	1812
<i>Women</i>	189	296	430	434	399	309	252	2309
<i>All adults</i>	333	497	738	793	705	640	415	4121

a Bases shown are for DSM IV item 1 (chasing losses). Bases for other items vary.

Table 9.7 Response to PGSI scores, 2012, by age and sex

How often PGSI item occurred	Age							2012
	16-24	25-34	35-44	45-54	55-64	65-74	75+	Total
	%	%	%	%	%	%	%	%
Men								
Bet more than could afford to lose								
Almost always	-	-	0.5	0.7	-	-	-	0.2
Most of the time	1.3	1.3	0.5	-	0.3	-	-	0.6
Sometimes	1.1	6.0	3.3	3.0	2.6	1.8	5.3	3.2
Never	97.6	92.6	95.7	96.3	97.1	98.2	94.7	96.0
Needed to gamble with larger amounts of money								
Almost always	-	-	0.2	0.5	-	-	-	0.1
Most of the time	0.2	-	0.8	-	0.3	0.4	-	0.3
Sometimes	3.1	5.8	3.2	1.1	0.5	0.4	0.4	2.3
Never	96.7	94.2	95.8	98.4	99.2	99.2	99.6	97.3
Chased losses								
Almost always	-	-	0.2	0.3	0.3	0.3	-	0.2
Most of the time	-	0.8	1.0	0.5	-	-	-	0.4
Sometimes	5.8	8.7	4.7	1.8	3.9	3.9	2.7	4.6
Never	94.2	90.5	94.1	97.4	95.8	95.8	97.3	94.8
Borrowed money/sold items to finance gambling								
Almost always	-	-	-	0.3	-	-	-	0.0
Most of the time	-	0.3	-	-	-	-	-	0.1
Sometimes	1.1	2.9	0.9	-	0.3	0.5	-	0.9
Never	98.9	96.7	99.1	99.7	99.7	99.5	100.0	99.0

Continued...

Table 9.7 - Continued

Aged 16 and over

2012

How often PGSI item occurred	Age							Total
	16-24	25-34	35-44	45-54	55-64	65-74	75+	
	%	%	%	%	%	%	%	%
Felt that might have a gambling problem								
Almost always	-	0.6	0.7	-	-	-	-	0.2
Most of the time	-	-	1.3	0.3	-	0.4	-	0.3
Sometimes	1.1	3.0	1.5	0.5	2.0	1.9	3.1	1.7
Never	98.9	96.4	96.4	99.2	98.0	97.7	96.9	97.7
Gambling caused health problems (including stress)								
Almost always	-	-	0.5	0.3	-	-	-	0.1
Most of the time	-	0.3	1.0	-	-	0.4	-	0.3
Sometimes	1.1	4.9	1.5	1.2	0.8	-	-	1.6
Never	98.9	94.7	96.9	98.5	99.2	99.6	100.0	98.0
People criticised gambling behaviour								
Almost always	-	-	1.0	0.3	-	-	-	0.2
Most of the time	-	0.6	0.6	-	0.4	-	-	0.3
Sometimes	2.9	4.6	1.6	0.8	1.4	1.8	2.3	2.2
Never	97.1	94.8	96.8	98.9	98.2	98.2	97.7	97.3
Gambling caused financial problems								
Almost always	-	-	0.5	0.3	-	-	-	0.1
Most of the time	1.1	0.6	1.5	-	-	0.8	0.5	0.6
Sometimes	0.5	3.2	0.3	-	0.7	0.2	1.8	0.9
Never	98.4	96.2	97.7	99.7	99.3	99.0	97.7	98.3

Continued...

Table 9.7 - Continued

Aged 16 and over

2012

How often PGSI item occurred	Age							Total
	16-24	25-34	35-44	45-54	55-64	65-74	75+	
	%	%	%	%	%	%	%	%
Felt guilty about gambling								
Almost always	-	-	1.5	-	-	-	-	0.3
Most of the time	-	0.9	0.2	0.5	0.7	0.4	0.5	0.5
Sometimes	1.9	6.5	2.0	0.7	1.3	2.4	1.8	2.4
Never	98.1	92.6	96.2	98.8	97.9	97.2	97.7	96.8
Women								
Bet more than could afford to lose								
Almost always	-	-	0.3	-	0.4	-	-	0.1
Most of the time	-	-	-	-	-	-	-	-
Sometimes	0.3	1.0	1.9	0.7	-	0.6	-	0.7
Never	99.7	99.0	97.9	99.3	99.6	99.4	100.0	99.2
Needed to gamble with larger amounts of money								
Almost always	-	-	-	-	0.4	-	-	0.1
Most of the time	-	-	-	-	-	-	-	-
Sometimes	-	-	0.3	-	-	-	-	0.0
Never	100.0	100.0	99.7	100.0	99.6	100.0	100.0	99.9
Chased losses								
Almost always	-	-	-	-	0.4	-	-	0.1
Most of the time	-	-	-	-	-	-	-	-
Sometimes	1.9	0.5	1.7	0.4	0.6	0.4	-	0.8
Never	98.1	99.5	98.3	99.6	98.9	99.6	100.0	99.1

Continued...

Table 9.7 - Continued

<i>Aged 16 and over</i>								<i>2012</i>
How often PGSI item occurred	Age							Total
	16-24	25-34	35-44	45-54	55-64	65-74	75+	
	%	%	%	%	%	%	%	%
Borrowed money/sold items to finance gambling								
Almost always	-	-	-	-	0.4	-	-	0.1
Most of the time	-	-	-	-	-	-	-	-
Sometimes	-	-	0.2	-	-	-	-	0.0
Never	100.0	100.0	99.8	100.0	99.6	100.0	100.0	99.9
Felt that might have a gambling problem								
Almost always	-	-	0.6	-	0.4	-	-	0.2
Most of the time	-	-	-	-	-	-	-	-
Sometimes	-	-	-	-	-	-	-	-
Never	100.0	100.0	99.4	100.0	99.6	100.0	100.0	99.8
Gambling caused health problems (including stress)								
Almost always	-	-	0.3	-	0.4	-	-	0.1
Most of the time	-	-	0.3	-	-	-	-	0.0
Sometimes	-	-	-	-	-	-	-	-
Never	100.0	100.0	99.4	100.0	99.6	100.0	100.0	99.8
People criticised gambling behaviour								
Almost always	-	-	0.3	-	0.4	-	-	0.1
Most of the time	-	-	-	-	-	-	-	-
Sometimes	-	-	-	-	-	-	-	-
Never	100.0	100.0	99.7	100.0	99.6	100.0	100.0	99.9

Continued...

Table 9.7 - Continued

Aged 16 and over

2012

How often PGSI item occurred	Age							Total
	16-24	25-34	35-44	45-54	55-64	65-74	75+	
	%	%	%	%	%	%	%	%
Gambling caused financial problems								
Almost always	-	-	0.3	-	0.4	-	-	0.1
Most of the time	-	-	0.3	-	-	-	-	0.0
Sometimes	-	-	-	-	-	-	-	-
Never	100.0	100.0	99.4	100.0	99.6	100.0	100.0	99.8
Felt guilty about gambling								
Almost always	-	-	0.3	-	0.4	-	-	0.1
Most of the time	-	-	0.3	-	-	-	-	0.0
Sometimes	-	-	0.5	-	-	-	-	0.1
Never	100.0	100.0	98.9	100.0	99.6	100.0	100.0	99.7
All Adults								
Bet more than could afford to lose								
Almost always	-	-	0.4	0.4	0.2	-	-	0.2
Most of the time	0.7	0.7	0.2	-	0.2	-	-	0.3
Sometimes	0.7	3.5	2.6	1.8	1.2	1.2	2.0	1.9
Never	98.6	95.9	96.8	97.8	98.4	98.8	98.0	97.7
Needed to gamble with larger amounts of money								
Almost always	-	-	0.1	0.2	0.2	-	-	0.1
Most of the time	0.1	-	0.4	-	0.2	0.2	-	0.1
Sometimes	1.6	2.9	1.7	0.5	0.2	0.2	0.2	1.1
Never	98.3	97.1	97.9	99.2	99.4	99.6	99.8	98.6

Continued...

Table 9.7 - Continued

Aged 16 and over

2012

How often PGSI item occurred	Age							Total
	16-24	25-34	35-44	45-54	55-64	65-74	75+	
	%	%	%	%	%	%	%	%
Chased losses								
Almost always	-	-	0.1	0.1	0.4	0.2	-	0.1
Most of the time	-	0.4	0.5	0.2	-	-	-	0.2
Sometimes	3.9	4.6	3.1	1.1	2.1	2.1	1.0	2.6
Never	96.1	95.0	96.3	98.6	97.5	97.8	99.0	97.0
Borrowed money/sold items to finance gambling								
Almost always	-	-	-	0.1	0.2	-	-	0.1
Most of the time	-	0.2	-	-	-	-	-	0.0
Sometimes	0.6	1.5	0.5	-	0.2	0.3	-	0.5
Never	99.4	98.4	99.5	99.9	99.6	99.7	100.0	99.5
Felt that might have a gambling problem								
Almost always	-	0.3	0.7	-	0.2	-	-	0.2
Most of the time	-	-	0.6	0.1	-	0.2	-	0.2
Sometimes	0.6	1.5	0.7	0.2	0.9	1.0	1.2	0.8
Never	99.4	98.2	98.0	99.6	98.9	98.8	98.8	98.8
Gambling caused health problems (including stress)								
Almost always	-	-	0.4	0.1	0.2	-	-	0.1
Most of the time	-	0.2	0.6	-	-	0.2	-	0.2
Sometimes	0.6	2.4	0.7	0.6	0.4	-	-	0.8
Never	99.4	97.4	98.2	99.3	99.4	99.8	100.0	98.9

Continued...

Table 9.7 - Continued

<i>Aged 16 and over</i>								<i>2012</i>
How often PGSI item occurred	Age							Total
	16-24	25-34	35-44	45-54	55-64	65-74	75+	
	%	%	%	%	%	%	%	%
People criticised gambling behaviour								
Almost always	-	-	0.7	0.1	0.2	-	-	0.2
Most of the time	-	0.3	0.3	-	0.2	-	-	0.1
Sometimes	1.5	2.3	0.7	0.4	0.6	0.9	0.9	1.0
Never	98.5	97.4	98.3	99.5	98.9	99.1	99.1	98.7
Gambling caused financial problems								
Almost always	-	-	0.4	0.1	0.2	-	-	0.1
Most of the time	0.6	0.3	0.8	-	-	0.4	0.2	0.3
Sometimes	0.3	1.6	0.2	-	0.3	0.1	0.7	0.4
Never	99.2	98.1	98.6	99.9	99.4	99.5	99.1	99.1
Felt guilty about gambling								
Almost always	-	-	0.9	-	0.2	-	-	0.2
Most of the time	-	0.5	0.2	0.2	0.3	0.2	0.2	0.3
Sometimes	1.0	3.2	1.2	0.3	0.6	1.2	0.7	1.2
Never	99.0	96.3	97.6	99.4	98.8	98.6	99.1	98.3
<i>Bases (weighted)^a:</i>								
<i>Men</i>	277	329	336	360	299	217	122	1941
<i>Women</i>	266	337	365	393	344	227	202	2134
<i>All adults</i>	544	666	701	753	643	444	324	4075
<i>Bases (unweighted)^a:</i>								
<i>Men</i>	144	196	306	354	305	326	162	1793
<i>Women</i>	187	293	423	436	395	305	251	2290
<i>All adults</i>	331	489	729	790	700	631	413	4083

a Bases shown are for PGSI item 1 (betting more than could afford to lose). Bases for other items vary.

Table 9.8 DSM-IV and PGSI scores for gambling in the last year, 2012, by age and sex

<i>Aged 16 and over</i>								<i>2012</i>
DSM-IV score / PGSI score	Age							Total
	16-24 %	25-34 %	35-44 %	45-54 %	55-64 %	65-74 %	75+ %	
Men								
DSM-IV scores								
Non problem gambler	98.4	98.3	97.7	99.3	99.3	98.5	99.5	98.6
Problem gambler 3 and above	1.6	1.7	2.3	0.7	0.7	1.5	0.5	1.4
PGSI scores								
Non problem gambler/non gambler	92.6	83.7	92.0	94.8	94.0	93.8	93.7	91.8
Low risk gambler	5.6	9.4	4.1	2.7	3.9	3.4	2.8	4.8
Moderate risk gambler	0.7	3.9	1.4	1.8	1.7	2.4	3.1	2.1
Problem gambler	1.1	3.0	2.5	0.7	0.3	0.4	0.5	1.4
Women								
DSM-IV scores								
Non problem gambler	99.7	100.0	99.7	100.0	100.0	100.0	100.0	99.9
Problem gambler 3 and above	0.3	-	0.3	-	-	-	-	0.1
PGSI scores								
Non problem gambler/non gambler	97.8	98.8	96.4	98.9	98.9	99.0	100.0	98.4
Low risk gambler	2.2	1.2	3.0	1.1	0.6	1.0	-	1.4
Moderate risk gambler	-	-	-	-	-	-	-	-
Problem gambler	-	-	0.6	-	0.4	-	-	0.2

Continued...

Table 9.8 - Continued

Aged 16 and over

2012

DSM-IV score / PGSI score	Age							Total
	16-24 %	25-34 %	35-44 %	45-54 %	55-64 %	65-74 %	75+ %	
All Adults								
DSM-IV scores								
Non problem gambler	99.0	99.2	98.8	99.6	99.7	99.2	99.8	99.3
Problem gambler 3 and above	1.0	0.8	1.2	0.4	0.3	0.8	0.2	0.7
PGSI scores								
Non problem gambler/non gambler	95.1	91.4	94.3	96.9	96.6	96.5	97.6	95.3
Low risk gambler	3.9	5.2	3.5	1.9	2.2	2.2	1.1	3.0
Moderate risk gambler	0.4	1.9	0.7	0.9	0.8	1.2	1.2	1.0
Problem gambler	0.6	1.5	1.5	0.4	0.4	0.2	0.2	0.7
<i>Bases (weighted):</i>								
<i>Men DSM score</i>	274	331	336	360	298	217	122	1937
<i>Men PGSI score</i>	277	329	336	360	299	217	122	1940
<i>Women DSM score</i>	268	335	365	392	345	226	203	2134
<i>Women PGSI score</i>	266	337	365	393	344	225	202	2132
<i>All adults DSM score</i>	542	666	701	752	642	443	325	4071
<i>All adults PGSI score</i>	544	666	701	752	643	442	324	4072
<i>Bases (unweighted):</i>								
<i>Men DSM score</i>	143	198	306	354	304	326	161	1792
<i>Men PGSI score</i>	144	196	306	354	305	326	161	1792
<i>Women DSM score</i>	188	292	423	434	396	304	252	2289
<i>Women PGSI score</i>	187	293	423	435	395	303	251	2287
<i>All adults DSM score</i>	331	490	729	788	700	630	413	4081
<i>All adults PGSI score</i>	331	489	729	789	700	629	412	4079

Table 9.9 Gambling group membership, 2012, by problem gambling and sex

Aged 16 and over

2012

Problem gambler according to either screen ^a	Gambling group type						
	Non-gamblers	National Lottery only	Minimal interest - lotteries and other activity	Minimal interest - other activities	Moderate interest - lotteries and other activities	Moderate interest - mainly betting and machines	Multi interest gambler
	%	%	%	%	%	%	%
Men							
Problem gambler according to either screen	-	-	1.4	0.8	1.6	5.6	[14.1]
Women							
Problem gambler according to either screen	-	-	-	-	0.4	[5.0]	*
All adults							
Problem gambler according to either screen	-	-	0.6	0.4	1.0	5.5	[13.3]
<i>Bases (weighted):</i>							
<i>Men</i>	538	410	268	161	224	220	53
<i>Women</i>	734	507	353	173	250	43	3
<i>All</i>	1272	916	621	334	474	263	56
<i>Bases (unweighted):</i>							
<i>Men</i>	531	414	258	127	200	162	45
<i>Women</i>	822	542	375	176	252	36	4
<i>All</i>	1353	956	633	303	452	198	49

^a DSM-IV and PGSI

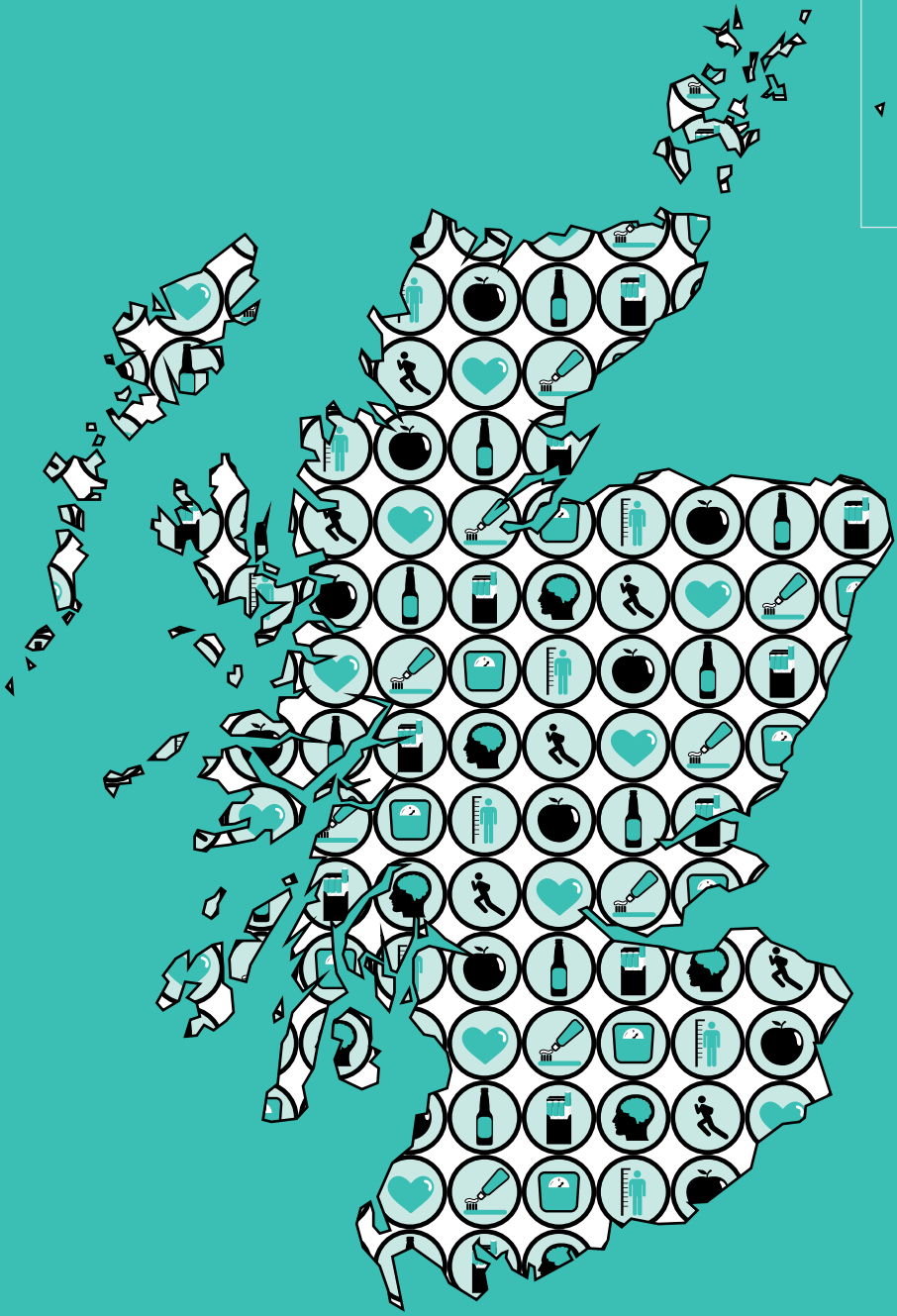
Table 9.10 Estimated odds ratios, 2012, for problem gambling

Aged 16 and over

2012

Independent variables	Base (weighted) 4082	Odds ratio	95% Confidence Interval ^a
Sex		(p<0.001)	
Women	2138	1.00	
Men	1943	11.6	4.0 , 33.6
General Health Questionnaire Score		(p<0.01)	
0	2493	1.00	
1 to 3	909	3.3	1.2 , 8.8
4 or more	609	5.6	2.0 , 15.5
Not answered	71	12.8	2.4 , 68.2
SIMD		(p<0.05)	
3rd (least deprived)	1393	1.00	
2nd	1414	4.0	1.1 , 15.2
1st (most deprived)	1274	6.9	1.9 , 24.9
Alcohol Use Disorders Identification Test score		(p<0.05)	
0 to 7	3215	1.00	
8 to 15	619	2.1	0.8 , 5.2
16 to 19	81	2.4	0.3 , 21.6
20 or more	49	7.1	1.4 , 34.7
Not answered	117	5.3	1.4 , 20.5
Whether parent to any child in the household		(p<0.05)	
No	3036	1.0	
Yes	1046	2.6	1.1 , 5.9

a Confidence interval



Glossary

APPENDIX A: GLOSSARY

This glossary explains terms used in the report, other than those fully described in particular chapters.

Age Standardisation

Age standardisation has been used in order to enable groups to be compared after adjusting for the effects of any differences in their age distributions.

When different sub-groups are compared in respect of a variable on which age has an important influence, any differences in age distributions between these sub-groups are likely to affect the observed differences in the proportions of interest.

Age standardisation was carried out, using the direct standardisation method. The standard population to which the age distribution of sub-groups was adjusted was the mid-2011 population estimates for Scotland. All age standardisation has been undertaken separately within each sex.

The age-standardised proportion p' was calculated as follows, where p_i is the age specific proportion in age group i and N_i is the standard population size in age group i :

$$p' = \frac{\sum_i N_i p_i}{\sum_i N_i}$$

Therefore p' can be viewed as a weighted mean of p_i using the weights N_i . Age standardisation was carried out using the age groups: 16-24, 25-34, 35-44, 45-54, 55-64, 65-74 and 75 and over. The variance of the standardised proportion can be estimated by:

$$\text{var}(p') = \frac{\sum_i (N_i^2 p_i q_i / n_i)}{(\sum_i N_i)^2}$$

where $q_i = 1 - p_i$.

Anthropometric measurement

See **Body mass index (BMI)**, **Waist circumference**

Arithmetic mean

See **Mean**

AUDIT

The Alcohol Use Disorders Identification Test (AUDIT) is a tool developed by the World Health Organisation used to measure

harmful alcohol consumption or dependence. In 2012 it was used on SHeS, replacing the CAGE questionnaire, which was also used to identify prevalence of problem drinking. AUDIT consists of 10 questions – questions 1-3 are indicators of consumption, questions 4-6 are indicators of alcohol dependency and questions 7-10 are indicators of harmful consumption. A score of 8 or more are taken to be indicative of an alcohol use disorder. Scores 8 to 15 suggest “hazardous” drinking behaviour and scores of 16 to 19 indicate “harmful” behaviour, although neither of these groups tend to be considered in isolation. Due to the (potentially) sensitive nature of the questions, this questionnaire was administered in self-completion format. All participants who drank alcohol more than very occasionally were asked to complete the questions.

Blood pressure Systolic (SBP) and diastolic (DBP) blood pressure were measured using a standard method (see Volume 2, Appendix B for measurement protocol). In adults, high blood pressure is defined as SBP \geq 140 mmHg or DBP \geq 90 mmHg or on antihypertensive drugs.

Body mass index Weight in kg divided by the square of height in metres. Adults (aged 16 and over) can be classified into the following BMI groups:

<i>BMI (kg/m²)</i>	<i>Description</i>
Less than 18.5	Underweight
18.5 to less than 25	Normal
25 to less than 30	Overweight
30 to less than 40	Obese
40 and above	Morbidly obese

Although the BMI calculation method is the same, there are no fixed BMI cut-off points defining overweight and obesity in children. Instead, overweight and obesity are defined using several other methods including age and sex specific BMI cut-off points or BMI percentiles cut-offs based on reference populations. Children can be classified into the following groups:

<i>Percentile cut-off</i>	<i>Description</i>
At or below 2nd percentile	At risk of underweight
Above 2nd percentile and below 85th percentile	Healthy weight
At or above 85th percentile and below 95th percentile	At risk of overweight
At or above 95th percentile and below 98th percentile	At risk of obesity

CAGE	The CAGE questionnaire has been included in SHeS since 1995 and was replaced in 2012 by the AUDIT questionnaire. It was asked of participants aged 16 and over who drank alcohol more than occasionally. Three questions relate to physical dependency on alcohol and the other three relate to feeling that they ought to cut down on drinking, feeling guilty about drinking and annoyance of other people's impression of their own drinking. Agreement with two (or more) of the six CAGE items is indicative of problem drinking. This questionnaire was administered in self-completion format due to the sensitive nature of the questions.
Cardiovascular Disease	Participants were classified as having cardiovascular disease (CVD) if they reported ever having any of the following conditions diagnosed by a doctor: angina, heart attack, stroke, heart murmur, irregular heart rhythm, 'other heart trouble'. For the purpose of this report, participants were classified as having a particular condition only if they reported that the diagnosis was confirmed by a doctor. No attempt was made to assess these self-reported diagnoses objectively. There is therefore the possibility that some misclassification may have occurred, because some participants may not have remembered (or not remembered correctly) the diagnosis made by their doctor.
Chronic Obstructive Pulmonary Disease (COPD)	COPD is defined by the World Health Organisation (WHO) as 'a pulmonary disease characterised by chronic obstruction lung airflow that interferes with normal breathing and is not fully reversible.' It is associated with symptoms and clinical signs that in the past have been called 'chronic bronchitis' and 'emphysema,' including regular cough (at least three consecutive months of the year) and production of phlegm.
Cotinine	Cotinine is a metabolite of nicotine. It is one of several biological markers that are indicators of smoking. In this survey, it was measured in saliva. It has a half-life in the body of between 16 and 20 hours, which means that it will detect regular smoking (or other tobacco use such as chewing) but may not detect occasional use if the last occasion was several days ago. In this report, anyone with a salivary cotinine level of 12 nanograms per millilitre or more was judged highly likely to be a tobacco user. In previous reports the threshold for detecting tobacco use was set 15 nanograms per millilitre or more of cotinine. Chapter 4 in this report explains the reasoning for the threshold change. Saliva samples were collected as part of the biological module.
Creatinine	This is excreted in urine and unlike sodium and potassium is relatively stable over time. Therefore in the analysis of urinary salt, the ratio of sodium to creatinine and of potassium to creatinine are analysed as proxy measures for dietary sodium and potassium. See also Urine, Sodium, Potassium.

DSM-IV

The DSM-IV screening instrument was developed for the British Gambling Prevalence Survey (BGPS) series is based on criteria from the fourth edition of the Diagnostic and Statistical Manual of Mental Disorders of the American Psychiatric Association (DSM-IV). This contains ten diagnostic criteria ranging from chasing losses to committing a crime to fund gambling. The DSM-IV criteria constitute a tool created for diagnosis of pathological gambling by clinicians and was not intended for use as a screening instrument among the general population. As such, there is no 'gold standard' questionnaire version of the DSM-IV. The screen used within the BGPS series and on SHeS was first developed in 1999 and was subject to a rigorous development and testing process, including cognitive testing and piloting. Each DSM-IV item is assessed on a four point scale, ranging from 'never' to 'very often'. Responses to each item can either be dichotomised to show whether a person meets the criteria or not, or allocated a score and a total score produced. Previous surveys in the BGPS series have used the dichotomous scoring method and it is this method that is presented in this report. A total score between zero and ten is possible.

Among clinicians, a diagnosis of pathological gambling is made if a person meets five out of the ten criteria. Many surveys including the BGPS, when adapting the DSM-IV criteria into a screening instrument for use within a general population survey have included a further category of 'problem gambler' for those who meet at least three of the DSM-IV criteria. This cut-point has been found to give good discrimination between criterion groups and has provided the closest match to prevalence estimated by alternative screens used in the BGPS series (the SOGs in 1999 and PGSI in 2007).

Diastolic blood

When measuring blood pressure the diastolic arterial pressure is the lowest pressure at the resting phase of the cardiac cycle. See also **Blood pressure, Systolic blood pressure**.

Equivalentised Household income

Making precise estimates of household income, as is done for example in the Family Resources Survey, requires far more interview time than was available in the Health Survey. Household income was thus established by means of a card (see Volume 2, Appendix A) on which banded incomes were presented. Information was obtained from the household reference person (HRP) or their partner. Initially they were asked to state their own (HRP and partner) aggregate gross income, and were then asked to estimate the total household income including that of any other persons in the household. Household income can be used as an analysis variable, but there has been increasing interest recently in using measures of equivalentised income that adjust income to take account of the

number of persons in the household. Methods of doing this vary in detail: the starting point is usually an exact estimate of net income, rather than the banded estimate of gross income obtained in the Health Survey. The method used in the present report was as follows. It utilises the widely used McClements scoring system, described below.

1. A score was allocated to each household member, and these were added together to produce an overall household McClements score. Household members were given scores as follows.

First adult (HRP)	0.61
Spouse/partner of HRP	0.39
Other second adult	0.46
Third adult	0.42
Subsequent adults	0.36
Dependant aged 0-1	0.09
Dependant aged 2-4	0.18
Dependant aged 5-7	0.21
Dependant aged 8-10	0.23
Dependant aged 11-12	0.25
Dependant aged 13-15	0.27
Dependant aged 16+	0.36

2. The equivalised income was derived as the annual household income divided by the McClements score.
3. This equivalised annual household income was attributed to all members of the household, including children.
4. Households were ranked by equivalised income, and quintiles q1- q5 were identified. Because income was obtained in banded form, there were clumps of households with the same income spanning the quintiles. It was decided not to split clumps but to define the quintiles as 'households with equivalised income up to q1', 'over q1 up to q2' etc.
5. All individuals in each household were allocated to the equivalised household income quintile to which their household had been allocated. Insofar as the mean number of persons per household may vary between tertiles, the numbers in the quintiles will be unequal. Inequalities in numbers are also introduced by the clumping referred to above, and by the fact that in any sub-group analysed the proportionate distribution across quintiles will differ from that of the total sample.

Reference: McClements, D. (1977). Equivalence scales for children. *Journal of Public Economics*. 8: 191-210.

Frankfort plane	The Frankfort Plane is an imaginary line passing through the external ear canal and across the top of the lower bone of the eye socket, immediately under the eye. Informants' heads are positioned with the Frankfort Plane in a horizontal position when height is measured using a stadiometer as a means of ensuring that, as far as possible, the measurements taken are standardised.
Geometric mean	The geometric mean is a measure of central tendency. It is sometimes preferable to the arithmetic mean, since it takes account of positive skewness in a distribution. An arithmetic mean is calculated by summing the values for all cases and dividing by the number of cases in the set. The geometric mean is instead calculated by multiplying the values for all cases and taking the n th root, where n is the number of cases in the set. For example, a dataset with two cases would use the square root, for three cases the cube root would be used, and so on. The geometric mean of 2 and 10 is 4.5 ($2 \times 10 = 20$, $\sqrt{20} = 4.5$). Geometric means can only be calculated for positive numbers so zero values need to be handled before geometric means are calculated. See also Arithmetic mean .
GHQ12	The General Health Questionnaire (GHQ12) is a scale designed to detect possible psychiatric morbidity in the general population. It was administered to informants aged 13 and above. The questionnaire contains 12 questions about the informant's general level of happiness, depression, anxiety and sleep disturbance over the past four weeks. Responses to these items are scored, with one point given each time a particular feeling or type of behaviour was reported to have been experienced 'more than usual' or 'much more than usual' over the past few weeks. These scores are combined to create an overall score of between zero and twelve. A score of four or more (referred to as a 'high' GHQ12 score) has been used in this report to indicate the presence of a possible psychiatric disorder. Reference: Goldberg D, Williams PA. <i>User's Guide to the General Health Questionnaire</i> . NFER-NELSON, 1988.
High blood pressure	See Blood pressure
Household	A household was defined as one person or a group of people who have the accommodation as their only or main residence and who either share at least one meal a day or share the living accommodation.
Household Reference Person	The household reference person (HRP) is defined as the householder (a person in whose name the property is owned or rented) with the highest income. If there is more than one

householder and they have equal income, then the household reference person is the oldest.

Income

See **Equivalised household income**

Ischaemic heart disease

Participants were classified as having ischaemic heart disease (IHD) if they reported ever having angina or a heart attack diagnosed by a doctor.

Latent Class Analysis

Latent class analysis is a statistical approach which categorises people into different groups or 'latent classes' based on responses to a series of questions. LCA operates by identifying the number of classes or groups that best fit the data and generating probabilities membership of each group for every eligible participant. Once this is done, a participant is assigned to the class for which they have the highest probability of membership.

Logistic regression

Logistic regression was used to investigate the effect of two or more independent or predictor variables on a two-category (binary) outcome variable. The independent variables can be continuous or categorical (grouped) variables. The parameter estimates from a logistic regression model for each independent variable give an estimate of the effect of that variable on the outcome variable, adjusted for all other independent variables in the model.

Logistic regression models the log 'odds' of a binary outcome variable. The 'odds' of an outcome is the ratio of the probability of it occurring to the probability of it not occurring. The parameter estimates obtained from a logistic regression model have been presented as odds ratios for ease of interpretation.

For *continuous* independent variables, the odds ratio gives the change in the odds of the outcome occurring for a one unit change in the value of the predictor variable.

For *categorical* independent variables one category of the categorical variable has been selected as a baseline or reference category, with all other categories compared to it. Therefore there is no parameter estimate for the reference category and odds ratios for all other categories are the ratio of the odds of the outcome occurring between each category and the reference category, adjusted for all other variables in the model.

The statistical significance of independent variables in models was assessed by the likelihood ratio test and its associated p value. 95% confidence intervals were also calculated for the odds ratios. These can be interpreted as meaning that there is a 95% chance that the given interval for the sample will contain

the true population parameter of interest. In logistic regression a 95% confidence interval which does not include 1.0 indicates the given parameter estimate is statistically significant.
Reference: Hosmer, D.W. Jr. and Lemeshow. S. (1989). *Applied logistic regression*. New York: John Wiley & Sons.

Long-term conditions & limiting long-term conditions

Long-term conditions were defined as a physical or mental health condition or illness lasting, or expected to last 12 months or more. The wording of this question changed in 2012 and is now aligned with the harmonised questions for all large Scottish Government surveys. Between 2008 and 2011 participants were asked whether they had a long-standing physical or mental condition or disability that has troubled them for at least 12 months, or is likely to affect them for at least 12 months. Note that prior to 2008 these were described as long-standing illnesses. Long-term conditions were coded into categories defined in the International Classification of Diseases (ICD), but it should be noted that the ICD is used mostly to classify conditions according to the cause, whereas SHeS classifies according to the reported symptoms. A long-term condition was defined as limiting if the respondent reported that it limited their activities in any way.

Mean

Means in this report are **Arithmetic means** (the sum of the values for cases divided by the number of cases).

Median

The value of a distribution which divides it into two equal parts such that half the cases have values below the median and half the cases have values above the median.

Morbid obesity

See **Body mass index**.

NHS Health Board

The National Health Service (NHS) in Scotland is divided up into 14 geographically-based local NHS Boards and a number of National Special Health Boards. Health Boards in this report refers to the 14 local NHS Boards. (See Volume 2: Appendix C)

NS-SEC

The National Statistics Socio-economic Classification (NS-SEC) is a social classification system that attempts to classify groups on the basis of employment relations, based on characteristics such as career prospects, autonomy, mode of payment and period of notice. There are fourteen operational categories representing different groups of occupations (for example higher and lower managerial, higher and lower professional) and a further three 'residual' categories for full-time students, occupations that cannot be classified due to lack of information or other reasons. The operational categories may be collapsed to form a nine, eight, five or three category system. This report mostly uses the five category system in which participants are classified as managerial and professional, intermediate, small employers and own account workers, lower supervisory and technical, and semi-routine and routine occupations. In some

instances where there were insufficient numbers to use the five category classification, the three category system was used instead. In analyses presented in this report it is the NS-SEC of the household reference person which is used. NS-SEC was introduced in 2001 and replaced Registrar General's Social Class (which had been used in the 1995 and 1998 surveys) as the main measure of socio-economic status.

Obesity	See Body mass index
Odds ratio	See Logistic regression
Overweight	See Body mass index
Percentile	The value of a distribution which partitions the cases into groups of a specified size. For example, the 20th percentile is the value of the distribution where 20 percent of the cases have values below the 20th percentile and 80 percent have values above it. The 50th percentile is the median.
p value	A p value is the probability of the observed result occurring due to chance alone. A p value of less than 5% is conventionally taken to indicate a statistically significant result ($p < 0.05$). It should be noted that the p value is dependent on the sample size, so that with large samples differences or associations which are very small may still be statistically significant. Results should therefore be assessed on the magnitude of the differences or associations as well as on the p value itself. The p values given in this report take into account the clustered sampling design of the survey.
Potassium	The intake of potassium (K) can be estimated by measuring urinary excretion. This is collected in the nurse visit using a spot urine sample. See also Urine, Sodium, Creatinine . There is an inverse association between potassium intake and blood pressure.
Problem Gambling Severity Index (PGSI)	The PGSI, developed by Ferris and Wynne, was specifically designed for use among the general population rather than within a clinical context. It was developed, tested and validated within a general population survey of over 3,000 Canadian residents. The index consists of nine items ranging from chasing losses to gambling causing health problems to feeling guilty about gambling. Each item is assessed on a four-point scale: never, sometimes, most of the time, almost always. Responses to each item are given the following scores: never = zero; sometimes = one; most of the time = two; almost always = three. When scores to each item are summed, a total score ranging from zero to 27 is possible. A PGSI score of eight or more represents a problem gambler. This is the threshold

recommended by the developers of the PGSI and the threshold used in this report. The PGSI was also developed to give further information on sub-threshold problem gamblers. PGSI scores between three and seven are indicative of 'moderate risk' gambling and a score of one or two is indicative of 'low risk' gambling.

Quintile	Quintiles are percentiles which divide a distribution into fifths, i.e., the 20th, 40th, 60th and 80th percentiles.
Scottish Index of Multiple Deprivation	<p>The Scottish Index of Multiple Deprivation (SIMD) is the Scottish Government's official measure of area based multiple deprivation. It is based on 37 indicators across 7 individual domains of current income, employment, housing, health, education, skills and training and geographic access to services and telecommunications. SIMD is calculated at data zone level, enabling small pockets of deprivation to be identified. The data zones are ranked from most deprived (1) to least deprived (6505) on the overall SIMD index. The result is a comprehensive picture of relative area deprivation across Scotland.</p> <p>This report uses the SIMD 2012. http://www.scotland.gov.uk/Topics/Statistics/SIMD</p>
Sodium	The intake of sodium (Na) can be estimated by measuring urinary excretion. This was collected in the biological module using a spot urine sample. There is an association between sodium intake and blood pressure. See also Urine, Potassium, Creatinine .
SDQ	<p>The Strengths and Difficulties Questionnaire (SDQ) is designed to detect behavioural, emotional and relationship difficulties in children aged 4-16. The questionnaire is based on 25 items: 10 strengths, 14 difficulties and one neutral item. The 25 items are divided into 5 scales of 5 items each: hyperactivity, emotional symptoms, conduct problems, peer problems and prosocial behaviour. Each SDQ item has three possible answers which are assigned a value 0, 1 or 2. The score for each scale is generated by adding up the scores on the 5 items within that scale, producing scale scores ranging from 0 to 10. A 'Total Difficulties' score is derived from the sum of scores from each of the scales except the Prosocial Behaviour scale, producing a total score from 0 to 40. The SDQ was used for children aged 4-12 in the 2008, 2009, 2010 and 2011 surveys.</p> <p>The SDQ correlates highly with the Rutter questionnaire and the Child Behaviour Checklist, both of which are long established behavioural screening questionnaires for children that have been proved valid and reliable in many contexts and correlate highly with one another. The SDQ is shorter than these screening</p>

instruments and is the first to include a scale focusing on positive behaviour: the Prosocial Behaviour Scale.

Reference: Goodman, R. (1997). The Strengths and Difficulties Questionnaire: A Research Note. *Journal of Child Psychology and Psychiatry*. 38: 581-586.

- Standard deviation** The standard deviation is a measure of the extent to which the values within a set of data are dispersed from, or close to, the mean value. In a normally distributed set of data 68% of the cases will lie within one standard deviation of the mean, 95% within two standard deviations and 99% will be within 3 standard deviations. For example, for a mean value of 50 with a standard deviation of 5, 95% of values will lie within the range 40-60.
- Standard error** The standard error is a variance estimate that measures the amount of uncertainty (as a result of sampling error) associated with a survey statistic. All data presented in this report in the form of means are presented with their associated standard errors (with the exception of the WEMWBS scores which are also presented with their standard deviations). Confidence intervals are calculated from the standard error; therefore the larger the standard error, the wider the confidence interval will be.
- Standardisation** In this report, standardisation refers to standardisation (or 'adjustment') by age (see **Age standardisation**).
- Unit of alcohol** Alcohol consumption is reported in terms of units of alcohol. A unit of alcohol is 8 gms or 10ml of ethanol (pure alcohol). See Chapter 3 of volume 1 of this Report for a full explanation of how reported volumes of different alcoholic drinks were converted into units. The method for doing this has undergone significant change since the report of the 2003 SHeS was published, these are also detailed in Chapter 3.
- Waist Circumference** Waist circumference is a measure of deposition of abdominal fat. It was measured during the biological module. A raised waist circumference has been defined as more than 102cm in men and more than 88cm in women.
- WEMWBS** The Warwick-Edinburgh Mental Well-being Scale (WEMWBS) was developed by researchers at the Universities of Warwick and Edinburgh, with funding provided by NHS Health Scotland, to enable the measurement of mental well-being of adults in the UK. It was adapted from a 40 item scale originally developed in New Zealand, the Affectometer 2. The WEMWBS scale comprises 14 positively worded statements with a five item scale ranging from '1 - None of the time' to '5 - All of the time'. The lowest score possible is therefore 14 and the highest is 70. The 14 items are designed to assess positive affect (optimism, cheerfulness, relaxation); and satisfying interpersonal

relationships and positive functioning (energy, clear thinking, self-acceptance, personal development, mastery and autonomy).

References:

Kammann, R. and Flett, R. (1983). *Sourcebook for measuring well-being with Affectometer 2*. Dunedin, New Zealand: Why Not? Foundation.

The briefing paper on the development of WEMWBS is available online from: <<http://www.wellscotland.info/>>

A NATIONAL STATISTICS PUBLICATION FOR SCOTLAND

The United Kingdom Statistics Authority has designated these statistics as National Statistics, in accordance with the Statistics and Registration Service Act 2007 and signifying compliance with the Code of Practice for Official Statistics.

Designation can be broadly interpreted to mean that the statistics:

- meet identified user needs;
- are well explained and readily accessible;
- are produced according to sound methods, and
- are managed impartially and objectively in the public interest.

Once statistics have been designated as National Statistics it is a statutory requirement that the Code of Practice shall continue to be observed.

Further information about Official and National Statistics can be found on the UK Statistics Authority website at www.statisticsauthority.gov.uk

SCOTTISH GOVERNMENT STATISTICIAN GROUP

Our Aim

To provide relevant and reliable information, analysis and advice that meet the needs of government, business and the people of Scotland.

For more information on the Statistician Group, please see the Scottish Government website at www.scotland.gov.uk/statistics

Correspondence and enquiries

Enquiries on this publication should be addressed to:

Scottish Health Survey Team
Health Analytical Services Division
Scottish Government
B-R St Andrew's House
Edinburgh EH1 3DG
Telephone: 0131 244 2368;
Fax: 0131 244 5412
e-mail:
scottishhealthsurvey@scotland.gsi.gov.uk

General enquiries on Scottish Government statistics can be addressed to:

Office of the Chief Statistician
Scottish Government
GWR, St Andrews House
EDINBURGH EH1 3DG
Telephone: (0131) 244 0442
e-mail: statistics.enquiries@scotland.gsi.gov.uk

Further contact details, e-mail addresses and details of previous and forthcoming publications can be found on the Scottish Government Website at www.scotland.gov.uk/statistics

Complaints and suggestions

If you are not satisfied with our service, please write to the Chief Statistician, 3WR, St Andrews House, Edinburgh, EH1 3DG, Telephone: (0131) 244 0302, e-mail statistics.enquiries@scotland.gsi.gov.uk. We also welcome any comments or suggestions that would help us to improve our standards of service.

ScotStat

If you would like to be consulted about new or existing statistical collections or receive notification of forthcoming statistical publications, please register your interest on the Scottish Government ScotStat website at www.scotland.gov.uk/scotstat

ISSN 2042-1613

ISBN: 978-1-78256-924-4

Crown Copyright

Brief extracts from the Crown Copyright material in this publication may be reproduced provided the source is fully acknowledged.



The Scottish
Government
Riaghaltas na h-Alba

© Crown copyright 2013

You may re-use this information (excluding logos and images) free of charge in any format or medium, under the terms of the Open Government Licence. To view this licence, visit <http://www.nationalarchives.gov.uk/doc/open-government-licence/> or e-mail: psi@nationalarchives.gsi.gov.uk.

Where we have identified any third party copyright information you will need to obtain permission from the copyright holders concerned.

ISBN: 978-1-78256-924-4

The Scottish Government
St Andrew's House
Edinburgh
EH1 3DG

Produced for the Scottish Government by APS Group Scotland
DPPAS14317 (09/13)

Published by the Scottish Government, September 2013

w w w . s c o t l a n d . g o v . u k